libstdc++

Generated by Doxygen 1.6.1

Fri Mar 12 10:49:44 2010

Contents

Chapter 1

Todo List

Member __glibcxx_check_insert_range We would like to be able to check for non-interference of _Position and the range [_First, _Last), but that can't (in general) be done.

Member __gnu_cxx::distance(_InputIterator __first, _InputIterator __last, _Distance &__n) Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Class __gnu_cxx::hash_map< _Key, _Tp, _HashFn, _EqualKey, _Alloc > Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Class __gnu_cxx::hash_multimap< _Key, _Tp, _HashFn, _EqualKey, _Alloc > Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Class __gnu_cxx::hash_multiset< _Value, _HashFcn, _EqualKey, _Alloc > Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Class __gnu_cxx::hash_set< _Value, _HashFcn, _EqualKey, _Alloc >

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Member __gnu_cxx::iota(_ForwardIter __first, _ForwardIter __last, _Tp __value)

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Member __gnu_cxx::is_heap(_RandomAccessIterator __first, _RandomAccessIterator __last, _StrictWeak

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Member __gnu_cxx::is_sorted(_ForwardIterator __first, _ForwardIterator __last, _StrictWeakOrdering _

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Member __gnu_cxx::power(_Tp __x, _Integer __n)

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Member __gnu_cxx::random_sample(_InputIterator __first, _InputIterator __last, _RandomAccessIterato

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Member __gnu_cxx::random_sample_n(_ForwardIterator __first, _ForwardIterator __last, _OutputIterator __out, co
Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Class __gnu_cxx::rb_tree< _Key, _Value, _KeyOfValue, _Compare, _Alloc >
Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Class __gnu_cxx::rope< _CharT, _Alloc > Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Class __gnu_cxx::slist< _Tp, _Alloc > Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Member __gnu_debug::_Safe_iterator::operator->() const Make this correct w.r.t. iterators that return proxies

Use addressof() instead of & operator

Class std::basic_string< _CharT, _Traits, _Alloc >
Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Member std::discard_block_engine::discard(unsigned long long __z) Look for a faster way to do discard.

Member std::discard_block_engine::max() const This should be constexpr.

Member std::discard_block_engine::min() const This should be constexpr.

Member std::independent_bits_engine::discard(unsigned long long __z) Look for a faster way to do discard.

Member std::independent_bits_engine::max() const This should be constexpr.

Member std::independent_bits_engine::min() const This should be constexpr.

Member std::linear_congruential_engine::discard(unsigned long long __z) Look for a faster way to do discard.

Member std::linear_congruential_engine::max() const This should be constexpr.

Member std::linear_congruential_engine::min() const This should be constexpr.

Member std::match_results::format(const string_type &__fmt, regex_constants::match_flag_type __flags= Implement this function.

Implement this function.

Implement this function.

Member std::operator==(const match_results< _Bi_iter, _Allocator > &__m1, const match_results< _Bi_ Implement this function.

Member std::regex_iterator::operator!=(const regex_iterator &__rhs) Implement this function.

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Member std::regex_iterator::operator*() Implement this function.

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Member std::regex_iterator::operator++(int) Implement this function.

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Implement this function.

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Member std::regex_iterator::operator->() Implement this function.

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Member std::regex_iterator::operator=(const regex_iterator &__rhs)

Implement this function.

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Member std::regex_iterator::operator==(const regex_iterator &__rhs)

Implement this function.

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Member std::regex_iterator::regex_iterator() Implement this function.

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Implement this function.

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Implement this function.

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Member std::regex_match(_Bi_iter __first, _Bi_iter __last, match_results< _Bi_iter, _Allocator > &__m, c

Implement this function.

Member std::regex_replace(const basic_string< _Ch_type > &__s, const basic_regex< _Ch_type, _Rx_tra

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Implement this function.

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Implement this function.

Member std::regex_search(const basic_string< _Ch_type, _Ch_traits, _String_allocator > &__s, const bas

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Implement this function.

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Implement this function.

Member std::regex_token_iterator::operator!=(const regex_token_iterator &__rhs)
Implement this function.

Member std::regex_token_iterator::operator*() Implement this function.

Member std::regex_token_iterator::operator++(int) Implement this function.

Implement this function.

Member std::regex_token_iterator::operator->() Implement this function.

Member std::regex_token_iterator::operator=(const regex_token_iterator &__rhs)
Implement this function.

Member std::regex_token_iterator::operator==(const regex_token_iterator &__rhs)
Implement this function.

Member std::regex_token_iterator::regex_token_iterator() Implement this function.

Implement this function.

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Implement this function.

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Implement this function.

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Implement this function.

Member std::regex_traits::lookup_classname(_Fwd_iter __first, _Fwd_iter __last) const
Implement this function.

Member std::regex_traits::lookup_collatename(_Fwd_iter __first, _Fwd_iter __last) const
Implement this function.

Member std::regex_traits::transform_primary(_Fwd_iter __first, _Fwd_iter __last) const
Implement this function.

Member std::reverse_iterator::operator*() const
Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Member std::reverse_iterator::operator+(difference_type __n) const
Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Member std::reverse_iterator::operator++(int) Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Member std::reverse_iterator::operator+=(difference_type __n)
Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Member std::reverse_iterator::operator-(difference_type __n) const
Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Member std::reverse_iterator::operator--(int) Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Member std::reverse_iterator::operator-=(difference_type __n)
Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Member std::reverse_iterator::operator->() const
Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Member std::reverse_iterator::operator[](difference_type __n) const
Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Member std::shuffle_order_engine::discard(unsigned long long __z) Look for a faster way to do discard.

Member std::shuffle_order_engine::max() const This should be constexpr.

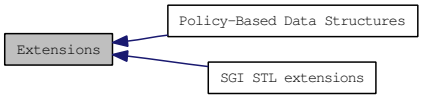
Member std::shuffle_order_engine::min() const This should be constexpr.

Chapter 2

Module Documentation

2.1 Extensions

Collaboration diagram for Extensions:



Classes

- class __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >

  Template class __versa_string.
  Data structure managing sequences of characters and character-like objects.

Modules

- SGI STL extensions
- Policy-Based Data Structures

2.1.1 Detailed Description

Components generally useful that are not part of any standard.

2.2 SGI STL extensions

Collaboration diagram for SGI STL extensions:

Classes

- class __gnu_cxx::binary_compose< _Operation1, _Operation2, _Operation3 >

  An SGI extension .

- struct __gnu_cxx::constant_binary_fun< _Result, _Arg1, _Arg2 >

  An SGI extension .

- struct __gnu_cxx::constant_unary_fun< _Result, _Argument >

  An SGI extension .

- struct __gnu_cxx::constant_void_fun< _Result >

  An SGI extension .

- class __gnu_cxx::hash_map< _Key, _Tp, _HashFn, _EqualKey, _Alloc >
- class __gnu_cxx::hash_multimap< _Key, _Tp, _HashFn, _EqualKey, _Alloc >
- class __gnu_cxx::hash_multiset< _Value, _HashFcn, _EqualKey, _Alloc >
- class __gnu_cxx::hash_set< _Value, _HashFcn, _EqualKey, _Alloc >
- struct __gnu_cxx::project1st< _Arg1, _Arg2 >

  An SGI extension .

- struct __gnu_cxx::project2nd< _Arg1, _Arg2 >

  An SGI extension .

- struct __gnu_cxx::rb_tree< _Key, _Value, _KeyOfValue, _Compare, _Alloc >
- class __gnu_cxx::rope< _CharT, _Alloc >
- struct __gnu_cxx::select1st< _Pair >

  An SGI extension .

- struct __gnu_cxx::select2nd< _Pair >

  An SGI extension .

- class __gnu_cxx::slist< _Tp, _Alloc >
- class __gnu_cxx::subtractive_rng

- struct __gnu_cxx::temporary_buffer< _ForwardIterator, _Tp >
- class __gnu_cxx::unary_compose< _Operation1, _Operation2 >

  An SGI extension .

Functions

- template<typename _Tp , typename _Compare >
  const _Tp & __gnu_cxx::__median (const _Tp &__a, const _Tp &__b, const _Tp &__c, _Compare __comp)
- template<typename _Tp >
  const _Tp & __gnu_cxx::__median (const _Tp &__a, const _Tp &__b, const _Tp &__c)
- size_t std::bitset::_Find_first () const
- size_t std::bitset::_Find_next (size_t __prev) const
- template<class _Operation1 , class _Operation2 >
  unary_compose< _Operation1, _Operation2 > __gnu_cxx::compose1 (const _Operation1 &__fn1, const _Operation2 &__fn2)
- template<class _Operation1 , class _Operation2 , class _Operation3 >
  binary_compose< _Operation1, _Operation2, _Operation3 > __gnu_cxx::compose2 (const _Operation1 &__fn1, const _Operation2 &__fn2, const _Operation3 &__fn3)
- template<class _Result >
  constant_void_fun< _Result > __gnu_cxx::constant0 (const _Result &__val)
- template<class _Result >
  constant_unary_fun< _Result, _Result > __gnu_cxx::constant1 (const _Result &__val)
- template<class _Result >
  constant_binary_fun< _Result, _Result, _Result > __gnu_cxx::constant2 (const _Result &__val)
- template<typename _InputIterator , typename _Size , typename _OutputIterator >
  pair< _InputIterator, _OutputIterator > __gnu_cxx::copy_n (_InputIterator __first, _Size __count, _OutputIterator __result)
- template<typename _InputIterator , typename _Distance >
  void __gnu_cxx::distance (_InputIterator __first, _InputIterator __last, _Distance &__n)
- template<class _Tp >
  _Tp __gnu_cxx::identity_element (std::multiplies< _Tp >)
- template<class _Tp >
  _Tp __gnu_cxx::identity_element (std::plus< _Tp >)
- template<typename _ForwardIter , typename _Tp >
  void __gnu_cxx::iota (_ForwardIter __first, _ForwardIter __last, _Tp __value)

- template<typename _RandomAccessIterator , typename _StrictWeakOrdering >
  bool __gnu_cxx::is_heap (_RandomAccessIterator __first, _RandomAccessIterator __last, _StrictWeakOrdering __comp)
- template<typename _RandomAccessIterator >
  bool __gnu_cxx::is_heap (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _ForwardIterator , typename _StrictWeakOrdering >
  bool __gnu_cxx::is_sorted (_ForwardIterator __first, _ForwardIterator __last, _StrictWeakOrdering __comp)
- template<typename _ForwardIterator >
  bool __gnu_cxx::is_sorted (_ForwardIterator __first, _ForwardIterator __last)
- template<typename _InputIterator1 , typename _InputIterator2 >
  int __gnu_cxx::lexicographical_compare_3way (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2)
- template<typename _Tp , typename _Integer >
  _Tp __gnu_cxx::power (_Tp __x, _Integer __n)
- template<typename _Tp , typename _Integer , typename _MonoidOperation >
  _Tp __gnu_cxx::power (_Tp __x, _Integer __n, _MonoidOperation __monoid_op)
- template<typename _InputIterator , typename _RandomAccessIterator , typename _RandomNumberGenerator >
  _RandomAccessIterator __gnu_cxx::random_sample (_InputIterator __first, _InputIterator __last, _RandomAccessIterator __out_first, _RandomAccessIterator __out_last, _RandomNumberGenerator &__rand)
- template<typename _InputIterator , typename _RandomAccessIterator >
  _RandomAccessIterator __gnu_cxx::random_sample (_InputIterator __first, _InputIterator __last, _RandomAccessIterator __out_first, _RandomAccessIterator __out_last)
- template<typename _ForwardIterator , typename _OutputIterator , typename _Distance , typename _RandomNumberGenerator >
  _OutputIterator __gnu_cxx::random_sample_n (_ForwardIterator __first, _ForwardIterator __last, _OutputIterator __out, const _Distance __n, _RandomNumberGenerator &__rand)
- template<typename _ForwardIterator , typename _OutputIterator , typename _Distance >
  _OutputIterator __gnu_cxx::random_sample_n (_ForwardIterator __first, _ForwardIterator __last, _OutputIterator __out, const _Distance __n)
- template<typename _InputIter , typename _Size , typename _ForwardIter >
  pair< _InputIter, _ForwardIter > __gnu_cxx::uninitialized_copy_n (_InputIter __first, _Size __count, _ForwardIter __result)

- bitset< _Nb > & std::bitset::_Unchecked_set (size_t __pos)

2.2.1 Detailed Description

Because libstdc++ based its implementation of the STL subsections of the library on the SGI 3.3 implementation, we inherited their extensions as well.

They are additionally documented in the online documentation, a copy of which is also shipped with the library source code (in .../docs/html/documentation.html). You can also read the documentation on SGI's site, which is still running even though the code is not maintained.

NB that the following notes are pulled from various comments all over the place, so they may seem stilted.

The identity_element functions are not part of the C++ standard; SGI provided them as an extension. Its argument is an operation, and its return value is the identity element for that operation. It is overloaded for addition and multiplication, and you can overload it for your own nefarious operations.

As an extension to the binders, SGI provided composition functors and wrapper functions to aid in their creation. The unary_compose functor is constructed from two functions/functors, f and g. Calling operator() with a single argument x returns f(g(x)). The function compose1 takes the two functions and constructs a unary_compose variable for you.

binary_compose is constructed from three functors, f, g1, and g2. Its operator() returns f(g1(x),g2(x)). The function takes f, g1, and g2, and constructs the binary_compose instance for you. For example, if f returns an int, then

```
int answer = (compose2(f,g1,g2))(x);
```

is equivalent to

```
int temp1 = g1(x);
int temp2 = g2(x);
int answer = f(temp1,temp2);
```

But the first form is more compact, and can be passed around as a functor to other algorithms.

As an extension, SGI provided a functor called identity. When a functor is required but no operations are desired, this can be used as a pass-through. Its operator() returns its argument unchanged.

select1st and select2nd are extensions provided by SGI. Their operator()s take a std::pair as an argument, and return either the first member or the second member, respectively. They can be used (especially with the composition functors) to *strip* data from a sequence before performing the remainder of an algorithm.

The operator() of the project1st functor takes two arbitrary arguments and returns the first one, while project2nd returns the second one. They are extensions provided by SGI.

These three functors are each constructed from a single arbitrary variable/value. Later, their `operator()`s completely ignore any arguments passed, and return the stored value.

- `constant_void_fun`'s `operator()` takes no arguments
- `constant_unary_fun`'s `operator()` takes one argument (ignored)
- `constant_binary_fun`'s `operator()` takes two arguments (ignored)

The helper creator functions `constant0`, `constant1`, and `constant2` each take a *result* argument and construct variables of the appropriate functor type.

2.2.2 Function Documentation

2.2.2.1 template<typename _Tp , typename _Compare > const _Tp& __gnu_cxx::__median (const _Tp & *__a*, const _Tp & *__b*, const _Tp & *__c*, _Compare *__comp*) [inline]

Find the median of three values using a predicate for comparison.

Parameters:

a A value.

b A value.

c A value.

comp A binary predicate.

Returns:

One of `a`, `b` or `c`.

If `{1,m,n}` is some convolution of `{a,b,c}` such that `comp(l,m)` and `comp(m,n)` are both true then the value returned will be `m`. This is an SGI extension.

Definition at line 571 of file ext/algorithm.

2.2.2.2 template<typename _Tp > const _Tp& __gnu_cxx::__median (const _Tp & *__a*, const _Tp & *__b*, const _Tp & *__c*) [inline]

Find the median of three values.

Parameters:

a A value.

b A value.

c A value.

Returns:

One of `a`, `b` or `c`.

If `{l,m,n}` is some convolution of `{a,b,c}` such that `l<=m<=n` then the value returned will be `m`. This is an SGI extension.

Definition at line 537 of file ext/algorithm.

2.2.2.3 template<size_t _Nb> size_t std::bitset< _Nb >::_Find_first () const [inline, inherited]

Finds the index of the first "on" bit.

Returns:

The index of the first bit set, or size() if not found.

See also:

_Find_next

Definition at line 1304 of file bitset.

2.2.2.4 template<size_t _Nb> size_t std::bitset< _Nb >::_Find_next (size_t *__prev*) const [inline, inherited]

Finds the index of the next "on" bit after prev.

Returns:

The index of the next bit set, or size() if not found.

Parameters:

prev Where to start searching.

See also:

_Find_first

Definition at line 1315 of file bitset.

2.2.2.5 template<size_t _Nb> bitset<_Nb>& std::bitset< _Nb >::_Unchecked_set (size_t *__pos*) [inline, inherited]

These versions of single-bit set, reset, flip, and test are extensions from the SGI version. They do no range checking.

Definition at line 963 of file bitset.

2.2.2.6 template<class _Operation1 , class _Operation2 > unary_compose<_Operation1, _Operation2> __gnu_cxx::compose1 (const _Operation1 & *__fn1*, const _Operation2 & *__fn2*) [inline]

An SGI extension .

Definition at line 145 of file ext/functional.

2.2.2.7 template<class _Operation1 , class _Operation2 , class _Operation3 > binary_compose<_Operation1, _Operation2, _Operation3> __gnu_cxx::compose2 (const _Operation1 & *__fn1*, const _Operation2 & *__fn2*, const _Operation3 & *__fn3*) [inline]

An SGI extension .

Definition at line 172 of file ext/functional.

2.2.2.8 template<class _Result > constant_void_fun<_Result> __gnu_cxx::constant0 (const _Result & *__val*) [inline]

An SGI extension .

Definition at line 326 of file ext/functional.

2.2.2.9 template<class _Result > constant_unary_fun<_Result, _Result> __gnu_cxx::constant1 (const _Result & *__val*) [inline]

An SGI extension .

Definition at line 332 of file ext/functional.

2.2.2.10 template<class _Result > constant_binary_fun<_Result,_Result,_Result> __gnu_cxx::constant2 (const _Result & *__val*) [inline]

An SGI extension .

Definition at line 338 of file ext/functional.

2.2.2.11 template<typename _InputIterator , typename _Size , typename _OutputIterator > pair<_InputIterator, _OutputIterator> __gnu_cxx::copy_n (_InputIterator *__first*, _Size *__count*, _OutputIterator *__result*) [inline]

Copies the range [first,first+count) into [result,result+count).

Parameters:

first An input iterator.

count The number of elements to copy.

result An output iterator.

Returns:

A std::pair composed of first+count and result+count.

This is an SGI extension. This inline function will boil down to a call to `memmove` whenever possible. Failing that, if random access iterators are passed, then the loop count will be known (and therefore a candidate for compiler optimizations such as unrolling).

Definition at line 119 of file ext/algorithm.

References std::__iterator_category().

2.2.2.12 template<typename _InputIterator , typename _Distance > void __gnu_cxx::distance (_InputIterator *__first*, _InputIterator *__last*, _Distance & *__n*) [inline]

This is an SGI extension.

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Definition at line 103 of file ext/iterator.

References std::__iterator_category().

Referenced by __gnu_parallel::multiseq_partition(), __gnu_parallel::multiseq_-selection(), and std::list< _Tp, _Alloc >::size().

2.2.2.13 template<class _Tp > _Tp __gnu_cxx::identity_element (std::multiplies< _Tp >) [inline]

An SGI extension .

Definition at line 93 of file ext/functional.

2.2.2.14 template<class _Tp > _Tp __gnu_cxx::identity_element (std::plus< _Tp >) [inline]

An SGI extension .

Definition at line 87 of file ext/functional.

2.2.2.15 template<typename _ForwardIter , typename _Tp > void __gnu_cxx::iota (_ForwardIter *__first*, _ForwardIter *__last*, _Tp *__value*) [inline]

This is an SGI extension.

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg0000 for more.

Definition at line 132 of file ext/numeric.

2.2.2.16 template<typename _RandomAccessIterator , typename _StrictWeakOrdering > bool __gnu_cxx::is_heap (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*, _StrictWeakOrdering *__comp*) [inline]

This is an SGI extension.

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg0000 for more.

Definition at line 453 of file ext/algorithm.

2.2.2.17 template<typename _RandomAccessIterator > bool __gnu_cxx::is_heap (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*) [inline]

This is an SGI extension.

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Definition at line 434 of file ext/algorithm.

2.2.2.18 template<typename _ForwardIterator , typename _StrictWeakOrdering > bool __gnu_cxx::is_sorted (_ForwardIterator *__first*, _ForwardIterator *__last*, _StrictWeakOrdering *__comp*) [inline]

This is an SGI extension.

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Definition at line 503 of file ext/algorithm.

2.2.2.19 template<typename _ForwardIterator > bool __gnu_cxx::is_sorted (_ForwardIterator *__first*, _ForwardIterator *__last*) [inline]

This is an SGI extension.

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Definition at line 478 of file ext/algorithm.

2.2.2.20 template<typename _InputIterator1 , typename _InputIterator2 > int __gnu_cxx::lexicographical_compare_3way (_InputIterator1 *__first1*, _InputIterator1 *__last1*, _InputIterator2 *__first2*, _InputIterator2 *__last2*) [inline]

`memcmp` on steroids.

Parameters:

first1 An input iterator.

last1 An input iterator.

first2 An input iterator.

last2 An input iterator.

Returns:

An int, as with `memcmp`.

The return value will be less than zero if the first range is *lexigraphically less than* the second, greater than zero if the second range is *lexigraphically less than* the first, and zero otherwise. This is an SGI extension.

Definition at line 200 of file ext/algorithm.

2.2.2.21 template<typename _Tp , typename _Integer > _Tp __gnu_cxx::power (_Tp *__x*, _Integer *__n*) [inline]

This is an SGI extension.

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg0000 for more.

Definition at line 121 of file ext/numeric.

2.2.2.22 template<typename _Tp , typename _Integer , typename _MonoidOperation > _Tp __gnu_cxx::power (_Tp *__x*, _Integer *__n*, _MonoidOperation *__monoid_op*) [inline]

This is an SGI extension.

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg0000 for more.

Definition at line 111 of file ext/numeric.

2.2.2.23 template<typename _InputIterator , typename _RandomAccessIterator , typename _RandomNumberGenerator > _RandomAccessIterator __gnu_cxx::random_sample (_InputIterator *__first*, _InputIterator *__last*, _RandomAccessIterator *__out_first*, _RandomAccessIterator *__out_last*, _RandomNumberGenerator & *__rand*) [inline]

This is an SGI extension.

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Definition at line 410 of file ext/algorithm.

2.2.2.24 template<typename _InputIterator , typename _RandomAccessIterator > _RandomAccessIterator __gnu_cxx::random_sample (_InputIterator *__first*, _InputIterator *__last*, _RandomAccessIterator *__out_first*, _RandomAccessIterator *__out_last*) [inline]

This is an SGI extension.

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Definition at line 387 of file ext/algorithm.

2.2.2.25 template<typename _ForwardIterator , typename _OutputIterator , typename _Distance , typename _RandomNumberGenerator > _OutputIterator __gnu_cxx::random_sample_n (_ForwardIterator *__first*, _ForwardIterator *__last*, _OutputIterator *__out*, const _Distance *__n*, _RandomNumberGenerator & *__rand*) [inline]

This is an SGI extension.

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Definition at line 300 of file ext/algorithm.

References std::distance(), and std::min().

2.2.2.26 template<typename _ForwardIterator , typename _OutputIterator , typename _Distance > _OutputIterator __gnu_cxx::random_sample_n (_ForwardIterator *__first*, _ForwardIterator *__last*, _OutputIterator *__out*, const _Distance *__n*) [inline]

This is an SGI extension.

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg0000 for more.

Definition at line 266 of file ext/algorithm.

References std::distance(), and std::min().

2.2.2.27 template<typename _InputIter , typename _Size , typename _ForwardIter > pair<_InputIter, _ForwardIter> __gnu_cxx::uninitialized_copy_n (_InputIter *__first*, _Size *__count*, _ForwardIter *__result*) [inline]

Copies the range [first,last) into result.

Parameters:

first An input iterator.

last An input iterator.

result An output iterator.

Returns:

result + (first - last)

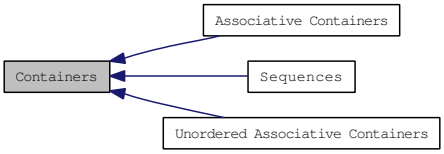
Like copy(), but does not require an initialized output range.

Definition at line 121 of file ext/memory.

References std::__iterator_category().

2.3 Containers

Collaboration diagram for Containers:



Classes

- class std::bitset< _Nb >

  The bitset class represents a fixed-size sequence of bits.

Modules

- Sequences
- Associative Containers
- Unordered Associative Containers

2.3.1 Detailed Description

Containers are collections of objects.

A container may hold any type which meets certain requirements, but the type of contained object is chosen at compile time, and all objects in a given container must be of the same type. (Polymorphism is possible by declaring a container of pointers to a base class and then populating it with pointers to instances of derived classes. Variant value types such as the `any` class from `Boost` can also be used.

All contained types must be `Assignable` and `CopyConstructible`. Specific containers may place additional requirements on the types of their contained objects.

Containers manage memory allocation and deallocation themselves when storing your objects. The objects are destroyed when the container is itself destroyed. Note that if you are storing pointers in a container, `delete` is *not* automatically called on the pointers before destroying them.

All containers must meet certain requirements, summarized in `tables`.

The standard containers are further refined into Sequences and Associative Containers. Unordered Associative Containers.

2.4 Sequences

Collaboration diagram for Sequences:

Classes

- struct std::array< _Tp, _Nm >

  A standard container for storing a fixed size sequence of elements.

- class std::basic_string< _CharT, _Traits, _Alloc >

  Managing sequences of characters and character-like objects.

- class std::deque< _Tp, _Alloc >

  A standard container using fixed-size memory allocation and constant-time manipulation of elements at either end.

- class std::forward_list< _Tp, _Alloc >

  A standard container with linear time access to elements, and fixed time insertion/deletion at any point in the sequence.

- class std::list< _Tp, _Alloc >

  A standard container with linear time access to elements, and fixed time insertion/deletion at any point in the sequence.

- class std::priority_queue< _Tp, _Sequence, _Compare >

  A standard container automatically sorting its contents.

- class std::queue< _Tp, _Sequence >

  A standard container giving FIFO behavior.

- class std::stack< _Tp, _Sequence >

  A standard container giving FILO behavior.

- class std::vector< _Tp, _Alloc >

  A standard container which offers fixed time access to individual elements in any order.

- class std::vector< bool, _Alloc >

  A specialization of vector for booleans which offers fixed time access to individual elements in any order.

2.4.1 Detailed Description

Sequences arrange a collection of objects into a strictly linear order.

The differences between sequences are usually due to one or both of the following:

- memory management
- algorithmic complexity

As an example of the first case, `vector` is required to use a contiguous memory layout, while other sequences such as `deque` are not.

The prime reason for choosing one sequence over another should be based on the second category of differences, algorithmic complexity. For example, if you need to perform many inserts and removals from the middle of a sequence, `list` would be ideal. But if you need to perform constant-time access to random elements of the sequence, then `list` should not be used.

All sequences must meet certain requirements, summarized in `tables`.

2.5 Associative Containers

Collaboration diagram for Associative Containers:

Classes

- class std::map< _Key, _Tp, _Compare, _Alloc >

  A standard container made up of (key,value) pairs, which can be retrieved based on a key, in logarithmic time.

- class std::multimap< _Key, _Tp, _Compare, _Alloc >

  A standard container made up of (key,value) pairs, which can be retrieved based on a key, in logarithmic time.

- class std::multiset< _Key, _Compare, _Alloc >

  A standard container made up of elements, which can be retrieved in logarithmic time.

- class std::set< _Key, _Compare, _Alloc >

  A standard container made up of unique keys, which can be retrieved in logarithmic time.

2.5.1 Detailed Description

Associative containers allow fast retrieval of data based on keys.

Each container type is parameterized on a `Key` type, and an ordering relation used to sort the elements of the container.

All associative containers must meet certain requirements, summarized in `tables`.

2.6 Unordered Associative Containers

Collaboration diagram for Unordered Associative Containers:

Classes

- class std::unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc >

  A standard container composed of unique keys (containing at most one of each key value) that associates values of another type with the keys.

- class std::unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc >

  A standard container composed of equivalent keys (possibly containing multiple of each key value) that associates values of another type with the keys.

- class std::unordered_multiset< _Value, _Hash, _Pred, _Alloc >

  A standard container composed of equivalent keys (possibly containing multiple of each key value) in which the elements' keys are the elements themselves.

- class std::unordered_set< _Value, _Hash, _Pred, _Alloc >

  A standard container composed of unique keys (containing at most one of each key value) in which the elements' keys are the elements themselves.

2.6.1 Detailed Description

Unordered associative containers allow fast retrieval of data based on keys.

Each container type is parameterized on a `Key` type, a `Hash` type providing a hashing functor, and an ordering relation used to sort the elements of the container.

All unordered associative containers must meet certain requirements, summarized in `tables`.

2.7 Diagnostics

Collaboration diagram for Diagnostics:

Modules

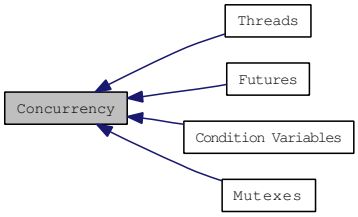
- Exceptions

2.7.1 Detailed Description

Components for error handling, reporting, and diagnostic operations.

2.8 Concurrency

Collaboration diagram for Concurrency:



Modules

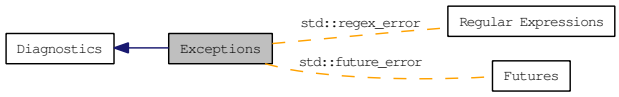
- Condition Variables
- Futures
- Mutexes
- Threads

2.8.1 Detailed Description

Components for concurrent operations, including threads, mutexes, and condition variables.

2.9 Exceptions

Collaboration diagram for Exceptions:



Classes

- class __cxxabiv1::__forced_unwind

  Thrown as part of forced unwinding.
  A magic placeholder class that can be caught by reference to recognize forced unwinding.

- struct __gnu_cxx::forced_error

  Thown by exception safety machinery.

- class __gnu_cxx::recursive_init_error

  Exception thrown by __cxa_guard_acquire.
  6.7[stmt.dcl]/4: If control re-enters the declaration (recursively) while the object is being initialized, the behavior is undefined.

- class std::__exception_ptr::exception_ptr

  An opaque pointer to an arbitrary exception.

- class std::bad_alloc

  Exception possibly thrown by `new`.
  `bad_alloc` (or classes derived from it) is used to report allocation errors from the throwing forms of `new`.

- class std::bad_cast

  Thrown during incorrect typecasting.
  If you attempt an invalid `dynamic_cast` expression, an instance of this class (or something derived from this class) is thrown.

- class std::bad_exception
- class std::bad_function_call

  Exception class thrown when class template function's operator() is called with an empty target.

- class std::bad_typeid

Thrown when a NULL pointer in a `typeid` expression is used.

- class std::bad_weak_ptr

  Exception possibly thrown by `shared_ptr`.

- class std::domain_error
- class std::exception

  Base class for all library exceptions.

- class std::future_error

  Exception type thrown by futures.

- class std::invalid_argument
- class std::ios_base::failure

  These are thrown to indicate problems with io.
  27.4.2.1.1 Class ios_base::failure.

- class std::length_error
- class std::logic_error

  One of two subclasses of exception.

- class std::nested_exception

  Exception class with exception_ptr data member.

- class std::out_of_range
- class std::overflow_error
- class std::range_error
- class std::regex_error

  A regular expression exception class.
  The regular expression library throws objects of this class on error.

- class std::runtime_error

  One of two subclasses of exception.

- class std::system_error

  Thrown to indicate error code of underlying system.

- class std::underflow_error

Typedefs

- typedef void(∗ std::terminate_handler)()
- typedef void(∗ std::unexpected_handler)()

Functions

- template<typename _Ex >
  const nested_exception * **std::__get_nested_exception** (const _Ex &__ex)
- template<typename _Ex >
  void **std::__throw_with_nested** (_Ex &&,...) __attribute__((__noreturn__))
- template<typename _Ex >
  void **std::__throw_with_nested** (_Ex &&, const nested_exception *=0) __attribute__((__noreturn__))
- void __gnu_cxx::__verbose_terminate_handler ()
- template<typename _Ex >
  exception_ptr std::copy_exception (_Ex __ex) throw ()
- exception_ptr std::current_exception () throw ()
- void std::rethrow_exception (exception_ptr) __attribute__((__noreturn__))
- void std::rethrow_if_nested (const nested_exception &__ex)
- template<typename _Ex >
  void std::rethrow_if_nested (const _Ex &__ex)
- terminate_handler std::set_terminate (terminate_handler) throw ()
- unexpected_handler std::set_unexpected (unexpected_handler) throw ()
- void std::terminate () __attribute__((__noreturn__)) throw ()
- template<typename _Ex >
  void std::throw_with_nested (_Ex __ex)
- bool std::uncaught_exception () __attribute__((__pure__)) throw ()
- void std::unexpected () __attribute__((__noreturn__))

2.9.1 Detailed Description

Classes and functions for reporting errors via exception classes.

2.9.2 Typedef Documentation

2.9.2.1 typedef void(* std::terminate_handler)()

If you write a replacement terminate handler, it must be of this type.

Definition at line 88 of file exception.

2.9.2.2 typedef void(* std::unexpected_handler)()

If you write a replacement unexpected handler, it must be of this type.

Definition at line 91 of file exception.

2.9.3 Function Documentation

2.9.3.1 void __gnu_cxx::__verbose_terminate_handler ()

A replacement for the standard terminate_handler which prints more information about the terminating exception (if any) on stderr. Call

```
std::set_terminate(__gnu_cxx::__verbose_terminate_handler)
```

to use. For more info, see http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt02ch06s02.html

In 3.4 and later, this is on by default.

2.9.3.2 template<typename _Ex > exception_ptr std::copy_exception (_Ex __*ex*) throw () [inline]

Obtain an exception_ptr pointing to a copy of the supplied object.

Definition at line 149 of file exception_ptr.h.

References std::current_exception().

2.9.3.3 exception_ptr std::current_exception () throw ()

Obtain an exception_ptr to the currently handled exception. If there is none, or the currently handled exception is foreign, return the null value.

Referenced by std::copy_exception().

2.9.3.4 void std::rethrow_exception (exception_ptr)

Throw the object pointed to by the exception_ptr.

Referenced by std::__basic_future< _Res & >::_M_get_result().

2.9.3.5 void std::rethrow_if_nested (const nested_exception & __*ex*) [inline]

Overload, See N2619.

Definition at line 156 of file nested_exception.h.

2.9.3.6 template<typename _Ex > void std::rethrow_if_nested (const _Ex & __*ex*) [inline]

If __ex is derived from nested_exception, __ex.rethrow_nested().

Definition at line 148 of file nested_exception.h.

2.9.3.7 terminate_handler std::set_terminate (terminate_handler) throw ()

Takes a new handler function as an argument, returns the old function.

2.9.3.8 unexpected_handler std::set_unexpected (unexpected_handler) throw ()

Takes a new handler function as an argument, returns the old function.

2.9.3.9 void std::terminate () throw ()

The runtime will call this function if exception handling must be abandoned for any reason. It can also be called by the user.

2.9.3.10 template<typename _Ex > void std::throw_with_nested (_Ex __*ex*) [inline]

If __ex is derived from nested_exception, __ex. Else, an implementation-defined object derived from both.

Definition at line 138 of file nested_exception.h.

2.9.3.11 bool std::uncaught_exception () throw ()

[18.6.4]/1: 'Returns true after completing evaluation of a throw-expression until either completing initialization of the exception-declaration in the matching handler or entering unexpected() due to the throw; or after entering terminate() for any reason other than an explicit call to terminate(). [Note: This includes stack unwinding [15.2]. end note]'

2: 'When uncaught_exception() is true, throwing an exception can result in a call of terminate() (15.5.1).'

Referenced by std::basic_ostream< _CharT, _Traits >::sentry::~sentry().

2.9.3.12 void std::unexpected ()

The runtime will call this function if an exception is thrown which violates the function's exception specification.

2.10 Time

Collaboration diagram for Time:

Namespaces

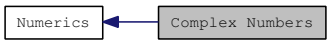
- namespace std::chrono

2.10.1 Detailed Description

Classes and functions for time.

2.11 Complex Numbers

Collaboration diagram for Complex Numbers:



Classes

- struct std::complex< _Tp >

Functions

- **std::complex**< **double** >**::complex** (const complex< long double > &)
- **std::complex**< **float** >**::complex** (const complex< long double > &)
- **std::complex**< **float** >**::complex** (const complex< double > &)
- template<typename _Tp >
  _Tp **std::__complex_abs** (const complex< _Tp > &__z)
- template<typename _Tp >
  std::complex< _Tp > **std::__complex_acos** (const std::complex< _Tp > &__z)
- template<typename _Tp >
  std::complex< _Tp > **std::__complex_acosh** (const std::complex< _Tp > &__z)
- template<typename _Tp >
  _Tp **std::__complex_arg** (const complex< _Tp > &__z)
- template<typename _Tp >
  std::complex< _Tp > **std::__complex_asin** (const std::complex< _Tp > &__z)
- template<typename _Tp >
  std::complex< _Tp > **std::__complex_asinh** (const std::complex< _Tp > &__z)
- template<typename _Tp >
  std::complex< _Tp > **std::__complex_atan** (const std::complex< _Tp > &__z)
- template<typename _Tp >
  std::complex< _Tp > **std::__complex_atanh** (const std::complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > **std::__complex_cos** (const complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > **std::__complex_cosh** (const complex< _Tp > &__z)

- template<typename _Tp >
  complex< _Tp > **std::__complex_exp** (const complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > **std::__complex_log** (const complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > **std::__complex_pow** (const complex< _Tp > &__x, const complex< _Tp > &__y)
- template<typename _Tp >
  complex< _Tp > **std::__complex_sin** (const complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > **std::__complex_sinh** (const complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > **std::__complex_sqrt** (const complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > **std::__complex_tan** (const complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > **std::__complex_tanh** (const complex< _Tp > &__z)
- template<typename _Tp >
  _Tp std::abs (const complex< _Tp > &)
- template<typename _Tp >
  std::complex< _Tp > std::acos (const std::complex< _Tp > &__z)
- template<typename _Tp >
  std::complex< _Tp > std::acosh (const std::complex< _Tp > &__z)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type std::arg (_Tp __x)
- template<typename _Tp >
  _Tp std::arg (const complex< _Tp > &)
- template<typename _Tp >
  std::complex< _Tp > std::asin (const std::complex< _Tp > &__z)
- template<typename _Tp >
  std::complex< _Tp > std::asinh (const std::complex< _Tp > &__z)
- template<typename _Tp >
  std::complex< _Tp > std::atan (const std::complex< _Tp > &__z)
- template<typename _Tp >
  std::complex< _Tp > std::atanh (const std::complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > std::conj (const complex< _Tp > &)
- template<typename _Tp >
  complex< _Tp > std::cos (const complex< _Tp > &)
- template<typename _Tp >
  complex< _Tp > std::cosh (const complex< _Tp > &)
- template<typename _Tp >
  complex< _Tp > std::exp (const complex< _Tp > &)

- template<typename _Tp >
  _Tp std::fabs (const std::complex< _Tp > &__z)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type **std::imag** (_Tp)
- template<typename _Tp >
  _Tp **std::imag** (const complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > std::log (const complex< _Tp > &)
- template<typename _Tp >
  complex< _Tp > std::log10 (const complex< _Tp > &)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type **std::norm** (_Tp __x)
- template<typename _Tp >
  _Tp std::norm (const complex< _Tp > &)
- template<typename _Up >
  complex< _Tp > & std::complex::operator*= (const complex< _Up > &)
- complex< _Tp > & std::complex::operator*= (const _Tp &)
- template<typename _Tp >
  complex< _Tp > std::operator+ (const complex< _Tp > &__x)
- template<typename _Up >
  complex< _Tp > & std::complex::operator+= (const complex< _Up > &)
- template<typename _Tp >
  complex< _Tp > std::operator- (const complex< _Tp > &__x)
- template<typename _Up >
  complex< _Tp > & std::complex::operator-= (const complex< _Up > &)
- template<typename _Up >
  complex< _Tp > & std::complex::operator/= (const complex< _Up > &)
- complex< _Tp > & std::complex::operator/= (const _Tp &)
- template<typename _Tp , typename _CharT , class _Traits >
  basic_ostream< _CharT, _Traits > & std::operator<< (basic_ostream< _CharT, _Traits > &__os, const complex< _Tp > &__x)
- template<typename _Up >
  complex< _Tp > & std::complex::operator= (const complex< _Up > &)
- complex< _Tp > & std::complex::operator= (const _Tp &)
- template<typename _Tp , typename _CharT , class _Traits >
  basic_istream< _CharT, _Traits > & std::operator>> (basic_istream< _CharT, _Traits > &__is, complex< _Tp > &__x)
- template<typename _Tp >
  complex< _Tp > std::polar (const _Tp &, const _Tp &=0)
- template<typename _Tp , typename _Up >
  std::complex< typename __gnu_cxx::__promote_2< _Tp, _Up >::__type > **std::pow** (const std::complex< _Tp > &__x, const std::complex< _Up > &__y)

- template<typename _Tp , typename _Up >
  std::complex< typename __gnu_cxx::__promote_2< _Tp, _Up >::__type > **std::pow** (const _Tp &__x, const std::complex< _Up > &__y)
- template<typename _Tp , typename _Up >
  std::complex< typename __gnu_cxx::__promote_2< _Tp, _Up >::__type > **std::pow** (const std::complex< _Tp > &__x, const _Up &__y)
- template<typename _Tp >
  complex< _Tp > std::pow (const _Tp &, const complex< _Tp > &)
- template<typename _Tp >
  complex< _Tp > std::pow (const complex< _Tp > &, const complex< _Tp > &)
- template<typename _Tp >
  complex< _Tp > std::pow (const complex< _Tp > &, const _Tp &)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type **std::real** (_Tp __x)
- template<typename _Tp >
  _Tp **std::real** (const complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > std::sin (const complex< _Tp > &)
- template<typename _Tp >
  complex< _Tp > std::sinh (const complex< _Tp > &)
- template<typename _Tp >
  complex< _Tp > std::sqrt (const complex< _Tp > &)
- template<typename _Tp >
  complex< _Tp > std::tan (const complex< _Tp > &)
- template<typename _Tp >
  complex< _Tp > std::tanh (const complex< _Tp > &)

- template<typename _Tp >
  bool std::operator!= (const _Tp &__x, const complex< _Tp > &__y)
- template<typename _Tp >
  bool std::operator!= (const complex< _Tp > &__x, const _Tp &__y)
- template<typename _Tp >
  bool std::operator!= (const complex< _Tp > &__x, const complex< _Tp > &_-
  _y)
- template<typename _Tp >
  complex< _Tp > std::operator* (const _Tp &__x, const complex< _Tp > &_-
  _y)
- template<typename _Tp >
  complex< _Tp > std::operator* (const complex< _Tp > &__x, const _Tp &_-
  _y)
- template<typename _Tp >
  complex< _Tp > std::operator* (const complex< _Tp > &__x, const complex<
  _Tp > &__y)

- template<typename _Tp >
  complex< _Tp > std::operator+ (const _Tp &__x, const complex< _Tp > &_-
  _y)
- template<typename _Tp >
  complex< _Tp > std::operator+ (const complex< _Tp > &__x, const _Tp &_-
  _y)
- template<typename _Tp >
  complex< _Tp > std::operator+ (const complex< _Tp > &__x, const
  complex< _Tp > &__y)
- template<typename _Tp >
  complex< _Tp > std::operator- (const _Tp &__x, const complex< _Tp > &__-
  y)
- template<typename _Tp >
  complex< _Tp > std::operator- (const complex< _Tp > &__x, const _Tp &__-
  y)
- template<typename _Tp >
  complex< _Tp > std::operator- (const complex< _Tp > &__x, const complex<
  _Tp > &__y)
- template<typename _Tp >
  complex< _Tp > std::operator/ (const _Tp &__x, const complex< _Tp > &__y)
- template<typename _Tp >
  complex< _Tp > std::operator/ (const complex< _Tp > &__x, const _Tp &__y)
- template<typename _Tp >
  complex< _Tp > std::operator/ (const complex< _Tp > &__x, const complex<
  _Tp > &__y)
- template<typename _Tp >
  bool std::operator== (const _Tp &__x, const complex< _Tp > &__y)
- template<typename _Tp >
  bool std::operator== (const complex< _Tp > &__x, const _Tp &__y)
- template<typename _Tp >
  bool std::operator== (const complex< _Tp > &__x, const complex< _Tp >
  &__y)

2.11.1 Detailed Description

Classes and functions for complex numbers.

2.11.2 Function Documentation

2.11.2.1 template<typename _Tp > _Tp std::abs (const complex< _Tp > & __z) [inline]

Return magnitude of z.

Definition at line 594 of file complex.

Referenced by std::fabs(), std::binomial_distribution< _IntType >::operator()(), and std::poisson_distribution< _IntType >::operator()().

2.11.2.2 template<typename _Tp > std::complex< _Tp > std::acos (const std::complex< _Tp > & __z) [inline]

acos(__z) [8.1.2].

Definition at line 86 of file tr1_impl/complex.

2.11.2.3 template<typename _Tp > std::complex< _Tp > std::acosh (const std::complex< _Tp > & __z) [inline]

acosh(__z) [8.1.5].

Definition at line 205 of file tr1_impl/complex.

2.11.2.4 template<typename _Tp > __gnu_cxx::__promote<_Tp>::__type std::arg (_Tp __x) [inline]

Additional overloads [8.1.9].

Definition at line 311 of file tr1_impl/complex.

References std::arg().

2.11.2.5 template<typename _Tp > _Tp std::arg (const complex< _Tp > & __z) [inline]

Return phase angle of z.

Definition at line 621 of file complex.

Referenced by std::arg().

2.11.2.6 template<typename _Tp > std::complex< _Tp > std::asin (const std::complex< _Tp > & __z) [inline]

asin(__z) [8.1.3].

Definition at line 122 of file tr1_impl/complex.

2.11.2.7 template<typename _Tp > std::complex< _Tp > std::asinh (const std::complex< _Tp > & __z) [inline]

asinh(__z) [8.1.6].

Definition at line 244 of file tr1_impl/complex.

2.11.2.8 template<typename _Tp > std::complex< _Tp > std::atan (const std::complex< _Tp > & __z) [inline]

atan(__z) [8.1.4].

Definition at line 166 of file tr1_impl/complex.

2.11.2.9 template<typename _Tp > std::complex< _Tp > std::atanh (const std::complex< _Tp > & __z) [inline]

atanh(__z) [8.1.7].

Definition at line 288 of file tr1_impl/complex.

2.11.2.10 template<typename _Tp > complex< _Tp > std::conj (const complex< _Tp > & __z) [inline]

Return complex conjugate of z.

Definition at line 667 of file complex.

2.11.2.11 template<typename _Tp > complex< _Tp > std::cos (const complex< _Tp > & __z) [inline]

Return complex cosine of z.

Definition at line 699 of file complex.

Referenced by std::polar().

2.11.2.12 template<typename _Tp > complex< _Tp > std::cosh (const complex< _Tp > & __z) [inline]

Return complex hyperbolic cosine of z.

Definition at line 729 of file complex.

2.11.2.13 template<typename _Tp > complex< _Tp > std::exp (const complex< _Tp > & __z) [inline]

Return complex base e exponential of z.

Definition at line 755 of file complex.

Referenced by std::pow().

2.11.2.14 template<typename _Tp > _Tp std::fabs (const std::complex< _Tp > & __z) [inline]

fabs(__z) [8.1.8].

Definition at line 301 of file tr1_impl/complex.

References std::abs().

2.11.2.15 template<typename _Tp > complex< _Tp > std::log (const complex< _Tp > & __z) [inline]

Return complex natural logarithm of z.

Definition at line 782 of file complex.

Referenced by std::generate_canonical(), std::log10(), std::gamma_distribution< _RealType >::operator()(), std::normal_distribution< _RealType >::operator()(), std::binomial_distribution< _IntType >::operator()(), std::poisson_distribution< _IntType >::operator()(), std::independent_bits_engine< _RandomNumberEngine, _w, _UIntType >::operator()(), and std::pow().

2.11.2.16 template<typename _Tp > complex< _Tp > std::log10 (const complex< _Tp > & __z) [inline]

Return complex base 10 logarithm of z.

Definition at line 787 of file complex.

References std::log().

2.11.2.17 template<typename _Tp > _Tp std::norm (const complex< _Tp > & __z) [inline]

Return z magnitude squared.

Definition at line 654 of file complex.

Referenced by std::complex< _Tp >::operator/=().

2.11.2.18 template<typename _Tp > bool std::operator!= (const _Tp & __x, const complex< _Tp > & __y) [inline]

Return false if *x* is equal to *y*.

Definition at line 479 of file complex.

2.11.2.19 template<typename _Tp > bool std::operator!= (const complex< _Tp > & __x, const _Tp & __y) [inline]

Return false if *x* is equal to *y*.

Definition at line 474 of file complex.

2.11.2.20 template<typename _Tp > bool std::operator!= (const complex< _Tp > & __x, const complex< _Tp > & __y) [inline]

Return false if *x* is equal to *y*.

Definition at line 469 of file complex.

2.11.2.21 template<typename _Tp > complex<_Tp> std::operator* (const _Tp & __x, const complex< _Tp > & __y) [inline]

Return false if *x* is equal to *y*.

Definition at line 397 of file complex.

2.11.2.22 template<typename _Tp > complex<_Tp> std::operator* (const complex< _Tp > & __x, const _Tp & __y) [inline]

Return false if *x* is equal to *y*.

Definition at line 388 of file complex.

2.11.2.23 template<typename _Tp > complex<_Tp> std::operator* (const complex< _Tp > & __x, const complex< _Tp > & __y) [inline]

Return new complex value *x* times *y*.

Definition at line 379 of file complex.

2.11.2.24 template<typename _Tp > template<typename _Up > complex< _Tp > & std::complex< _Tp >::operator*= (const complex< _Up > & __z) [inline, inherited]

Multiply this complex number by *z*.

Definition at line 292 of file complex.

2.11.2.25 template<typename _Tp > complex< _Tp > & std::complex< _Tp >::operator*= (const _Tp & __t) [inline, inherited]

Multiply this complex number by *t*.

Definition at line 238 of file complex.

2.11.2.26 template<typename _Tp > complex<_Tp> std::operator+ (const complex< _Tp > & __x) [inline]

Return *x*.

Definition at line 438 of file complex.

2.11.2.27 template<typename _Tp > complex<_Tp> std::operator+ (const _Tp & __x, const complex< _Tp > & __y) [inline]

Return false if *x* is equal to *y*.

Definition at line 337 of file complex.

2.11.2.28 template<typename _Tp > complex<_Tp> std::operator+ (const complex< _Tp > & __x, const _Tp & __y) [inline]

Return false if *x* is equal to *y*.

Definition at line 328 of file complex.

2.11.2.29 template<typename _Tp > complex<_Tp> std::operator+ (const complex< _Tp > & __x, const complex< _Tp > & __y) [inline]

Return new complex value *x* plus *y*.

Definition at line 319 of file complex.

2.11.2.30 template<typename _Tp > template<typename _Up > complex< _Tp > & std::complex< _Tp >::operator+= (const complex< _Up > & __z) [inline, inherited]

Add z to this complex number.

Definition at line 269 of file complex.

2.11.2.31 template<typename _Tp > complex<_Tp> std::operator- (const complex< _Tp > & __x) [inline]

Return complex negation of x.

Definition at line 444 of file complex.

2.11.2.32 template<typename _Tp > complex<_Tp> std::operator- (const _Tp & __x, const complex< _Tp > & __y) [inline]

Return false if x is equal to y.

Definition at line 367 of file complex.

2.11.2.33 template<typename _Tp > complex<_Tp> std::operator- (const complex< _Tp > & __x, const _Tp & __y) [inline]

Return false if x is equal to y.

Definition at line 358 of file complex.

2.11.2.34 template<typename _Tp > complex<_Tp> std::operator- (const complex< _Tp > & __x, const complex< _Tp > & __y) [inline]

Return new complex value x minus y.

Definition at line 349 of file complex.

2.11.2.35 template<typename _Tp > template<typename _Up > complex< _Tp > & std::complex< _Tp >::operator-= (const complex< _Up > & __z) [inline, inherited]

Subtract z from this complex number.

Definition at line 280 of file complex.

2.11.2.36 template<typename _Tp > complex<_Tp> std::operator/ (const _Tp & __x, const complex< _Tp > & __y) [inline]

Return false if *x* is equal to *y*.

Definition at line 427 of file complex.

2.11.2.37 template<typename _Tp > complex<_Tp> std::operator/ (const complex< _Tp > & __x, const _Tp & __y) [inline]

Return false if *x* is equal to *y*.

Definition at line 418 of file complex.

2.11.2.38 template<typename _Tp > complex<_Tp> std::operator/ (const complex< _Tp > & __x, const complex< _Tp > & __y) [inline]

Return new complex value *x* divided by *y*.

Definition at line 409 of file complex.

2.11.2.39 template<typename _Tp > template<typename _Up > complex< _Tp > & std::complex< _Tp >::operator/= (const complex< _Up > & __z) [inline, inherited]

Divide this complex number by *z*.

Definition at line 305 of file complex.

References std::norm().

2.11.2.40 template<typename _Tp > complex< _Tp > & std::complex< _Tp >::operator/= (const _Tp & __t) [inline, inherited]

Divide this complex number by *t*.

Definition at line 248 of file complex.

2.11.2.41 template<typename _Tp , typename _CharT , class _Traits > basic_ostream<_CharT, _Traits>& std::operator<< (basic_ostream< _CharT, _Traits > & __os, const complex< _Tp > & __x) [inline]

Insertion operator for complex values.

Definition at line 519 of file complex.

References std::ios_base::flags(), std::basic_ios< _CharT, _Traits >::imbue(), std::ios_base::precision(), and std::basic_ostringstream< _CharT, _Traits, _Alloc >::str().

2.11.2.42 template<typename _Tp > template<typename _Up > complex< _Tp > & std::complex< _Tp >::operator= (const complex< _Up > & __z) [inline, inherited]

Assign this complex number to complex *z*.

Definition at line 258 of file complex.

2.11.2.43 template<typename _Tp > complex< _Tp > & std::complex< _Tp >::operator= (const _Tp & __t) [inline, inherited]

Assign this complex number to scalar *t*.

Definition at line 228 of file complex.

2.11.2.44 template<typename _Tp > bool std::operator== (const _Tp & __x, const complex< _Tp > & __y) [inline]

Return false if *x* is equal to *y*.

Definition at line 461 of file complex.

2.11.2.45 template<typename _Tp > bool std::operator== (const complex< _Tp > & __x, const _Tp & __y) [inline]

Return false if *x* is equal to *y*.

Definition at line 456 of file complex.

2.11.2.46 template<typename _Tp > bool std::operator== (const complex< _Tp > & __x, const complex< _Tp > & __y) [inline]

Return true if *x* is equal to *y*.

Definition at line 451 of file complex.

2.11.2.47 template<typename _Tp , typename _CharT , class _Traits > basic_istream<_CharT, _Traits>& std::operator>> (basic_istream< _CharT, _Traits > & *__is*, complex< _Tp > & *__x*) [inline]

Extraction operator for complex values.

Definition at line 486 of file complex.

References std::ios_base::failbit, std::basic_istream< _CharT, _Traits >::putback(), and std::basic_ios< _CharT, _Traits >::setstate().

2.11.2.48 template<typename _Tp > complex< _Tp > std::polar (const _Tp & *__rho*, const _Tp & *__theta* = 0) [inline]

Return complex with magnitude *rho* and angle *theta*.

Definition at line 662 of file complex.

References std::cos(), and std::sin().

Referenced by std::pow().

2.11.2.49 template<typename _Tp > complex< _Tp > std::pow (const _Tp & *__x*, const complex< _Tp > & *__y*) [inline]

Return *x* to the *y'th* power.

Definition at line 1009 of file complex.

References std::log(), std::polar(), and std::pow().

2.11.2.50 template<typename _Tp > complex< _Tp > std::pow (const complex< _Tp > & *__x*, const complex< _Tp > & *__y*) [inline]

Return *x* to the *y'th* power.

Definition at line 1003 of file complex.

2.11.2.51 template<typename _Tp > complex< _Tp > std::pow (const complex< _Tp > & *__x*, const _Tp & *__y*) [inline]

Return *x* to the *y'th* power.

Definition at line 964 of file complex.

References std::exp(), std::log(), and std::polar().

Referenced by std::gamma_distribution< _RealType >::operator()(), and std::pow().

2.11.2.52 template<typename _Tp > complex< _Tp > std::sin (const complex< _Tp > & __z) [inline]

Return complex sine of z.

Definition at line 817 of file complex.

Referenced by std::polar().

2.11.2.53 template<typename _Tp > complex< _Tp > std::sinh (const complex< _Tp > & __z) [inline]

Return complex hyperbolic sine of z.

Definition at line 847 of file complex.

2.11.2.54 template<typename _Tp > complex< _Tp > std::sqrt (const complex< _Tp > & __z) [inline]

Return complex square root of z.

Definition at line 891 of file complex.

Referenced by std::normal_distribution< _RealType >::operator()().

2.11.2.55 template<typename _Tp > complex< _Tp > std::tan (const complex< _Tp > & __z) [inline]

Return complex tangent of z.

Definition at line 918 of file complex.

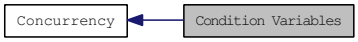
2.11.2.56 template<typename _Tp > complex< _Tp > std::tanh (const complex< _Tp > & __z) [inline]

Return complex hyperbolic tangent of z.

Definition at line 946 of file complex.

2.12 Condition Variables

Collaboration diagram for Condition Variables:



Classes

- class std::condition_variable
  condition_variable
- class std::condition_variable_any
  condition_variable_any

Enumerations

- enum std::cv_status { **no_timeout**, **timeout** }

2.12.1 Detailed Description

Classes for condition_variable support.

2.12.2 Enumeration Type Documentation

2.12.2.1 enum std::cv_status

cv_status

Definition at line 54 of file condition_variable.

2.13 Futures

Collaboration diagram for Futures:

Classes

- class std::__basic_future< _Res >
  Common implementation for future and shared_future.
- struct std::__future_base
  Base class and enclosing scope.
- struct std::__future_base::_Result< _Res & >
  Partial specialization for reference types.
- struct std::__future_base::_Result< void >
  Explicit specialization for void.
- class std::future< _Res >
  Primary template for future.
- class std::future< _Res & >
  Partial specialization for future<R&>.
- class std::future< void >
  Explicit specialization for future<void>.
- class std::future_error
  Exception type thrown by futures.
- class std::packaged_task< _Res(_ArgTypes...)>
  packaged_task
- class std::promise< _Res >
  Primary template for promise.
- class std::promise< _Res & >
  Partial specialization for promise<R&>.

- class std::promise< void >

  Explicit specialization for promise<void>.

- class std::shared_future< _Res >

  Primary template for shared_future.

- class std::shared_future< _Res & >

  Partial specialization for shared_future<R&>.

- class std::shared_future< void >

  Explicit specialization for shared_future<void>.

Enumerations

- enum std::future_errc { **broken_promise**, **future_already_retrieved**, **promise_already_satisfied**, **no_state** }
- enum **launch** { **any**, **async**, **sync** }

Functions

- **std::__basic_future::__basic_future** (future< _Res > &&)
- **std::__basic_future::__basic_future** (shared_future< _Res > &&)
- **std::__basic_future::__basic_future** (const shared_future< _Res > &)
- static _Setter< void, void > **std::__future_base::_State::__setter** (promise< void > *__prom)
- template<typename _Fn , typename... _Args>
  enable_if<!is_same< typename decay< _Fn >::type, launch >::value, future< decltype(std::declval< _Fn >)(std::declval< _Args >)...)> >::type **std::async** (_Fn &&__fn, _Args &&...__args)
- template<typename _Fn , typename... _Args>
  future< typename result_of< _Fn(_Args...)>::type > **std::async** (launch __policy, _Fn &&__fn, _Args &&...__args)
- error_code **std::make_error_code** (future_errc __errc)
- error_condition **std::make_error_condition** (future_errc __errc)
- void **std::promise**< **void** >**::set_value** ()
- template<typename _Res , typename... _ArgTypes>
  void **std::swap** (packaged_task< _Res(_ArgTypes...)> &__x, packaged_task< _Res(_ArgTypes...)> &__y)
- template<typename _Res >
  void **std::swap** (promise< _Res > &__x, promise< _Res > &__y)

Variables

- const error_category ∗const std::future_category

2.13.1 Detailed Description

Classes for futures support.

2.13.2 Enumeration Type Documentation

2.13.2.1 enum std::future_errc

Error code for futures.

Definition at line 59 of file future.

2.13.3 Variable Documentation

2.13.3.1 const error_category∗ const std::future_category

Points to a statically-allocated object derived from error_category.

2.14 I/O

Classes

- class __gnu_cxx::stdio_filebuf< _CharT, _Traits >

  Provides a layer of compatibility for C/POSIX.
  This GNU extension provides extensions for working with standard C FILE∗'s and POSIX file descriptors. It must be instantiated by the user with the type of character used in the file stream, e.g., stdio_filebuf<char>.

- class __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >

  Provides a layer of compatibility for C.
  This GNU extension provides extensions for working with standard C FILE∗'s. It must be instantiated by the user with the type of character used in the file stream, e.g., stdio_filebuf<char>.

- class std::basic_filebuf< _CharT, _Traits >

  The actual work of input and output (for files).
  This class associates both its input and output sequence with an external disk file, and maintains a joint file position for both sequences. Many of its semantics are described in terms of similar behavior in the Standard C Library's `FILE` *streams.*

- class std::basic_fstream< _CharT, _Traits >

  Controlling input and output for files.
  This class supports reading from and writing to named files, using the inherited functions from std::basic_iostream. To control the associated sequence, an instance of std::basic_filebuf is used, which this page refers to as `sb`.

- class std::basic_ifstream< _CharT, _Traits >

  Controlling input for files.
  This class supports reading from named files, using the inherited functions from std::basic_istream. To control the associated sequence, an instance of std::basic_filebuf is used, which this page refers to as `sb`.

- class std::basic_ios< _CharT, _Traits >

  Virtual base class for all stream classes.
  Most of the member functions called dispatched on stream objects (e.g., `std::cout.foo(bar);`*) are consolidated in this class.*

- class std::basic_iostream< _CharT, _Traits >

  Merging istream and ostream capabilities.
  This class multiply inherits from the input and output stream classes simply to provide a single interface.

- class std::basic_istream< _CharT, _Traits >

Controlling input.
This is the base class for all input streams. It provides text formatting of all builtin types, and communicates with any class derived from basic_streambuf to do the actual input.

- class std::basic_istringstream< _CharT, _Traits, _Alloc >

  Controlling input for std::string.
  This class supports reading from objects of type std::basic_string, using the inherited functions from std::basic_istream. To control the associated sequence, an instance of std::basic_stringbuf is used, which this page refers to as `sb`.

- class std::basic_ofstream< _CharT, _Traits >

  Controlling output for files.
  This class supports reading from named files, using the inherited functions from std::basic_ostream. To control the associated sequence, an instance of std::basic_filebuf is used, which this page refers to as `sb`.

- class std::basic_ostream< _CharT, _Traits >

  Controlling output.
  This is the base class for all output streams. It provides text formatting of all builtin types, and communicates with any class derived from basic_streambuf to do the actual output.

- class std::basic_ostringstream< _CharT, _Traits, _Alloc >

  Controlling output for std::string.
  This class supports writing to objects of type std::basic_string, using the inherited functions from std::basic_ostream. To control the associated sequence, an instance of std::basic_stringbuf is used, which this page refers to as `sb`.

- class std::basic_streambuf< _CharT, _Traits >

  The actual work of input and output (interface).
  This is a base class. Derived stream buffers each control a pair of character sequences: one for input, and one for output.

- class std::basic_stringbuf< _CharT, _Traits, _Alloc >

  The actual work of input and output (for std::string).
  This class associates either or both of its input and output sequences with a sequence of characters, which can be initialized from, or made available as, a `std::basic_string`. *(Paraphrased from [27.7.1]/1.).*

- class std::basic_stringstream< _CharT, _Traits, _Alloc >

  Controlling input and output for std::string.
  This class supports reading from and writing to objects of type std::basic_string, using the inherited functions from std::basic_iostream. To control the associated sequence, an instance of std::basic_stringbuf is used, which this page refers to as `sb`.

- class std::ios_base

  The base of the I/O class hierarchy.
  This class defines everything that can be defined about I/O that does not depend on the type of characters being input or output. Most people will only see `ios_base` *when they need to specify the full name of the various I/O flags (e.g., the openmodes).*

Typedefs

- typedef basic_filebuf< char > std::filebuf
- typedef basic_fstream< char > std::fstream
- typedef basic_ifstream< char > std::ifstream
- typedef basic_ios< char > std::ios
- typedef basic_iostream< char > std::iostream
- typedef basic_istream< char > std::istream
- typedef basic_istringstream< char > std::istringstream
- typedef basic_ofstream< char > std::ofstream
- typedef basic_ostream< char > std::ostream
- typedef basic_ostringstream< char > std::ostringstream
- typedef basic_streambuf< char > std::streambuf
- typedef basic_stringbuf< char > std::stringbuf
- typedef basic_stringstream< char > std::stringstream
- typedef basic_filebuf< wchar_t > std::wfilebuf
- typedef basic_fstream< wchar_t > std::wfstream
- typedef basic_ifstream< wchar_t > std::wifstream
- typedef basic_ios< wchar_t > std::wios
- typedef basic_iostream< wchar_t > std::wiostream
- typedef basic_istream< wchar_t > std::wistream
- typedef basic_istringstream< wchar_t > std::wistringstream
- typedef basic_ofstream< wchar_t > std::wofstream
- typedef basic_ostream< wchar_t > std::wostream
- typedef basic_ostringstream< wchar_t > std::wostringstream
- typedef basic_streambuf< wchar_t > std::wstreambuf
- typedef basic_stringbuf< wchar_t > std::wstringbuf
- typedef basic_stringstream< wchar_t > std::wstringstream

2.14.1 Detailed Description

Nearly all of the I/O classes are parameterized on the type of characters they read and write. (The major exception is ios_base at the top of the hierarchy.) This is a change from pre-Standard streams, which were not templates.

For ease of use and compatibility, all of the basic_* I/O-related classes are given typedef names for both of the builtin character widths (wide and narrow). The typedefs are the same as the pre-Standard names, for example:

```
typedef basic_ifstream<char>  ifstream;
```

Because properly forward-declaring these classes can be difficult, you should not do it yourself. Instead, include the <iosfwd> header, which contains only declarations of all the I/O classes as well as the typedefs. Trying to forward-declare the typedefs themselves (e.g., `class ostream;`) is not valid ISO C++.

For more specific declarations, see http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt

2.14.2 Typedef Documentation

2.14.2.1 typedef basic_filebuf<char> std::filebuf

One of the I/O .

Definition at line 137 of file iosfwd.

2.14.2.2 typedef basic_fstream<char> std::fstream

One of the I/O .

Definition at line 140 of file iosfwd.

2.14.2.3 typedef basic_ifstream<char> std::ifstream

One of the I/O .

Definition at line 138 of file iosfwd.

2.14.2.4 typedef basic_ios<char> std::ios

One of the I/O .

Definition at line 123 of file iosfwd.

2.14.2.5 typedef basic_iostream<char> std::iostream

One of the I/O .

Definition at line 132 of file iosfwd.

2.14.2.6 typedef basic_istream<char> std::istream

One of the I/O .

Definition at line 130 of file iosfwd.

2.14.2.7 typedef basic_istringstream<char> std::istringstream

One of the I/O .

Definition at line 134 of file iosfwd.

2.14.2.8 typedef basic_ofstream<char> std::ofstream

One of the I/O .

Definition at line 139 of file iosfwd.

2.14.2.9 typedef basic_ostream<char> std::ostream

One of the I/O .

Definition at line 131 of file iosfwd.

2.14.2.10 typedef basic_ostringstream<char> std::ostringstream

One of the I/O .

Definition at line 135 of file iosfwd.

2.14.2.11 typedef basic_streambuf<char> std::streambuf

One of the I/O .

Definition at line 129 of file iosfwd.

2.14.2.12 typedef basic_stringbuf<char> std::stringbuf

One of the I/O .

Definition at line 133 of file iosfwd.

2.14.2.13 typedef basic_stringstream<char> std::stringstream

One of the I/O .

Definition at line 136 of file iosfwd.

2.14.2.14 typedef basic_filebuf<wchar_t> std::wfilebuf

One of the I/O .

Definition at line 152 of file iosfwd.

2.14.2.15 typedef basic_fstream<wchar_t> std::wfstream

One of the I/O .

Definition at line 155 of file iosfwd.

2.14.2.16 typedef basic_ifstream<wchar_t> std::wifstream

One of the I/O .

Definition at line 153 of file iosfwd.

2.14.2.17 typedef basic_ios<wchar_t> std::wios

One of the I/O .

Definition at line 143 of file iosfwd.

2.14.2.18 typedef basic_iostream<wchar_t> std::wiostream

One of the I/O .

Definition at line 147 of file iosfwd.

2.14.2.19 typedef basic_istream<wchar_t> std::wistream

One of the I/O .

Definition at line 145 of file iosfwd.

2.14.2.20 typedef basic_istringstream<wchar_t> std::wistringstream

One of the I/O .

Definition at line 149 of file iosfwd.

2.14.2.21 typedef basic_ofstream<wchar_t> std::wofstream

One of the I/O .

Definition at line 154 of file iosfwd.

2.14.2.22 typedef basic_ostream<wchar_t> std::wostream

One of the I/O .

Definition at line 146 of file iosfwd.

2.14.2.23 typedef basic_ostringstream<wchar_t> std::wostringstream

One of the I/O .

Definition at line 150 of file iosfwd.

2.14.2.24 typedef basic_streambuf<wchar_t> std::wstreambuf

One of the I/O .

Definition at line 144 of file iosfwd.

2.14.2.25 typedef basic_stringbuf<wchar_t> std::wstringbuf

One of the I/O .

Definition at line 148 of file iosfwd.

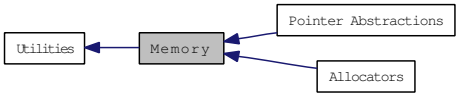
2.14.2.26 typedef basic_stringstream<wchar_t> std::wstringstream

One of the I/O .

Definition at line 151 of file iosfwd.

2.15 Memory

Collaboration diagram for Memory:



Modules

- Pointer Abstractions
- Allocators

2.15.1 Detailed Description

Components for memory allocation, deallocation, and management.

2.16 Pointer Abstractions

Collaboration diagram for Pointer Abstractions:

Classes

- struct std::default_delete< _Tp >

  Primary template, default_delete.

- struct std::default_delete< _Tp[ ]>

  Specialization, default_delete.

- class std::enable_shared_from_this< _Tp >

  Base class allowing use of member function shared_from_this.

- struct std::owner_less< shared_ptr< _Tp > >

  Partial specialization of owner_less for shared_ptr.

- struct std::owner_less< weak_ptr< _Tp > >

  Partial specialization of owner_less for weak_ptr.

- class std::shared_ptr< _Tp >

  A smart pointer with reference-counted copy semantics.

- class std::unique_ptr< _Tp, _Tp_Deleter >

  20.7.12.2 unique_ptr for single objects.

- class std::unique_ptr< _Tp[ ], _Tp_Deleter >

  20.7.12.3 unique_ptr for array objects with a runtime length

- class std::weak_ptr< _Tp >

  A smart pointer with weak semantics.

Functions

- template<typename _Tp , typename _Alloc , typename... _Args>
  shared_ptr< _Tp > std::allocate_shared (_Alloc __a, _Args &&...__args)

- template<typename _Tp , typename _Tp1 >
  shared_ptr< _Tp > **std::const_pointer_cast** (const shared_ptr< _Tp1 > &__r)
- template<typename _Tp , typename _Tp1 >
  shared_ptr< _Tp > **std::dynamic_pointer_cast** (const shared_ptr< _Tp1 > &__r)
- template<typename _Del , typename _Tp , _Lock_policy _Lp>
  _Del * std::get_deleter (const __shared_ptr< _Tp, _Lp > &__p)
- template<typename _Tp , typename... _Args>
  shared_ptr< _Tp > std::make_shared (_Args &&...__args)
- template<typename _Tp , typename _Tp_Deleter , typename _Up , typename _Up_Deleter >
  bool **std::operator!=** (const unique_ptr< _Tp, _Tp_Deleter > &__x, const unique_ptr< _Up, _Up_Deleter > &__y)
- template<typename _Tp1 , typename _Tp2 >
  bool **std::operator!=** (const shared_ptr< _Tp1 > &__a, const shared_ptr< _Tp2 > &__b)
- template<typename _Tp , typename _Tp_Deleter , typename _Up , typename _Up_Deleter >
  bool **std::operator**< (const unique_ptr< _Tp, _Tp_Deleter > &__x, const unique_ptr< _Up, _Up_Deleter > &__y)
- template<typename _Tp1 , typename _Tp2 >
  bool **std::operator**< (const shared_ptr< _Tp1 > &__a, const shared_ptr< _Tp2 > &__b)
- template<typename _Ch , typename _Tr , typename _Tp , _Lock_policy _Lp>
  std::basic_ostream< _Ch, _Tr > & std::operator<< (std::basic_ostream< _Ch, _Tr > &__os, const __shared_ptr< _Tp, _Lp > &__p)
- template<typename _Tp , typename _Tp_Deleter , typename _Up , typename _Up_Deleter >
  bool **std::operator<=** (const unique_ptr< _Tp, _Tp_Deleter > &__x, const unique_ptr< _Up, _Up_Deleter > &__y)
- template<typename _Tp , typename _Tp_Deleter , typename _Up , typename _Up_Deleter >
  bool **std::operator==** (const unique_ptr< _Tp, _Tp_Deleter > &__x, const unique_ptr< _Up, _Up_Deleter > &__y)
- template<typename _Tp1 , typename _Tp2 >
  bool **std::operator==** (const shared_ptr< _Tp1 > &__a, const shared_ptr< _Tp2 > &__b)
- template<typename _Tp , typename _Tp_Deleter , typename _Up , typename _Up_Deleter >
  bool **std::operator**> (const unique_ptr< _Tp, _Tp_Deleter > &__x, const unique_ptr< _Up, _Up_Deleter > &__y)
- template<typename _Tp , typename _Tp_Deleter , typename _Up , typename _Up_Deleter >
  bool **std::operator>=** (const unique_ptr< _Tp, _Tp_Deleter > &__x, const unique_ptr< _Up, _Up_Deleter > &__y)
- template<typename _Tp , typename _Tp1 >
  shared_ptr< _Tp > **std::static_pointer_cast** (const shared_ptr< _Tp1 > &__r)

- template<typename _Tp , typename _Tp_Deleter >
  void **std::swap** (unique_ptr< _Tp, _Tp_Deleter > &__x, unique_ptr< _Tp, _Tp_Deleter > &__y)
- template<typename _Tp >
  void **std::swap** (weak_ptr< _Tp > &__a, weak_ptr< _Tp > &__b)
- template<typename _Tp >
  void **std::swap** (shared_ptr< _Tp > &__a, shared_ptr< _Tp > &__b)

2.16.1 Detailed Description

Smart pointers, etc.

2.16.2 Function Documentation

2.16.2.1 template<typename _Tp , typename _Alloc , typename... _Args> shared_ptr<_Tp> std::allocate_shared (_Alloc __*a*, _Args &&... __*args*) [inline]

Create an object that is owned by a shared_ptr.

Parameters:

__a An allocator.

__args Arguments for the *_Tp* object's constructor.

Returns:

A shared_ptr that owns the newly created object.

Exceptions:

An exception thrown from *_Alloc::allocate* or from the constructor of *_Tp*.

A copy of *__a* will be used to allocate memory for the shared_ptr and the new object.

Definition at line 453 of file shared_ptr.h.

2.16.2.2 template<typename _Del , typename _Tp , _Lock_policy _Lp> _Del* std::get_deleter (const __shared_ptr< _Tp, _Lp > & __*p*) [inline]

2.2.3.10 shared_ptr get_deleter (experimental)

Definition at line 74 of file shared_ptr.h.

2.16.2.3 template<typename _Tp , typename... _Args> shared_ptr<_Tp> std::make_shared (_Args &&... *__args*) [inline]

Create an object that is owned by a shared_ptr.

Parameters:

__args Arguments for the *_Tp* object's constructor.

Returns:

A shared_ptr that owns the newly created object.

Exceptions:

std::bad_alloc,or an exception thrown from the constructor of *_Tp*.

Definition at line 468 of file shared_ptr.h.

2.16.2.4 template<typename _Ch , typename _Tr , typename _Tp , _Lock_policy _Lp> std::basic_ostream<_Ch, _Tr>& std::operator<< (std::basic_ostream< _Ch, _Tr > & *__os*, const __shared_ptr< _Tp, _Lp > & *__p*) [inline]

2.2.3.7 shared_ptr I/O

Definition at line 64 of file shared_ptr.h.

2.17 Mutexes

Collaboration diagram for Mutexes:

Classes

- struct std::adopt_lock_t

  Assume the calling thread has already obtained mutex ownership and manage it.

- struct std::defer_lock_t

  Do not acquire ownership of the mutex.

- class std::lock_guard< _Mutex >

  Scoped lock idiom.

- class std::mutex

  mutex

- struct std::once_flag

  once_flag

- class std::recursive_mutex

  recursive_mutex

- class std::recursive_timed_mutex

  recursive_timed_mutex

- class std::timed_mutex

  timed_mutex

- struct std::try_to_lock_t

  Try to acquire ownership of the mutex without blocking.

- class std::unique_lock< _Mutex >

  unique_lock

Functions

- mutex & **std::__get_once_mutex** ()
- void **std::__once_proxy** ()
- void **std::__set_once_functor_lock_ptr** (unique_lock< mutex > *)
- template<typename _Callable , typename... _Args>
  void std::call_once (once_flag &__once, _Callable __f, _Args &&...__args)
- template<typename _L1 , typename _L2 , typename... _L3>
  void std::lock (_L1 &, _L2 &, _L3 &...)
- template<typename _Mutex >
  void **std::swap** (unique_lock< _Mutex > &__x, unique_lock< _Mutex > &_-
  _y)
- template<typename _Lock1 , typename _Lock2 , typename... _Lock3>
  int std::try_lock (_Lock1 &__l1, _Lock2 &__l2, _Lock3 &...__l3)

Variables

- function< void()> **std::__once_functor**
- const adopt_lock_t **std::adopt_lock**
- const defer_lock_t **std::defer_lock**
- const try_to_lock_t **std::try_to_lock**

2.17.1 Detailed Description

Classes for mutex support.

2.17.2 Function Documentation

2.17.2.1 template<typename _Callable , typename... _Args> void std::call_once (once_flag & *__once*, _Callable *__f*, _Args &&... *__args*) [inline]

call_once

Definition at line 722 of file mutex.

2.17.2.2 template<typename _L1 , typename _L2 , typename... _L3> void std::lock (_L1 &, _L2 &, _L3 & ...) [inline]

lock

2.17.2.3 template<typename _Lock1 , typename _Lock2 , typename... _Lock3> int std::try_lock (_Lock1 & *__l1*, _Lock2 & *__l2*, _Lock3 &... *__l3*) [inline]

Generic try_lock.

Parameters:

__l1 Meets Mutex requirements (try_lock() may throw).

__l2 Meets Mutex requirements (try_lock() may throw).

__l3 Meets Mutex requirements (try_lock() may throw).

Returns:

Returns -1 if all try_lock() calls return true. Otherwise returns a 0-based index corresponding to the argument that returned false.

Postcondition:

Either all arguments are locked, or none will be.

Sequentially calls try_lock() on each argument.

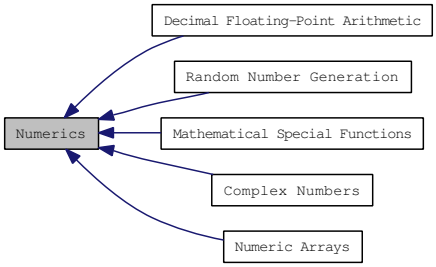
Definition at line 664 of file mutex.

References std::try_lock().

Referenced by std::try_lock().

2.18 Numerics

Collaboration diagram for Numerics:



Modules

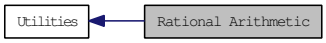
- Complex Numbers
- Numeric Arrays
- Mathematical Special Functions
- Decimal Floating-Point Arithmetic
- Random Number Generation

2.18.1 Detailed Description

Components for performing numeric operations. Includes support for for complex number types, random number generation, numeric (n-at-a-time) arrays, generalized numeric algorithms, and special math functions.

2.19 Rational Arithmetic

Collaboration diagram for Rational Arithmetic:



Classes

- struct std::ratio< _Num, _Den >
  Provides compile-time rational arithmetic.
- struct std::ratio_add< _R1, _R2 >
  ratio_add
- struct std::ratio_divide< _R1, _R2 >
  ratio_divide
- struct std::ratio_equal< _R1, _R2 >
  ratio_equal
- struct std::ratio_greater< _R1, _R2 >
  ratio_greater
- struct std::ratio_greater_equal< _R1, _R2 >
  ratio_greater_equal
- struct std::ratio_less< _R1, _R2 >
  ratio_less
- struct std::ratio_less_equal< _R1, _R2 >
  ratio_less_equal
- struct std::ratio_multiply< _R1, _R2 >
  ratio_multiply
- struct std::ratio_not_equal< _R1, _R2 >
  ratio_not_equal
- struct std::ratio_subtract< _R1, _R2 >
  ratio_subtract

Typedefs

- typedef ratio< 1, 1000000000000000000 > **std::atto**
- typedef ratio< 1, 100 > **std::centi**
- typedef ratio< 10, 1 > **std::deca**
- typedef ratio< 1, 10 > **std::deci**
- typedef ratio< 1000000000000000000, 1 > **std::exa**
- typedef ratio< 1, 1000000000000000 > **std::femto**
- typedef ratio< 1000000000, 1 > **std::giga**
- typedef ratio< 100, 1 > **std::hecto**
- typedef ratio< 1000, 1 > **std::kilo**
- typedef ratio< 1000000, 1 > **std::mega**
- typedef ratio< 1, 1000000 > **std::micro**
- typedef ratio< 1, 1000 > **std::milli**
- typedef ratio< 1, 1000000000 > **std::nano**
- typedef ratio< 1000000000000000, 1 > **std::peta**
- typedef ratio< 1, 1000000000000 > **std::pico**
- typedef ratio< 1000000000000, 1 > **std::tera**

Variables

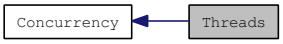
- static const intmax_t **std::ratio::den**
- static const intmax_t **std::ratio::num**

2.19.1 Detailed Description

Compile time representation of finite rational numbers.

2.20 Threads

Collaboration diagram for Threads:



Classes

- struct std::hash< thread::id >

  std::hash specialization for thread::id.

- class std::thread

  thread

Namespaces

- namespace std::this_thread

Functions

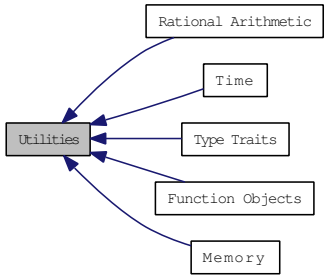
- bool **std::operator!=** (thread::id __x, thread::id __y)
- template<class _CharT , class _Traits >
  basic_ostream< _CharT, _Traits > & **std::operator**<< (basic_ostream< _CharT, _Traits > &__out, thread::id __id)
- bool **std::operator**<= (thread::id __x, thread::id __y)
- bool **std::operator**> (thread::id __x, thread::id __y)
- bool **std::operator**>= (thread::id __x, thread::id __y)
- void **std::swap** (thread &__x, thread &__y)

2.20.1 Detailed Description

Classes for thread support.

2.21 Utilities

Collaboration diagram for Utilities:



Modules

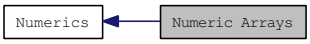
- Time
- Memory
- Rational Arithmetic
- Type Traits
- Function Objects

2.21.1 Detailed Description

Components deemed generally useful. Includes pair, tuple, forward/move helpers, ratio, function object, metaprogramming and type traits, time, date, and memory functions.

2.22 Numeric Arrays

Collaboration diagram for Numeric Arrays:



Classes

- class std::gslice
  Class defining multi-dimensional subset of an array.
- class std::gslice_array< _Tp >
  Reference to multi-dimensional subset of an array.
- class std::indirect_array< _Tp >
  Reference to arbitrary subset of an array.
- class std::mask_array< _Tp >
  Reference to selected subset of an array.
- class std::slice
  Class defining one-dimensional subset of an array.
- class std::slice_array< _Tp >
  Reference to one-dimensional subset of an array.
- class std::valarray< _Tp >
  Smart array designed to support numeric processing.

Defines

- #define **_DEFINE_BINARY_OPERATOR**(_Op, _Name)
- #define **_DEFINE_VALARRAY_AUGMENTED_ASSIGNMENT**(_Op, _Name)
- #define **_DEFINE_VALARRAY_EXPR_AUGMENTED_ASSIGNMENT**(_Op, _Name)
- #define **_DEFINE_VALARRAY_OPERATOR**(_Op, _Name)
- #define **_DEFINE_VALARRAY_OPERATOR**(_Op, _Name)
- #define **_DEFINE_VALARRAY_OPERATOR**(_Op, _Name)
- #define **_DEFINE_VALARRAY_OPERATOR**(_Op, _Name)
- #define **_DEFINE_VALARRAY_UNARY_OPERATOR**(_Op, _Name)

Functions

- std::gslice::gslice (const gslice &)
- std::gslice::gslice (size_t, const valarray< size_t > &, const valarray< size_t > &)
- std::gslice::gslice ()
- std::gslice_array::gslice_array (const gslice_array &)
- std::indirect_array::indirect_array (const indirect_array &)
- std::mask_array::mask_array (const mask_array &)
- std::slice::slice (size_t, size_t, size_t)
- std::slice::slice ()
- std::slice_array::slice_array (const slice_array &)
- template<class _Dom >
  std::valarray::valarray (const _Expr< _Dom, _Tp > &__e)
- std::valarray::valarray (initializer_list< _Tp >)
- std::valarray::valarray (const indirect_array< _Tp > &)
- std::valarray::valarray (const mask_array< _Tp > &)
- std::valarray::valarray (const gslice_array< _Tp > &)
- std::valarray::valarray (const slice_array< _Tp > &)
- std::valarray::valarray (const valarray &)
- template<typename _Tp>
  std::valarray::valarray (const _Tp *__restrict__ __p, size_t __n)
- std::valarray::valarray (const _Tp &, size_t)
- std::valarray::valarray (size_t)
- std::valarray::valarray ()
- std::gslice::~gslice ()
- _Expr< _RefFunClos< _ValArray, _Tp >, _Tp > std::valarray::apply (_Tp func(const _Tp &)) const
- _Expr< _ValFunClos< _ValArray, _Tp >, _Tp > std::valarray::apply (_Tp func(_Tp)) const
- valarray< _Tp > std::valarray::cshift (int) const
- _Tp std::valarray::max () const
- _Tp std::valarray::min () const
- _UnaryOp< __logical_not >::_Rt std::valarray::operator! () const
- template<typename _Tp >
  _Expr< _BinClos< __not_equal_to, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __not_equal_to, _Tp >::result_type > **std::operator!=** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __not_equal_to, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __not_equal_to, _Tp >::result_type > **std::operator!=** (const valarray< _Tp > &__v, const _Tp &__t)

- template<typename _Tp >
  _Expr< _BinClos< __not_equal_to, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __not_equal_to, _Tp >::result_type > **std::operator!=** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<typename _Tp >
  _Expr< _BinClos< __modulus, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __modulus, _Tp >::result_type > **std::operator%** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __modulus, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __modulus, _Tp >::result_type > **std::operator%** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __modulus, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __modulus, _Tp >::result_type > **std::operator%** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<class _Dom >
  void **std::slice_array::operator%=** (const _Expr< _Dom, _Tp > &) const
- void std::slice_array::operator%= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::mask_array::operator%=** (const _Expr< _Dom, _Tp > &) const
- void std::mask_array::operator%= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::indirect_array::operator%=** (const _Expr< _Dom, _Tp > &) const

- void std::indirect_array::operator%= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::gslice_array::operator%=** (const _Expr< _Dom, _Tp > &) const
- void std::gslice_array::operator%= (const valarray< _Tp > &) const
- template<class _Dom >
  valarray< _Tp > & **std::valarray::operator%=** (const _Expr< _Dom, _Tp > &)
- valarray< _Tp > & std::valarray::operator%= (const valarray< _Tp > &)
- valarray< _Tp > & std::valarray::operator%= (const _Tp &)
- template<typename _Tp >
  _Expr< _BinClos< __bitwise_and, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __bitwise_and, _Tp >::result_type > **std::operator&** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __bitwise_and, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __bitwise_and, _Tp >::result_type > **std::operator&** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __bitwise_and, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __bitwise_and, _Tp >::result_type > **std::operator&** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)

- template<typename _Tp >
  _Expr< _BinClos< __logical_and, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __logical_and, _Tp >::result_type > **std::operator&&** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __logical_and, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __logical_and, _Tp >::result_type > **std::operator&&** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __logical_and, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __logical_and, _Tp >::result_type > **std::operator&&** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<class _Dom >
  void **std::slice_array::operator&=** (const _Expr< _Dom, _Tp > &) const
- void std::slice_array::operator&= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::mask_array::operator&=** (const _Expr< _Dom, _Tp > &) const
- void std::mask_array::operator&= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::indirect_array::operator&=** (const _Expr< _Dom, _Tp > &) const
- void std::indirect_array::operator&= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::gslice_array::operator&=** (const _Expr< _Dom, _Tp > &) const
- void std::gslice_array::operator&= (const valarray< _Tp > &) const
- template<class _Dom >
  valarray< _Tp > & **std::valarray::operator&=** (const _Expr< _Dom, _Tp > &)
- valarray< _Tp > & std::valarray::operator&= (const valarray< _Tp > &)
- valarray< _Tp > & std::valarray::operator&= (const _Tp &)
- template<typename _Tp >
  _Expr< _BinClos< __multiplies, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __multiplies, _Tp >::result_type > **std::operator*** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __multiplies, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __multiplies, _Tp >::result_type > **std::operator*** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __multiplies, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __multiplies, _Tp >::result_type > **std::operator*** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<class _Dom >
  void **std::slice_array::operator*=** (const _Expr< _Dom, _Tp > &) const

- void std::slice_array::operator*= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::mask_array::operator*=** (const _Expr< _Dom, _Tp > &) const
- void std::mask_array::operator*= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::indirect_array::operator*=** (const _Expr< _Dom, _Tp > &) const
- void std::indirect_array::operator*= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::gslice_array::operator*=** (const _Expr< _Dom, _Tp > &) const
- void std::gslice_array::operator*= (const valarray< _Tp > &) const
- template<class _Dom >
  valarray< _Tp > & **std::valarray::operator*=** (const _Expr< _Dom, _Tp > &)
- valarray< _Tp > & std::valarray::operator*= (const valarray< _Tp > &)
- valarray< _Tp > & std::valarray::operator*= (const _Tp &)
- _UnaryOp< __unary_plus >::_Rt std::valarray::operator+ () const
- template<typename _Tp >
  _Expr< _BinClos< __plus, _Constant, _ValArray, _Tp, _Tp >, typename _-_fun< __plus, _Tp >::result_type > **std::operator+** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __plus, _ValArray, _Constant, _Tp, _Tp >, typename _-_fun< __plus, _Tp >::result_type > **std::operator+** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __plus, _ValArray, _ValArray, _Tp, _Tp >, typename _-_fun< __plus, _Tp >::result_type > **std::operator+** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<class _Dom >
  void **std::slice_array::operator+=** (const _Expr< _Dom, _Tp > &) const
- void std::slice_array::operator+= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::mask_array::operator+=** (const _Expr< _Dom, _Tp > &) const
- void std::mask_array::operator+= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::indirect_array::operator+=** (const _Expr< _Dom, _Tp > &) const
- void std::indirect_array::operator+= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::gslice_array::operator+=** (const _Expr< _Dom, _Tp > &) const
- void std::gslice_array::operator+= (const valarray< _Tp > &) const
- template<class _Dom >
  valarray< _Tp > & **std::valarray::operator+=** (const _Expr< _Dom, _Tp > &)
- valarray< _Tp > & std::valarray::operator+= (const valarray< _Tp > &)

- valarray< _Tp > & std::valarray::operator+= (const _Tp &)
- _UnaryOp< __negate >::_Rt std::valarray::operator- () const
- template<typename _Tp >
  _Expr< _BinClos< __minus, _Constant, _ValArray, _Tp, _Tp >, typename _-
  _fun< __minus, _Tp >::result_type > **std::operator-** (const _Tp &__t, const
  valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __minus, _ValArray, _Constant, _Tp, _Tp >, typename _-
  _fun< __minus, _Tp >::result_type > **std::operator-** (const valarray< _Tp >
  &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __minus, _ValArray, _ValArray, _Tp, _Tp >, typename _-
  _fun< __minus, _Tp >::result_type > **std::operator-** (const valarray< _Tp >
  &__v, const valarray< _Tp > &__w)
- template<class _Dom >
  void **std::slice_array::operator-=** (const _Expr< _Dom, _Tp > &) const
- void std::slice_array::operator-= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::mask_array::operator-=** (const _Expr< _Dom, _Tp > &) const
- void std::mask_array::operator-= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::indirect_array::operator-=** (const _Expr< _Dom, _Tp > &) const
- void std::indirect_array::operator-= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::gslice_array::operator-=** (const _Expr< _Dom, _Tp > &) const
- void std::gslice_array::operator-= (const valarray< _Tp > &) const
- template<class _Dom >
  valarray< _Tp > & **std::valarray::operator-=** (const _Expr< _Dom, _Tp >
  &)
- valarray< _Tp > & std::valarray::operator-= (const valarray< _Tp > &)
- valarray< _Tp > & std::valarray::operator-= (const _Tp &)
- template<typename _Tp >
  _Expr< _BinClos< __divides, _Constant, _ValArray, _Tp, _Tp >, typename _-
  _fun< __divides, _Tp >::result_type > **std::operator/** (const _Tp &__t, const
  valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __divides, _ValArray, _Constant, _Tp, _Tp >, typename _-
  _fun< __divides, _Tp >::result_type > **std::operator/** (const valarray< _Tp >
  &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __divides, _ValArray, _ValArray, _Tp, _Tp >, typename _-
  _fun< __divides, _Tp >::result_type > **std::operator/** (const valarray< _Tp >
  &__v, const valarray< _Tp > &__w)
- template<class _Dom >
  void **std::slice_array::operator/=** (const _Expr< _Dom, _Tp > &) const

- void std::slice_array::operator/= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::mask_array::operator/=** (const _Expr< _Dom, _Tp > &) const
- void std::mask_array::operator/= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::indirect_array::operator/=** (const _Expr< _Dom, _Tp > &) const
- void std::indirect_array::operator/= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::gslice_array::operator/=** (const _Expr< _Dom, _Tp > &) const
- void std::gslice_array::operator/= (const valarray< _Tp > &) const
- template<class _Dom >
  valarray< _Tp > & **std::valarray::operator/=** (const _Expr< _Dom, _Tp > &)
- valarray< _Tp > & std::valarray::operator/= (const valarray< _Tp > &)
- valarray< _Tp > & std::valarray::operator/= (const _Tp &)
- template<typename _Tp >
  _Expr< _BinClos< __less, _Constant, _ValArray, _Tp, _Tp >, typename _-_fun< __less, _Tp >::result_type > **std::operator**< (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __less, _ValArray, _Constant, _Tp, _Tp >, typename _-_fun< __less, _Tp >::result_type > **std::operator**< (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __less, _ValArray, _ValArray, _Tp, _Tp >, typename _-_fun< __less, _Tp >::result_type > **std::operator**< (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<typename _Tp >
  _Expr< _BinClos< __shift_left, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __shift_left, _Tp >::result_type > **std::operator**<< (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __shift_left, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __shift_left, _Tp >::result_type > **std::operator**<< (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __shift_left, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __shift_left, _Tp >::result_type > **std::operator**<< (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<class _Dom >
  void **std::slice_array::operator<<=** (const _Expr< _Dom, _Tp > &) const
- void std::slice_array::operator<<= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::mask_array::operator<<=** (const _Expr< _Dom, _Tp > &) const

- void std::mask_array::operator<<= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::indirect_array::operator<<=** (const _Expr< _Dom, _Tp > &) const
- void std::indirect_array::operator<<= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::gslice_array::operator<<=** (const _Expr< _Dom, _Tp > &) const
- void std::gslice_array::operator<<= (const valarray< _Tp > &) const
- template<class _Dom >
  valarray< _Tp > & **std::valarray::operator<<=** (const _Expr< _Dom, _Tp > &)
- valarray< _Tp > & std::valarray::operator<<= (const valarray< _Tp > &)
- valarray< _Tp > & std::valarray::operator<<= (const _Tp &)
- template<typename _Tp >
  _Expr< _BinClos< __less_equal, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __less_equal, _Tp >::result_type > **std::operator<=** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __less_equal, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __less_equal, _Tp >::result_type > **std::operator<=** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __less_equal, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __less_equal, _Tp >::result_type > **std::operator<=** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<class _Dom >
  void **std::slice_array::operator=** (const _Expr< _Dom, _Tp > &) const
- void std::slice_array::operator= (const valarray< _Tp > &) const
- void std::slice_array::operator= (const _Tp &) const
- slice_array & std::slice_array::operator= (const slice_array &)
- template<class _Ex >
  void **std::mask_array::operator=** (const _Expr< _Ex, _Tp > &__e) const
- void **std::mask_array::operator=** (const valarray< _Tp > &) const
- void std::mask_array::operator= (const _Tp &) const
- mask_array & std::mask_array::operator= (const mask_array &)
- template<class _Dom >
  void **std::indirect_array::operator=** (const _Expr< _Dom, _Tp > &) const
- void std::indirect_array::operator= (const valarray< _Tp > &) const
- void std::indirect_array::operator= (const _Tp &) const
- indirect_array & std::indirect_array::operator= (const indirect_array &)
- template<class _Dom >
  void **std::gslice_array::operator=** (const _Expr< _Dom, _Tp > &) const
- void std::gslice_array::operator= (const valarray< _Tp > &) const
- void std::gslice_array::operator= (const _Tp &) const

- gslice_array & std::gslice_array::operator= (const gslice_array &)
- gslice & std::gslice::operator= (const gslice &)
- template<class _Dom >
  valarray< _Tp > & **std::valarray::operator=** (const _Expr< _Dom, _Tp > &)

- valarray< _Tp > & std::valarray::operator= (const indirect_array< _Tp > &)
- valarray< _Tp > & std::valarray::operator= (const mask_array< _Tp > &)
- valarray< _Tp > & std::valarray::operator= (const gslice_array< _Tp > &)
- valarray< _Tp > & std::valarray::operator= (const slice_array< _Tp > &)
- valarray< _Tp > & std::valarray::operator= (const _Tp &)
- valarray & std::valarray::operator= (initializer_list< _Tp >)
- valarray< _Tp > & std::valarray::operator= (const valarray< _Tp > &)
- template<typename _Tp >
  _Expr< _BinClos< __equal_to, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __equal_to, _Tp >::result_type > **std::operator==** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __equal_to, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __equal_to, _Tp >::result_type > **std::operator==** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __equal_to, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __equal_to, _Tp >::result_type > **std::operator==** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<typename _Tp >
  _Expr< _BinClos< __greater, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __greater, _Tp >::result_type > **std::operator**> (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __greater, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __greater, _Tp >::result_type > **std::operator**> (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __greater, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __greater, _Tp >::result_type > **std::operator**> (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<typename _Tp >
  _Expr< _BinClos< __greater_equal, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __greater_equal, _Tp >::result_type > **std::operator**>= (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __greater_equal, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __greater_equal, _Tp >::result_type > **std::operator**>= (const valarray< _Tp > &__v, const _Tp &__t)

- template<typename _Tp >
  _Expr< _BinClos< __greater_equal, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __greater_equal, _Tp >::result_type > **std::operator>=** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<typename _Tp >
  _Expr< _BinClos< __shift_right, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __shift_right, _Tp >::result_type > **std::operator>>** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __shift_right, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __shift_right, _Tp >::result_type > **std::operator>>** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __shift_right, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __shift_right, _Tp >::result_type > **std::operator>>** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<class _Dom >
  void **std::slice_array::operator>>=** (const _Expr< _Dom, _Tp > &) const
- void std::slice_array::operator>>= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::mask_array::operator>>=** (const _Expr< _Dom, _Tp > &) const
- void std::mask_array::operator>>= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::indirect_array::operator>>=** (const _Expr< _Dom, _Tp > &) const
- void std::indirect_array::operator>>= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::gslice_array::operator>>=** (const _Expr< _Dom, _Tp > &) const
- void std::gslice_array::operator>>= (const valarray< _Tp > &) const
- template<class _Dom >
  valarray< _Tp > & **std::valarray::operator>>=** (const _Expr< _Dom, _Tp > &)
- valarray< _Tp > & std::valarray::operator>>= (const valarray< _Tp > &)
- valarray< _Tp > & std::valarray::operator>>= (const _Tp &)
- indirect_array< _Tp > std::valarray::operator[ ] (const valarray< size_t > &)
- _Expr< _IClos< _ValArray, _Tp >, _Tp > std::valarray::operator[ ] (const valarray< size_t > &) const
- mask_array< _Tp > std::valarray::operator[ ] (const valarray< bool > &)
- valarray< _Tp > std::valarray::operator[ ] (const valarray< bool > &) const
- gslice_array< _Tp > std::valarray::operator[ ] (const gslice &)
- _Expr< _GClos< _ValArray, _Tp >, _Tp > std::valarray::operator[ ] (const gslice &) const
- slice_array< _Tp > std::valarray::operator[ ] (slice)

- _Expr< _SClos< _ValArray, _Tp >, _Tp > std::valarray::operator[ ] (slice) const
- _Tp & std::valarray::operator[ ] (size_t)
- const _Tp & **std::valarray::operator[ ]** (size_t) const
- template<typename _Tp >
  _Expr< _BinClos< __bitwise_xor, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __bitwise_xor, _Tp >::result_type > **std::operator^** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __bitwise_xor, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __bitwise_xor, _Tp >::result_type > **std::operator^** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __bitwise_xor, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __bitwise_xor, _Tp >::result_type > **std::operator^** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<class _Dom >
  void **std::slice_array::operator^=** (const _Expr< _Dom, _Tp > &) const
- void std::slice_array::operator^= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::mask_array::operator^=** (const _Expr< _Dom, _Tp > &) const
- void std::mask_array::operator^= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::indirect_array::operator^=** (const _Expr< _Dom, _Tp > &) const
- void std::indirect_array::operator^= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::gslice_array::operator^=** (const _Expr< _Dom, _Tp > &) const
- void std::gslice_array::operator^= (const valarray< _Tp > &) const
- template<class _Dom >
  valarray< _Tp > & **std::valarray::operator^=** (const _Expr< _Dom, _Tp > &)
- valarray< _Tp > & std::valarray::operator^= (const valarray< _Tp > &)
- valarray< _Tp > & std::valarray::operator^= (const _Tp &)
- template<typename _Tp >
  _Expr< _BinClos< __bitwise_or, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __bitwise_or, _Tp >::result_type > **std::operator|** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __bitwise_or, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __bitwise_or, _Tp >::result_type > **std::operator|** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __bitwise_or, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __bitwise_or, _Tp >::result_type > **std::operator|** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)

- template<class _Dom >
  void **std::slice_array::operator|=** (const _Expr< _Dom, _Tp > &) const
- void std::slice_array::operator|= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::mask_array::operator|=** (const _Expr< _Dom, _Tp > &) const
- void std::mask_array::operator|= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::indirect_array::operator|=** (const _Expr< _Dom, _Tp > &) const
- void std::indirect_array::operator|= (const valarray< _Tp > &) const
- template<class _Dom >
  void **std::gslice_array::operator|=** (const _Expr< _Dom, _Tp > &) const
- void std::gslice_array::operator|= (const valarray< _Tp > &) const
- template<class _Dom >
  valarray< _Tp > & **std::valarray::operator|=** (const _Expr< _Dom, _Tp > &)
- valarray< _Tp > & std::valarray::operator|= (const valarray< _Tp > &)
- valarray< _Tp > & std::valarray::operator|= (const _Tp &)
- template<typename _Tp >
  _Expr< _BinClos< __logical_or, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __logical_or, _Tp >::result_type > **std::operator||** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __logical_or, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __logical_or, _Tp >::result_type > **std::operator||** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __logical_or, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __logical_or, _Tp >::result_type > **std::operator||** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- _UnaryOp< __bitwise_not >::_Rt std::valarray::operator~ () const
- void std::valarray::resize (size_t __size, _Tp __c=_Tp())
- valarray< _Tp > std::valarray::shift (int) const
- size_t std::slice::size () const
- valarray< size_t > std::gslice::size () const
- size_t std::valarray::size () const
- size_t std::slice::start () const
- size_t std::gslice::start () const
- size_t std::slice::stride () const
- valarray< size_t > std::gslice::stride () const
- _Tp std::valarray::sum () const

2.22.1 Detailed Description

Classes and functions for representing and manipulating arrays of elements.

2.22.2 Function Documentation

2.22.2.1 std::gslice::gslice (const gslice & __g) [inline, inherited]

Copy constructor.

Definition at line 156 of file gslice.h.

2.22.2.2 std::gslice::gslice (size_t __o, const valarray< size_t > & __l, const valarray< size_t > & __s) [inline, inherited]

Construct a slice. Constructs a slice with as many dimensions as the length of the *l* and *s* arrays.

Parameters:

- ***o*** Offset in array of first element.
- ***l*** Array of dimension lengths.
- ***s*** Array of dimension strides between array elements.

Definition at line 151 of file gslice.h.

2.22.2.3 std::gslice::gslice () [inline, inherited]

Construct an empty slice.

Definition at line 147 of file gslice.h.

2.22.2.4 template<typename _Tp > std::gslice_array< _Tp >::gslice_array (const gslice_array< _Tp > & __a) [inline, inherited]

Copy constructor. Both slices refer to the same underlying array.

Definition at line 142 of file gslice_array.h.

2.22.2.5 template<typename _Tp > std::indirect_array< _Tp >::indirect_array (const indirect_array< _Tp > & __a) [inline, inherited]

Copy constructor. Both slices refer to the same underlying array.

Definition at line 142 of file indirect_array.h.

2.22.2.6 template<typename _Tp > std::mask_array< _Tp >::mask_array (const mask_array< _Tp > & *a*) [inline, inherited]

Copy constructor. Both slices refer to the same underlying array.

Definition at line 138 of file mask_array.h.

2.22.2.7 std::slice::slice (size_t *__o*, size_t *__d*, size_t *__s*) [inline, inherited]

Construct a slice.

Parameters:

- ***o*** Offset in array of first element.
- ***d*** Number of elements in slice.
- ***s*** Stride between array elements.

Definition at line 93 of file slice_array.h.

2.22.2.8 std::slice::slice () [inline, inherited]

Construct an empty slice.

Definition at line 89 of file slice_array.h.

2.22.2.9 template<typename _Tp > std::slice_array< _Tp >::slice_array (const slice_array< _Tp > & *a*) [inline, inherited]

Copy constructor. Both slices refer to the same underlying array.

Definition at line 206 of file slice_array.h.

2.22.2.10 template<typename _Tp> std::valarray< _Tp >::valarray (initializer_list< _Tp > *__l*) [inline, inherited]

Construct an array with an initializer_list of values.

Definition at line 649 of file valarray.

2.22.2.11 template<typename _Tp> std::valarray< _Tp >::valarray (const indirect_array< _Tp > & *__ia*) [inline, inherited]

Construct an array with the same size and values in *ia*.

Definition at line 639 of file valarray.

2.22.2.12 template<typename _Tp> std::valarray< _Tp >::valarray (const mask_array< _Tp > & __ma) [inline, inherited]

Construct an array with the same size and values in *ma*.

Definition at line 630 of file valarray.

2.22.2.13 template<typename _Tp> std::valarray< _Tp >::valarray (const gslice_array< _Tp > & __ga) [inline, inherited]

Construct an array with the same size and values in *ga*.

Definition at line 619 of file valarray.

2.22.2.14 template<typename _Tp> std::valarray< _Tp >::valarray (const slice_array< _Tp > & __sa) [inline, inherited]

Construct an array with the same size and values in *sa*.

Definition at line 610 of file valarray.

2.22.2.15 template<typename _Tp> std::valarray< _Tp >::valarray (const valarray< _Tp > & __v) [inline, inherited]

Copy constructor.

Definition at line 603 of file valarray.

2.22.2.16 template<typename _Tp> std::valarray< _Tp >::valarray (const _Tp & __t, size_t __n) [inline, inherited]

Construct an array with *n* elements initialized to *t*.

Definition at line 588 of file valarray.

2.22.2.17 template<typename _Tp > std::valarray< _Tp >::valarray (size_t __n) [inline, explicit, inherited]

Construct an array with *n* elements.

Definition at line 582 of file valarray.

2.22.2.18 template<typename _Tp > std::valarray< _Tp >::valarray () [inline, inherited]

Construct an empty array.

Definition at line 578 of file valarray.

2.22.2.19 std::gslice::~gslice () [inline, inherited]

Destructor.

Definition at line 161 of file gslice.h.

2.22.2.20 template<class _Tp> _Expr< _RefFunClos< _ValArray, _Tp >, _Tp > std::valarray< _Tp >::apply (_Tp *func*const _Tp &) const [inline, inherited]

Apply a function to the array. Returns a new valarray with elements assigned to the result of applying func to the corresponding element of this array. The new array has the same size as this one.

Parameters:

func Function of const Tp& returning Tp to apply.

Returns:

New valarray with transformed elements.

Definition at line 980 of file valarray.

2.22.2.21 template<class _Tp> _Expr< _ValFunClos< _ValArray, _Tp >, _Tp > std::valarray< _Tp >::apply (_Tp *func*_Tp) const [inline, inherited]

Apply a function to the array. Returns a new valarray with elements assigned to the result of applying func to the corresponding element of this array. The new array has the same size as this one.

Parameters:

func Function of Tp returning Tp to apply.

Returns:

New valarray with transformed elements.

Definition at line 972 of file valarray.

2.22.2.22 template<class _Tp > valarray< _Tp > std::valarray< _Tp >::cshift (int __n) const [inline, inherited]

Return a rotated array. A new valarray is constructed as a copy of this array with elements in shifted positions. For an element with index i, the new position is (i - n) % size(). The new valarray has the same size as the current one. Elements that are shifted beyond the array bounds are shifted into the other end of the array. No elements are lost.

Positive arguments shift toward index 0, wrapping around the top. Negative arguments shift towards the top, wrapping around to 0.

Parameters:

n Number of element positions to rotate.

Returns:

New valarray with elements in shifted positions.

Definition at line 898 of file valarray.

2.22.2.23 template<typename _Tp > _Tp std::valarray< _Tp >::max () const [inline, inherited]

Return the maximum element using operator<().

Definition at line 964 of file valarray.

References std::max_element().

2.22.2.24 template<typename _Tp > _Tp std::valarray< _Tp >::min () const [inline, inherited]

Return the minimum element using operator<().

Definition at line 956 of file valarray.

References std::min_element().

2.22.2.25 template<typename _Tp > valarray< _Tp >::template _UnaryOp< __logical_not >::_Rt std::valarray< _Tp >::operator! () const [inline, inherited]

Return a new valarray by applying unary ! to each element.

Definition at line 999 of file valarray.

2.22.2.26 template<typename _Tp > void std::slice_array< _Tp >::operator%= (const valarray< _Tp > & __v) const [inline, inherited]

Modulo slice elements by corresponding elements of *v*.

Definition at line 257 of file slice_array.h.

2.22.2.27 template<typename _Tp > void std::mask_array< _Tp >::operator%= (const valarray< _Tp > & __v) const [inline, inherited]

Modulo slice elements by corresponding elements of *v*.

Definition at line 191 of file mask_array.h.

2.22.2.28 template<typename _Tp > void std::indirect_array< _Tp >::operator%= (const valarray< _Tp > & __v) const [inline, inherited]

Modulo slice elements by corresponding elements of *v*.

Definition at line 195 of file indirect_array.h.

2.22.2.29 template<typename _Tp > void std::gslice_array< _Tp >::operator%= (const valarray< _Tp > & __v) const [inline, inherited]

Modulo slice elements by corresponding elements of *v*.

Definition at line 201 of file gslice_array.h.

2.22.2.30 template<class _Tp> valarray< _Tp > & std::valarray< _Tp >::operator%= (const valarray< _Tp > & __v) [inline, inherited]

Modulo elements of array by corresponding elements of *v*.

Definition at line 1026 of file valarray.

2.22.2.31 template<class _Tp> valarray< _Tp > & std::valarray< _Tp >::operator%= (const _Tp & __t) [inline, inherited]

Set each element e of array to e % *t*.

Definition at line 1026 of file valarray.

2.22.2.32 template<typename _Tp > void std::slice_array< _Tp >::operator&= (const valarray< _Tp > & __v) const [inline, inherited]

Logical and slice elements with corresponding elements of *v*.

Definition at line 261 of file slice_array.h.

2.22.2.33 template<typename _Tp > void std::mask_array< _Tp >::operator&= (const valarray< _Tp > & __v) const [inline, inherited]

Logical and slice elements with corresponding elements of *v*.

Definition at line 195 of file mask_array.h.

2.22.2.34 template<typename _Tp > void std::indirect_array< _Tp >::operator&= (const valarray< _Tp > & __v) const [inline, inherited]

Logical and slice elements with corresponding elements of *v*.

Definition at line 199 of file indirect_array.h.

2.22.2.35 template<typename _Tp > void std::gslice_array< _Tp >::operator&= (const valarray< _Tp > & __v) const [inline, inherited]

Logical and slice elements with corresponding elements of *v*.

Definition at line 205 of file gslice_array.h.

2.22.2.36 template<class _Tp> valarray< _Tp > & std::valarray< _Tp >::operator&= (const valarray< _Tp > & __v) [inline, inherited]

Logical and corresponding elements of *v* with elements of array.

Definition at line 1028 of file valarray.

2.22.2.37 template<class _Tp> valarray< _Tp > & std::valarray< _Tp >::operator&= (const _Tp & __t) [inline, inherited]

Set each element e of array to e & *t*.

Definition at line 1028 of file valarray.

2.22.2.38 template<typename _Tp > void std::slice_array< _Tp >::operator*= (const valarray< _Tp > & __v) const [inline, inherited]

Multiply slice elements by corresponding elements of *v*.

Definition at line 255 of file slice_array.h.

2.22.2.39 template<typename _Tp > void std::mask_array< _Tp >::operator*= (const valarray< _Tp > & __v) const [inline, inherited]

Multiply slice elements by corresponding elements of *v*.

Definition at line 189 of file mask_array.h.

2.22.2.40 template<typename _Tp > void std::indirect_array< _Tp >::operator*= (const valarray< _Tp > & __v) const [inline, inherited]

Multiply slice elements by corresponding elements of *v*.

Definition at line 193 of file indirect_array.h.

2.22.2.41 template<typename _Tp > void std::gslice_array< _Tp >::operator*= (const valarray< _Tp > & __v) const [inline, inherited]

Multiply slice elements by corresponding elements of *v*.

Definition at line 199 of file gslice_array.h.

2.22.2.42 template<class _Tp> valarray< _Tp > & std::valarray< _Tp >::operator*= (const valarray< _Tp > & __v) [inline, inherited]

Multiply elements of array by corresponding elements of *v*.

Definition at line 1024 of file valarray.

2.22.2.43 template<class _Tp> valarray< _Tp > & std::valarray< _Tp >::operator*= (const _Tp & __t) [inline, inherited]

Multiply each element of array by *t*.

Definition at line 1024 of file valarray.

2.22.2.44 template<typename _Tp > valarray< _Tp >::template _UnaryOp< __unary_plus >::_Rt std::valarray< _Tp >::operator+ () const [inline, inherited]

Return a new valarray by applying unary + to each element.

Definition at line 996 of file valarray.

2.22.2.45 template<typename _Tp > void std::slice_array< _Tp >::operator+= (const valarray< _Tp > & __v) const [inline, inherited]

Add corresponding elements of *v* to slice elements.

Definition at line 258 of file slice_array.h.

2.22.2.46 template<typename _Tp > void std::mask_array< _Tp >::operator+= (const valarray< _Tp > & __v) const [inline, inherited]

Add corresponding elements of *v* to slice elements.

Definition at line 192 of file mask_array.h.

2.22.2.47 template<typename _Tp > void std::indirect_array< _Tp >::operator+= (const valarray< _Tp > & __v) const [inline, inherited]

Add corresponding elements of *v* to slice elements.

Definition at line 196 of file indirect_array.h.

2.22.2.48 template<typename _Tp > void std::gslice_array< _Tp >::operator+= (const valarray< _Tp > & __v) const [inline, inherited]

Add corresponding elements of *v* to slice elements.

Definition at line 202 of file gslice_array.h.

2.22.2.49 template<class _Tp> valarray< _Tp > & std::valarray< _Tp >::operator+= (const valarray< _Tp > & __*v*) [inline, inherited]

Add corresponding elements of *v* to elements of array.

Definition at line 1022 of file valarray.

2.22.2.50 template<class _Tp> valarray< _Tp > & std::valarray< _Tp >::operator+= (const _Tp & __*t*) [inline, inherited]

Add *t* to each element of array.

Definition at line 1022 of file valarray.

2.22.2.51 template<typename _Tp > valarray< _Tp >::template _UnaryOp< __negate >::_Rt std::valarray< _Tp >::operator- () const [inline, inherited]

Return a new valarray by applying unary - to each element.

Definition at line 997 of file valarray.

2.22.2.52 template<typename _Tp > void std::slice_array< _Tp >::operator-= (const valarray< _Tp > & __*v*) const [inline, inherited]

Subtract corresponding elements of *v* from slice elements.

Definition at line 259 of file slice_array.h.

2.22.2.53 template<typename _Tp > void std::mask_array< _Tp >::operator-= (const valarray< _Tp > & __*v*) const [inline, inherited]

Subtract corresponding elements of *v* from slice elements.

Definition at line 193 of file mask_array.h.

2.22.2.54 template<typename _Tp > void std::indirect_array< _Tp >::operator-= (const valarray< _Tp > & __v) const [inline, inherited]

Subtract corresponding elements of *v* from slice elements.

Definition at line 197 of file indirect_array.h.

2.22.2.55 template<typename _Tp > void std::gslice_array< _Tp >::operator-= (const valarray< _Tp > & __v) const [inline, inherited]

Subtract corresponding elements of *v* from slice elements.

Definition at line 203 of file gslice_array.h.

2.22.2.56 template<class _Tp> valarray< _Tp > & std::valarray< _Tp >::operator-= (const valarray< _Tp > & __v) [inline, inherited]

Subtract corresponding elements of *v* from elements of array.

Definition at line 1023 of file valarray.

2.22.2.57 template<class _Tp> valarray< _Tp > & std::valarray< _Tp >::operator-= (const _Tp & __t) [inline, inherited]

Subtract *t* to each element of array.

Definition at line 1023 of file valarray.

2.22.2.58 template<typename _Tp > void std::slice_array< _Tp >::operator/= (const valarray< _Tp > & __v) const [inline, inherited]

Divide slice elements by corresponding elements of *v*.

Definition at line 256 of file slice_array.h.

2.22.2.59 template<typename _Tp > void std::mask_array< _Tp >::operator/= (const valarray< _Tp > & __v) const [inline, inherited]

Divide slice elements by corresponding elements of *v*.

Definition at line 190 of file mask_array.h.

2.22.2.60 template<typename _Tp > void std::indirect_array< _Tp >::operator/= (const valarray< _Tp > & __v) const [inline, inherited]

Divide slice elements by corresponding elements of *v*.

Definition at line 194 of file indirect_array.h.

2.22.2.61 template<typename _Tp > void std::gslice_array< _Tp >::operator/= (const valarray< _Tp > & __v) const [inline, inherited]

Divide slice elements by corresponding elements of *v*.

Definition at line 200 of file gslice_array.h.

2.22.2.62 template<class _Tp> valarray< _Tp > & std::valarray< _Tp >::operator/= (const valarray< _Tp > & __v) [inline, inherited]

Divide elements of array by corresponding elements of *v*.

Definition at line 1025 of file valarray.

2.22.2.63 template<class _Tp> valarray< _Tp > & std::valarray< _Tp >::operator/= (const _Tp & __t) [inline, inherited]

Divide each element of array by *t*.

Definition at line 1025 of file valarray.

2.22.2.64 template<typename _Tp > void std::slice_array< _Tp >::operator<<= (const valarray< _Tp > & __v) const [inline, inherited]

Left shift slice elements by corresponding elements of *v*.

Definition at line 263 of file slice_array.h.

2.22.2.65 template<typename _Tp > void std::mask_array< _Tp >::operator<<= (const valarray< _Tp > & __v) const [inline, inherited]

Left shift slice elements by corresponding elements of *v*.

Definition at line 197 of file mask_array.h.

2.22.2.66 template<typename _Tp > void std::indirect_array< _Tp >::operator<<= (const valarray< _Tp > & __v) const [inline, inherited]

Left shift slice elements by corresponding elements of *v*.

Definition at line 201 of file indirect_array.h.

2.22.2.67 template<typename _Tp > void std::gslice_array< _Tp >::operator<<= (const valarray< _Tp > & __v) const [inline, inherited]

Left shift slice elements by corresponding elements of *v*.

Definition at line 207 of file gslice_array.h.

2.22.2.68 template<class _Tp> valarray< _Tp > & std::valarray< _Tp >::operator<<= (const valarray< _Tp > & __v) [inline, inherited]

Left shift elements of array by corresponding elements of *v*.

Definition at line 1030 of file valarray.

2.22.2.69 template<class _Tp> valarray< _Tp > & std::valarray< _Tp >::operator<<= (const _Tp & __t) [inline, inherited]

Left shift each element e of array by *t* bits.

Definition at line 1030 of file valarray.

2.22.2.70 template<typename _Tp > void std::slice_array< _Tp >::operator= (const valarray< _Tp > & __v) const [inline, inherited]

Assign slice elements to corresponding elements of *v*.

Definition at line 228 of file slice_array.h.

2.22.2.71 template<typename _Tp > void std::slice_array< _Tp >::operator= (const _Tp & __t) const [inline, inherited]

Assign all slice elements to *t*.

Definition at line 223 of file slice_array.h.

2.22.2.72 template<typename _Tp > slice_array< _Tp > & std::slice_array< _Tp >::operator= (const slice_array< _Tp > & __a) [inline, inherited]

Assignment operator. Assigns slice elements to corresponding elements of *a*.

Definition at line 214 of file slice_array.h.

2.22.2.73 template<typename _Tp > void std::mask_array< _Tp >::operator= (const _Tp & __t) const [inline, inherited]

Assign all slice elements to *t*.

Definition at line 157 of file mask_array.h.

2.22.2.74 template<typename _Tp > mask_array< _Tp > & std::mask_array< _Tp >::operator= (const mask_array< _Tp > & __a) [inline, inherited]

Assignment operator. Assigns elements to corresponding elements of *a*.

Definition at line 148 of file mask_array.h.

2.22.2.75 template<typename _Tp > void std::indirect_array< _Tp >::operator= (const valarray< _Tp > & __v) const [inline, inherited]

Assign slice elements to corresponding elements of *v*.

Definition at line 167 of file indirect_array.h.

2.22.2.76 template<typename _Tp > void std::indirect_array< _Tp >::operator= (const _Tp & __t) const [inline, inherited]

Assign all slice elements to *t*.

Definition at line 162 of file indirect_array.h.

2.22.2.77 template<typename _Tp > indirect_array< _Tp > & std::indirect_array< _Tp >::operator= (const indirect_array< _Tp > & __a) [inline, inherited]

Assignment operator. Assigns elements to corresponding elements of *a*.

Definition at line 153 of file indirect_array.h.

2.22.2.78 template<typename _Tp > void std::gslice_array< _Tp >::operator= (const valarray< _Tp > & __v) const [inline, inherited]

Assign slice elements to corresponding elements of *v*.

Definition at line 165 of file gslice_array.h.

References std::valarray< _Tp >::size().

2.22.2.79 template<typename _Tp > void std::gslice_array< _Tp >::operator= (const _Tp & __t) const [inline, inherited]

Assign all slice elements to *t*.

Definition at line 157 of file gslice_array.h.

References std::valarray< _Tp >::size().

2.22.2.80 template<typename _Tp > gslice_array< _Tp > & std::gslice_array< _Tp >::operator= (const gslice_array< _Tp > & __a) [inline, inherited]

Assignment operator. Assigns slice elements to corresponding elements of *a*.

Definition at line 147 of file gslice_array.h.

References std::valarray< _Tp >::size().

2.22.2.81 gslice & std::gslice::operator= (const gslice & __g) [inline, inherited]

Assignment operator.

Definition at line 168 of file gslice.h.

2.22.2.82 template<typename _Tp> valarray< _Tp > & std::valarray< _Tp >::operator= (const indirect_array< _Tp > & *__ia*) [inline, inherited]

Assign elements to an array subset. Assign elements of array to values in *ia*. Results are undefined if *ia* does not have the same size as this array.

Parameters:

ia Array slice to get values from.

Definition at line 756 of file valarray.

2.22.2.83 template<typename _Tp> valarray< _Tp > & std::valarray< _Tp >::operator= (const mask_array< _Tp > & *__ma*) [inline, inherited]

Assign elements to an array subset. Assign elements of array to values in *ma*. Results are undefined if *ma* does not have the same size as this array.

Parameters:

ma Array slice to get values from.

Definition at line 746 of file valarray.

2.22.2.84 template<typename _Tp> valarray< _Tp > & std::valarray< _Tp >::operator= (const gslice_array< _Tp > & *__ga*) [inline, inherited]

Assign elements to an array subset. Assign elements of array to values in *ga*. Results are undefined if *ga* does not have the same size as this array.

Parameters:

ga Array slice to get values from.

Definition at line 736 of file valarray.

References std::valarray< _Tp >::size().

2.22.2.85 template<typename _Tp> valarray< _Tp > & std::valarray< _Tp >::operator= (const slice_array< _Tp > & *__sa*) [inline, inherited]

Assign elements to an array subset. Assign elements of array to values in *sa*. Results are undefined if *sa* does not have the same size as this array.

Parameters:

sa Array slice to get values from.

Definition at line 726 of file valarray.

2.22.2.86 template<typename _Tp> valarray< _Tp > & std::valarray< _Tp >::operator= (const _Tp & __t) [inline, inherited]

Assign elements to a value. Assign all elements of array to *t*.

Parameters:

t Value for elements.

Definition at line 718 of file valarray.

2.22.2.87 template<typename _Tp> valarray< _Tp > & std::valarray< _Tp >::operator= (initializer_list< _Tp > __l) [inline, inherited]

Assign elements to an initializer_list. Assign elements of array to values in *l*. Results are undefined if *l* does not have the same size as this array.

Parameters:

l initializer_list to get values from.

Definition at line 694 of file valarray.

2.22.2.88 template<typename _Tp> valarray< _Tp > & std::valarray< _Tp >::operator= (const valarray< _Tp > & __v) [inline, inherited]

Assign elements to an array. Assign elements of array to values in *v*. Results are undefined if *v* does not have the same size as this array.

Parameters:

v Valarray to get values from.

Definition at line 670 of file valarray.

2.22.2.89 template<typename _Tp > void std::slice_array< _Tp >::operator>>= (const valarray< _Tp > & __v) const [inline, inherited]

Right shift slice elements by corresponding elements of *v*.

Definition at line 264 of file slice_array.h.

2.22.2.90 template<typename _Tp > void std::mask_array< _Tp >::operator>>= (const valarray< _Tp > & __v) const [inline, inherited]

Right shift slice elements by corresponding elements of *v*.

Definition at line 198 of file mask_array.h.

2.22.2.91 template<typename _Tp > void std::indirect_array< _Tp >::operator>>= (const valarray< _Tp > & __v) const [inline, inherited]

Right shift slice elements by corresponding elements of *v*.

Definition at line 202 of file indirect_array.h.

2.22.2.92 template<typename _Tp > void std::gslice_array< _Tp >::operator>>= (const valarray< _Tp > & __v) const [inline, inherited]

Right shift slice elements by corresponding elements of *v*.

Definition at line 208 of file gslice_array.h.

2.22.2.93 template<class _Tp> valarray< _Tp > & std::valarray< _Tp >::operator>>= (const valarray< _Tp > & __v) [inline, inherited]

Right shift elements of array by corresponding elements of *v*.

Definition at line 1031 of file valarray.

2.22.2.94 template<class _Tp> valarray< _Tp > & std::valarray< _Tp >::operator>>= (const _Tp & __t) [inline, inherited]

Right shift each element e of array by *t* bits.

Definition at line 1031 of file valarray.

2.22.2.95 template<typename _Tp > indirect_array< _Tp > std::valarray< _Tp >::operator[ ] (const valarray< size_t > & __i) [inline, inherited]

Return a reference to an array subset. Returns an indirect_array referencing the elements of the array indicated by the argument. The elements in the argument are interpreted as the indices of elements of this valarray to include in the subset. The returned indirect_array refers to these elements.

Parameters:

i The valarray element index list.

Returns:

Indirect_array referencing elements in *i*.

Definition at line 836 of file valarray.

References std::valarray< _Tp >::size().

2.22.2.96 template<typename _Tp > _Expr< _IClos< _ValArray, _Tp >, _Tp > std::valarray< _Tp >::operator[ ] (const valarray< size_t > & __i) const [inline, inherited]

Return an array subset. Returns a new valarray containing the elements of the array indicated by the argument. The elements in the argument are interpreted as the indices of elements of this valarray to copy to the return valarray.

Parameters:

i The valarray element index list.

Returns:

New valarray containing elements in *s*.

Definition at line 828 of file valarray.

2.22.2.97 template<typename _Tp > mask_array< _Tp > std::valarray< _Tp >::operator[ ] (const valarray< bool > & __m) [inline, inherited]

Return a reference to an array subset. Returns a new mask_array referencing the elements of the array indicated by the argument. The input is a valarray of bool which

represents a bitmask indicating which elements are part of the subset. Elements of the array are part of the subset if the corresponding element of the argument is true.

Parameters:

m The valarray bitmask.

Returns:

New valarray containing elements indicated by *m*.

Definition at line 817 of file valarray.

References std::valarray< _Tp >::size().

2.22.2.98 template<typename _Tp > valarray< _Tp > std::valarray< _Tp >::operator[ ] (const valarray< bool > & *__m*) const [inline, inherited]

Return an array subset. Returns a new valarray containing the elements of the array indicated by the argument. The input is a valarray of bool which represents a bitmask indicating which elements should be copied into the new valarray. Each element of the array is added to the return valarray if the corresponding element of the argument is true.

Parameters:

m The valarray bitmask.

Returns:

New valarray containing elements indicated by *m*.

Definition at line 805 of file valarray.

References std::valarray< _Tp >::size().

2.22.2.99 template<typename _Tp > gslice_array< _Tp > std::valarray< _Tp >::operator[ ] (const gslice & *__gs*) [inline, inherited]

Return a reference to an array subset. Returns a new valarray containing the elements of the array indicated by the gslice argument. The new valarray has the same size as the input gslice.

See also:

gslice.

Parameters:

s The source gslice.

Returns:

New valarray containing elements in *s*.

Definition at line 797 of file valarray.

2.22.2.100 template<typename _Tp > _Expr< _GClos< _ValArray, _Tp >, _Tp > std::valarray< _Tp >::operator[ ] (const gslice & *__gs*) const [inline, inherited]

Return an array subset. Returns a slice_array referencing the elements of the array indicated by the slice argument.

See also:

gslice.

Parameters:

s The source slice.

Returns:

Slice_array referencing elements indicated by *s*.

Definition at line 788 of file valarray.

2.22.2.101 template<typename _Tp > slice_array< _Tp > std::valarray< _Tp >::operator[ ] (slice *__s*) [inline, inherited]

Return a reference to an array subset. Returns a new valarray containing the elements of the array indicated by the slice argument. The new valarray has the same size as the input slice.

See also:

slice.

Parameters:

s The source slice.

Returns:

New valarray containing elements in *s*.

Definition at line 783 of file valarray.

2.22.2.102 template<typename _Tp > _Expr< _SClos< _ValArray, _Tp >, _Tp > std::valarray< _Tp >::operator[ ] (slice __s) const [inline, inherited]

Return an array subset. Returns a new valarray containing the elements of the array indicated by the slice argument. The new valarray has the same size as the input slice.

See also:

slice.

Parameters:

s The source slice.

Returns:

New valarray containing elements in *s*.

Definition at line 775 of file valarray.

2.22.2.103 template<typename _Tp > _Tp & std::valarray< _Tp >::operator[ ] (size_t __i) [inline, inherited]

Return a reference to the i'th array element.

Parameters:

i Index of element to return.

Returns:

Reference to the i'th element.

Definition at line 552 of file valarray.

2.22.2.104 template<typename _Tp > void std::slice_array< _Tp >::operator^= (const valarray< _Tp > & __v) const [inline, inherited]

Logical xor slice elements with corresponding elements of *v*.

Definition at line 260 of file slice_array.h.

2.22.2.105 template<typename _Tp > void std::mask_array< _Tp >::operator^= (const valarray< _Tp > & __v) const [inline, inherited]

Logical xor slice elements with corresponding elements of *v*.

Definition at line 194 of file mask_array.h.

2.22.2.106 template<typename _Tp > void std::indirect_array< _Tp >::operator^= (const valarray< _Tp > & __v) const [inline, inherited]

Logical xor slice elements with corresponding elements of *v*.

Definition at line 198 of file indirect_array.h.

2.22.2.107 template<typename _Tp > void std::gslice_array< _Tp >::operator^= (const valarray< _Tp > & __v) const [inline, inherited]

Logical xor slice elements with corresponding elements of *v*.

Definition at line 204 of file gslice_array.h.

2.22.2.108 template<class _Tp> valarray< _Tp > & std::valarray< _Tp >::operator^= (const valarray< _Tp > & __v) [inline, inherited]

Logical xor corresponding elements of *v* with elements of array.

Definition at line 1027 of file valarray.

2.22.2.109 template<class _Tp> valarray< _Tp > & std::valarray< _Tp >::operator^= (const _Tp & __t) [inline, inherited]

Set each element e of array to e ^ *t*.

Definition at line 1027 of file valarray.

2.22.2.110 template<typename _Tp > void std::slice_array< _Tp >::operator|= (const valarray< _Tp > & __v) const [inline, inherited]

Logical or slice elements with corresponding elements of *v*.

Definition at line 262 of file slice_array.h.

2.22.2.111 template<typename _Tp > void std::mask_array< _Tp >::operator|= (const valarray< _Tp > & __v) const [inline, inherited]

Logical or slice elements with corresponding elements of *v*.

Definition at line 196 of file mask_array.h.

2.22.2.112 template<typename _Tp > void std::indirect_array< _Tp >::operator|= (const valarray< _Tp > & __v) const [inline, inherited]

Logical or slice elements with corresponding elements of *v*.

Definition at line 200 of file indirect_array.h.

2.22.2.113 template<typename _Tp > void std::gslice_array< _Tp >::operator|= (const valarray< _Tp > & __v) const [inline, inherited]

Logical or slice elements with corresponding elements of *v*.

Definition at line 206 of file gslice_array.h.

2.22.2.114 template<class _Tp> valarray< _Tp > & std::valarray< _Tp >::operator|= (const valarray< _Tp > & __v) [inline, inherited]

Logical or corresponding elements of *v* with elements of array.

Definition at line 1029 of file valarray.

2.22.2.115 template<class _Tp> valarray< _Tp > & std::valarray< _Tp >::operator|= (const _Tp & __t) [inline, inherited]

Set each element e of array to e | *t*.

Definition at line 1029 of file valarray.

2.22.2.116 template<typename _Tp > valarray< _Tp >::template _UnaryOp< __bitwise_not >::_Rt std::valarray< _Tp >::operator~ () const [inline, inherited]

Return a new valarray by applying unary ~ to each element.

Definition at line 998 of file valarray.

2.22.2.117 template<class _Tp> void std::valarray< _Tp >::resize (size_t *__size*, _Tp *__c* = _Tp()) [inline, inherited]

Resize array. Resize this array to *size* and set all elements to *c*. All references and iterators are invalidated.

Parameters:

size New array size.

c New value for all elements.

Definition at line 939 of file valarray.

2.22.2.118 template<class _Tp > valarray< _Tp > std::valarray< _Tp >::shift (int *__n*) const [inline, inherited]

Return a shifted array. A new valarray is constructed as a copy of this array with elements in shifted positions. For an element with index i, the new position is i - n. The new valarray has the same size as the current one. New elements without a value are set to 0. Elements whose new position is outside the bounds of the array are discarded.

Positive arguments shift toward index 0, discarding elements [0, n). Negative arguments discard elements from the top of the array.

Parameters:

n Number of element positions to shift.

Returns:

New valarray with elements in shifted positions.

Definition at line 857 of file valarray.

2.22.2.119 size_t std::slice::size () const [inline, inherited]

Return size of slice.

Definition at line 101 of file slice_array.h.

2.22.2.120 valarray< size_t > std::gslice::size () const [inline, inherited]

Return array of sizes of slice dimensions.

Definition at line 137 of file gslice.h.

2.22.2.121 template<class _Tp > size_t std::valarray< _Tp >::size () const [inline, inherited]

Return the number of elements in array.

Definition at line 844 of file valarray.

Referenced by std::valarray< _Tp >::operator=(), std::gslice_array< _Tp >::operator=(), and std::valarray< _Tp >::operator[ ]().

2.22.2.122 size_t std::slice::start () const [inline, inherited]

Return array offset of first slice element.

Definition at line 97 of file slice_array.h.

2.22.2.123 size_t std::gslice::start () const [inline, inherited]

Return array offset of first slice element.

Definition at line 133 of file gslice.h.

2.22.2.124 size_t std::slice::stride () const [inline, inherited]

Return array stride of slice.

Definition at line 105 of file slice_array.h.

2.22.2.125 valarray< size_t > std::gslice::stride () const [inline, inherited]

Return array of array strides for each dimension.

Definition at line 141 of file gslice.h.

2.22.2.126 template<class _Tp > _Tp std::valarray< _Tp >::sum () const [inline, inherited]

Return the sum of all elements in the array. Accumulates the sum of all elements into a Tp using +=. The order of adding the elements is unspecified.

Definition at line 849 of file valarray.

2.23 Mathematical Special Functions

Collaboration diagram for Mathematical Special Functions:

Functions

- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type std::tr1::assoc_laguerre (unsigned int __n, unsigned int __m, _Tp __x)
- float **std::tr1::assoc_laguerref** (unsigned int __n, unsigned int __m, float __x)
- long double **std::tr1::assoc_laguerrel** (unsigned int __n, unsigned int __m, long double __x)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type std::tr1::assoc_legendre (unsigned int __l, unsigned int __m, _Tp __x)
- float **std::tr1::assoc_legendref** (unsigned int __l, unsigned int __m, float __x)
- long double **std::tr1::assoc_legendrel** (unsigned int __l, unsigned int __m, long double __x)
- template<typename _Tpx , typename _Tpy >
  __gnu_cxx::__promote_2< _Tpx, _Tpy >::__type std::tr1::beta (_Tpx __x, _Tpy __y)
- float **std::tr1::betaf** (float __x, float __y)
- long double **std::tr1::betal** (long double __x, long double __y)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type std::tr1::comp_ellint_1 (_Tp __k)
- float **std::tr1::comp_ellint_1f** (float __k)
- long double **std::tr1::comp_ellint_1l** (long double __k)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type std::tr1::comp_ellint_2 (_Tp __k)
- float **std::tr1::comp_ellint_2f** (float __k)
- long double **std::tr1::comp_ellint_2l** (long double __k)
- template<typename _Tp , typename _Tpn >
  __gnu_cxx::__promote_2< _Tp, _Tpn >::__type std::tr1::comp_ellint_3 (_Tp __k, _Tpn __nu)
- float **std::tr1::comp_ellint_3f** (float __k, float __nu)
- long double **std::tr1::comp_ellint_3l** (long double __k, long double __nu)
- template<typename _Tpa , typename _Tpc , typename _Tp >
  __gnu_cxx::__promote_3< _Tpa, _Tpc, _Tp >::__type std::tr1::conf_hyperg (_Tpa __a, _Tpc __c, _Tp __x)
- float **std::tr1::conf_hypergf** (float __a, float __c, float __x)

- long double **std::tr1::conf_hypergl** (long double __a, long double __c, long double __x)
- template<typename _Tpnu , typename _Tp > __gnu_cxx::__promote_2< _Tpnu, _Tp >::__type std::tr1::cyl_bessel_i (_Tpnu __nu, _Tp __x)
- float **std::tr1::cyl_bessel_if** (float __nu, float __x)
- long double **std::tr1::cyl_bessel_il** (long double __nu, long double __x)
- template<typename _Tpnu , typename _Tp > __gnu_cxx::__promote_2< _Tpnu, _Tp >::__type std::tr1::cyl_bessel_j (_Tpnu __nu, _Tp __x)
- float **std::tr1::cyl_bessel_jf** (float __nu, float __x)
- long double **std::tr1::cyl_bessel_jl** (long double __nu, long double __x)
- template<typename _Tpnu , typename _Tp > __gnu_cxx::__promote_2< _Tpnu, _Tp >::__type std::tr1::cyl_bessel_k (_Tpnu __nu, _Tp __x)
- float **std::tr1::cyl_bessel_kf** (float __nu, float __x)
- long double **std::tr1::cyl_bessel_kl** (long double __nu, long double __x)
- template<typename _Tpnu , typename _Tp > __gnu_cxx::__promote_2< _Tpnu, _Tp >::__type std::tr1::cyl_neumann (_Tpnu __nu, _Tp __x)
- float **std::tr1::cyl_neumannf** (float __nu, float __x)
- long double **std::tr1::cyl_neumannl** (long double __nu, long double __x)
- template<typename _Tp , typename _Tpp > __gnu_cxx::__promote_2< _Tp, _Tpp >::__type std::tr1::ellint_1 (_Tp __k, _Tpp __phi)
- float **std::tr1::ellint_1f** (float __k, float __phi)
- long double **std::tr1::ellint_1l** (long double __k, long double __phi)
- template<typename _Tp , typename _Tpp > __gnu_cxx::__promote_2< _Tp, _Tpp >::__type std::tr1::ellint_2 (_Tp __k, _Tpp __phi)
- float **std::tr1::ellint_2f** (float __k, float __phi)
- long double **std::tr1::ellint_2l** (long double __k, long double __phi)
- template<typename _Tp , typename _Tpn , typename _Tpp > __gnu_cxx::__promote_3< _Tp, _Tpn, _Tpp >::__type std::tr1::ellint_3 (_Tp __k, _Tpn __nu, _Tpp __phi)
- float **std::tr1::ellint_3f** (float __k, float __nu, float __phi)
- long double **std::tr1::ellint_3l** (long double __k, long double __nu, long double __phi)
- template<typename _Tp > __gnu_cxx::__promote< _Tp >::__type std::tr1::expint (_Tp __x)
- float **std::tr1::expintf** (float __x)
- long double **std::tr1::expintl** (long double __x)

- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type std::tr1::hermite (unsigned int __n, _Tp __x)
- float **std::tr1::hermitef** (unsigned int __n, float __x)
- long double **std::tr1::hermitel** (unsigned int __n, long double __x)
- template<typename _Tpa , typename _Tpb , typename _Tpc , typename _Tp >
  __gnu_cxx::__promote_4< _Tpa, _Tpb, _Tpc, _Tp >::__type std::tr1::hyperg (_Tpa __a, _Tpb __b, _Tpc __c, _Tp __x)
- float **std::tr1::hypergf** (float __a, float __b, float __c, float __x)
- long double **std::tr1::hypergl** (long double __a, long double __b, long double __c, long double __x)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type std::tr1::laguerre (unsigned int __n, _Tp __x)
- float **std::tr1::laguerref** (unsigned int __n, float __x)
- long double **std::tr1::laguerrel** (unsigned int __n, long double __x)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type std::tr1::legendre (unsigned int __n, _Tp __x)
- float **std::tr1::legendref** (unsigned int __n, float __x)
- long double **std::tr1::legendrel** (unsigned int __n, long double __x)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type std::tr1::riemann_zeta (_Tp __x)
- float **std::tr1::riemann_zetaf** (float __x)
- long double **std::tr1::riemann_zetal** (long double __x)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type std::tr1::sph_bessel (unsigned int __n, _Tp __x)
- float **std::tr1::sph_besself** (unsigned int __n, float __x)
- long double **std::tr1::sph_bessell** (unsigned int __n, long double __x)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type std::tr1::sph_legendre (unsigned int __l, unsigned int __m, _Tp __theta)
- float **std::tr1::sph_legendref** (unsigned int __l, unsigned int __m, float __theta)
- long double **std::tr1::sph_legendrel** (unsigned int __l, unsigned int __m, long double __theta)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type std::tr1::sph_neumann (unsigned int __n, _Tp __x)
- float **std::tr1::sph_neumannf** (unsigned int __n, float __x)
- long double **std::tr1::sph_neumannl** (unsigned int __n, long double __x)

2.23.1 Detailed Description

A collection of advanced mathematical special functions.

2.23.2 Function Documentation

2.23.2.1 template<typename _Tp > __gnu_cxx::__promote<_Tp>::__type std::tr1::assoc_laguerre (unsigned int __n, unsigned int __m, _Tp __x) [inline]

5.2.1.1 Associated Laguerre polynomials.

Definition at line 123 of file tr1/cmath.

2.23.2.2 template<typename _Tp > __gnu_cxx::__promote<_Tp>::__type std::tr1::assoc_legendre (unsigned int __l, unsigned int __m, _Tp __x) [inline]

5.2.1.2 Associated Legendre functions.

Definition at line 140 of file tr1/cmath.

2.23.2.3 template<typename _Tpx , typename _Tpy > __gnu_cxx::__promote_2<_Tpx, _Tpy>::__type std::tr1::beta (_Tpx __x, _Tpy __y) [inline]

5.2.1.3 Beta functions.

Definition at line 157 of file tr1/cmath.

2.23.2.4 template<typename _Tp > __gnu_cxx::__promote<_Tp>::__type std::tr1::comp_ellint_1 (_Tp __k) [inline]

5.2.1.4 Complete elliptic integrals of the first kind.

Definition at line 174 of file tr1/cmath.

2.23.2.5 template<typename _Tp > __gnu_cxx::__promote<_Tp>::__type std::tr1::comp_ellint_2 (_Tp __k) [inline]

5.2.1.5 Complete elliptic integrals of the second kind.

Definition at line 191 of file tr1/cmath.

2.23.2.6 template<typename _Tp , typename _Tpn > __gnu_cxx::__promote_2<_Tp, _Tpn>::__type std::tr1::comp_ellint_3 (_Tp __k, _Tpn __nu) [inline]

5.2.1.6 Complete elliptic integrals of the third kind.

Definition at line 208 of file tr1/cmath.

2.23.2.7 template<typename _Tpa , typename _Tpc , typename _Tp > __gnu_cxx::__promote_3<_Tpa, _Tpc, _Tp>::__type std::tr1::conf_hyperg (_Tpa __a, _Tpc __c, _Tp __x) [inline]

5.2.1.7 Confluent hypergeometric functions.

Definition at line 225 of file tr1/cmath.

2.23.2.8 template<typename _Tpnu , typename _Tp > __gnu_cxx::__promote_2<_Tpnu, _Tp>::__type std::tr1::cyl_bessel_i (_Tpnu __nu, _Tp __x) [inline]

5.2.1.8 Regular modified cylindrical Bessel functions.

Definition at line 242 of file tr1/cmath.

2.23.2.9 template<typename _Tpnu , typename _Tp > __gnu_cxx::__promote_2<_Tpnu, _Tp>::__type std::tr1::cyl_bessel_j (_Tpnu __nu, _Tp __x) [inline]

5.2.1.9 Cylindrical Bessel functions (of the first kind).

Definition at line 259 of file tr1/cmath.

2.23.2.10 template<typename _Tpnu , typename _Tp > __gnu_cxx::__promote_2<_Tpnu, _Tp>::__type std::tr1::cyl_bessel_k (_Tpnu __nu, _Tp __x) [inline]

5.2.1.10 Irregular modified cylindrical Bessel functions.

Definition at line 276 of file tr1/cmath.

2.23.2.11 template<typename _Tpnu , typename _Tp > __gnu_cxx::__promote_2<_Tpnu, _Tp>::__type std::tr1::cyl_neumann (_Tpnu __nu, _Tp __x) [inline]

5.2.1.11 Cylindrical Neumann functions.

Definition at line 293 of file tr1/cmath.

2.23.2.12 template<typename _Tp , typename _Tpp > __gnu_cxx::__promote_2<_Tp, _Tpp>::__type std::tr1::ellint_1 (_Tp __k, _Tpp __phi) [inline]

5.2.1.12 Incomplete elliptic integrals of the first kind.

Definition at line 310 of file tr1/cmath.

2.23.2.13 template<typename _Tp , typename _Tpp > __gnu_cxx::__promote_2<_Tp, _Tpp>::__type std::tr1::ellint_2 (_Tp __k, _Tpp __phi) [inline]

5.2.1.13 Incomplete elliptic integrals of the second kind.

Definition at line 327 of file tr1/cmath.

2.23.2.14 template<typename _Tp , typename _Tpn , typename _Tpp > __gnu_cxx::__promote_3<_Tp, _Tpn, _Tpp>::__type std::tr1::ellint_3 (_Tp __k, _Tpn __nu, _Tpp __phi) [inline]

5.2.1.14 Incomplete elliptic integrals of the third kind.

Definition at line 344 of file tr1/cmath.

2.23.2.15 template<typename _Tp > __gnu_cxx::__promote<_Tp>::__type std::tr1::expint (_Tp __x) [inline]

5.2.1.15 Exponential integrals.

Definition at line 361 of file tr1/cmath.

2.23.2.16 template<typename _Tp > __gnu_cxx::__promote<_Tp>::__type std::tr1::hermite (unsigned int __n, _Tp __x) [inline]

5.2.1.16 Hermite polynomials.

Definition at line 378 of file tr1/cmath.

2.23.2.17 template<typename _Tpa , typename _Tpb , typename _Tpc , typename _Tp > __gnu_cxx::__promote_4<_Tpa, _Tpb, _Tpc, _Tp>::__type std::tr1::hyperg (_Tpa __*a*, _Tpb __*b*, _Tpc __*c*, _Tp __*x*) [inline]

5.2.1.17 Hypergeometric functions.

Definition at line 395 of file tr1/cmath.

2.23.2.18 template<typename _Tp > __gnu_cxx::__promote<_Tp>::__type std::tr1::laguerre (unsigned int __*n*, _Tp __*x*) [inline]

5.2.1.18 Laguerre polynomials.

Definition at line 412 of file tr1/cmath.

2.23.2.19 template<typename _Tp > __gnu_cxx::__promote<_Tp>::__type std::tr1::legendre (unsigned int __*n*, _Tp __*x*) [inline]

5.2.1.19 Legendre polynomials.

Definition at line 429 of file tr1/cmath.

2.23.2.20 template<typename _Tp > __gnu_cxx::__promote<_Tp>::__type std::tr1::riemann_zeta (_Tp __*x*) [inline]

5.2.1.20 Riemann zeta function.

Definition at line 446 of file tr1/cmath.

2.23.2.21 template<typename _Tp > __gnu_cxx::__promote<_Tp>::__type std::tr1::sph_bessel (unsigned int __*n*, _Tp __*x*) [inline]

5.2.1.21 Spherical Bessel functions.

Definition at line 463 of file tr1/cmath.

2.23.2.22 template<typename _Tp > __gnu_cxx::__promote<_Tp>::__type std::tr1::sph_legendre (unsigned int __*l*, unsigned int __*m*, _Tp __*theta*) [inline]

5.2.1.22 Spherical associated Legendre functions.

Definition at line 480 of file tr1/cmath.

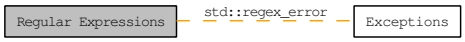
2.23.2.23 template<typename _Tp > __gnu_cxx::__promote<_Tp>::__type std::tr1::sph_neumann (unsigned int __n, _Tp __x) [inline]

5.2.1.23 Spherical Neumann functions.

Definition at line 497 of file tr1/cmath.

2.24 Regular Expressions

Collaboration diagram for Regular Expressions:



Classes

- class std::basic_regex< _Ch_type, _Rx_traits >
- class std::match_results< _Bi_iter, _Allocator >

  The results of a match or search operation.

- class std::regex_error

  A regular expression exception class.
  The regular expression library throws objects of this class on error.

- class std::regex_iterator< _Bi_iter, _Ch_type, _Rx_traits >
- class std::regex_token_iterator< _Bi_iter, _Ch_type, _Rx_traits >
- struct std::regex_traits< _Ch_type >

  Describes aspects of a regular expression.

- class std::sub_match< _BiIter >

Namespaces

- namespace std::regex_constants

Typedefs

- typedef match_results< const char * > **std::cmatch**
- typedef regex_iterator< const char * > **std::cregex_iterator**
- typedef regex_token_iterator< const char * > std::cregex_token_iterator
- typedef sub_match< const char * > std::csub_match
- typedef basic_regex< char > std::regex
- typedef match_results< string::const_iterator > **std::smatch**
- typedef regex_iterator< string::const_iterator > **std::sregex_iterator**
- typedef regex_token_iterator< string::const_iterator > std::sregex_token_iterator
- typedef sub_match< string::const_iterator > std::ssub_match
- typedef match_results< const wchar_t * > **std::wcmatch**

- typedef regex_iterator< const wchar_t * > **std::wcregex_iterator**
- typedef regex_token_iterator< const wchar_t * > std::wcregex_token_iterator
- typedef sub_match< const wchar_t * > std::wcsub_match
- typedef basic_regex< wchar_t > std::wregex
- typedef match_results< wstring::const_iterator > **std::wsmatch**
- typedef regex_iterator< wstring::const_iterator > **std::wsregex_iterator**
- typedef regex_token_iterator< wstring::const_iterator > std::wsregex_token_iterator
- typedef sub_match< wstring::const_iterator > std::wssub_match

Functions

- bool std::regex_traits::isctype (_Ch_type __c, char_class_type __f) const
- template<typename _Bi_iter , class _Allocator >
  bool std::operator!= (const match_results< _Bi_iter, _Allocator > &__m1, const match_results< _Bi_iter, _Allocator > &__m2)
- template<typename _Bi_iter >
  bool std::operator!= (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const &__rhs)
- template<typename _Bi_iter >
  bool std::operator!= (typename iterator_traits< _Bi_iter >::value_type const &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter >
  bool std::operator!= (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const *__rhs)
- template<typename _Bi_iter >
  bool std::operator!= (typename iterator_traits< _Bi_iter >::value_type const *__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc >
  bool std::operator!= (const sub_match< _Bi_iter > &__lhs, const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__rhs)
- template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc >
  bool std::operator!= (const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _BiIter >
  bool std::operator!= (const sub_match< _BiIter > &__lhs, const sub_match< _BiIter > &__rhs)
- template<typename _Bi_iter >
  bool std::operator< (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const &__rhs)

- template<typename _Bi_iter >
  bool std::operator< (typename iterator_traits< _Bi_iter >::value_type const &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter >
  bool std::operator< (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const *__rhs)
- template<typename _Bi_iter >
  bool std::operator< (typename iterator_traits< _Bi_iter >::value_type const *__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter , class _Ch_traits , class _Ch_alloc >
  bool std::operator< (const sub_match< _Bi_iter > &__lhs, const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__rhs)
- template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc >
  bool std::operator< (const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _BiIter >
  bool std::operator< (const sub_match< _BiIter > &__lhs, const sub_match< _BiIter > &__rhs)
- template<typename _Ch_type , typename _Ch_traits , typename _Bi_iter >
  basic_ostream< _Ch_type, _Ch_traits > & std::operator<< (basic_ostream< _Ch_type, _Ch_traits > &__os, const sub_match< _Bi_iter > &__m)
- template<typename _Bi_iter >
  bool std::operator<= (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const &__rhs)
- template<typename _Bi_iter >
  bool std::operator<= (typename iterator_traits< _Bi_iter >::value_type const &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter >
  bool std::operator<= (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const *__rhs)
- template<typename _Bi_iter >
  bool std::operator<= (typename iterator_traits< _Bi_iter >::value_type const *__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter , class _Ch_traits , class _Ch_alloc >
  bool std::operator<= (const sub_match< _Bi_iter > &__lhs, const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__rhs)
- template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc >
  bool std::operator<= (const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _BiIter >
  bool std::operator<= (const sub_match< _BiIter > &__lhs, const sub_match< _BiIter > &__rhs)

- template<typename _Bi_iter , typename _Allocator >
  bool std::operator== (const match_results< _Bi_iter, _Allocator > &__m1, const match_results< _Bi_iter, _Allocator > &__m2)
- template<typename _Bi_iter >
  bool std::operator== (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const &__rhs)
- template<typename _Bi_iter >
  bool std::operator== (typename iterator_traits< _Bi_iter >::value_type const &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter >
  bool std::operator== (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const *__rhs)
- template<typename _Bi_iter >
  bool std::operator== (typename iterator_traits< _Bi_iter >::value_type const *__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc >
  bool std::operator== (const sub_match< _Bi_iter > &__lhs, const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__rhs)
- template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc >
  bool std::operator== (const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _BiIter >
  bool std::operator== (const sub_match< _BiIter > &__lhs, const sub_match< _BiIter > &__rhs)
- template<typename _Bi_iter >
  bool std::operator> (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const &__rhs)
- template<typename _Bi_iter >
  bool std::operator> (typename iterator_traits< _Bi_iter >::value_type const &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter >
  bool std::operator> (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const *__rhs)
- template<typename _Bi_iter >
  bool std::operator> (typename iterator_traits< _Bi_iter >::value_type const *__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter , class _Ch_traits , class _Ch_alloc >
  bool std::operator> (const sub_match< _Bi_iter > &__lhs, const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__rhs)
- template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc >
  bool std::operator> (const basic_string< typename iterator_traits< _Bi_iter

>::value_type, _Ch_traits, _Ch_alloc > &__lhs, const sub_match< _Bi_iter > &__rhs)

- template<typename _BiIter >
  bool std::operator> (const sub_match< _BiIter > &__lhs, const sub_match< _BiIter > &__rhs)
- template<typename _Bi_iter >
  bool std::operator>= (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const &__rhs)
- template<typename _Bi_iter >
  bool std::operator>= (typename iterator_traits< _Bi_iter >::value_type const &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter >
  bool std::operator>= (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const *__rhs)
- template<typename _Bi_iter >
  bool std::operator>= (typename iterator_traits< _Bi_iter >::value_type const *__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter , class _Ch_traits , class _Ch_alloc >
  bool std::operator>= (const sub_match< _Bi_iter > &__lhs, const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__rhs)
- template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc >
  bool std::operator>= (const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _BiIter >
  bool std::operator>= (const sub_match< _BiIter > &__lhs, const sub_match< _BiIter > &__rhs)
- template<typename _Bi_iter , typename _Allocator >
  void std::swap (match_results< _Bi_iter, _Allocator > &__lhs, match_results< _Bi_iter, _Allocator > &__rhs)
- template<typename _Ch_type , typename _Rx_traits >
  void std::swap (basic_regex< _Ch_type, _Rx_traits > &__lhs, basic_regex< _Ch_type, _Rx_traits > &__rhs)
- int std::regex_traits::value (_Ch_type __ch, int __radix) const

Matching, Searching, and Replacing

- template<typename _Ch_traits , typename _Str_allocator , typename _Ch_type , typename _Rx_traits >
  bool std::regex_match (const basic_string< _Ch_type, _Ch_traits, _Str_allocator > &__s, const basic_regex< _Ch_type, _Rx_traits > &__re, regex_constants::match_flag_type __flags=regex_constants::match_default)

- template<typename _Ch_type , class _Rx_traits >
  bool std::regex_match (const _Ch_type *__s, const basic_regex< _Ch_type, _Rx_traits > &__re, regex_constants::match_flag_type __f=regex_constants::match_default)
- template<typename _Ch_traits , typename _Ch_alloc , typename _Allocator , typename _Ch_type , typename _Rx_traits >
  bool std::regex_match (const basic_string< _Ch_type, _Ch_traits, _Ch_alloc > &__s, match_results< typename basic_string< _Ch_type, _Ch_traits, _Ch_alloc >::const_iterator, _Allocator > &__m, const basic_regex< _Ch_type, _Rx_traits > &__re, regex_constants::match_flag_type __flags=regex_constants::match_default)
- template<typename _Ch_type , typename _Allocator , typename _Rx_traits >
  bool std::regex_match (const _Ch_type *__s, match_results< const _Ch_type *, _Allocator > &__m, const basic_regex< _Ch_type, _Rx_traits > &__re, regex_constants::match_flag_type __f=regex_constants::match_default)
- template<typename _Bi_iter , typename _Ch_type , typename _Rx_traits >
  bool std::regex_match (_Bi_iter __first, _Bi_iter __last, const basic_regex< _Ch_type, _Rx_traits > &__re, regex_constants::match_flag_type __flags=regex_constants::match_default)
- template<typename _Bi_iter , typename _Allocator , typename _Ch_type , typename _Rx_traits >
  bool std::regex_match (_Bi_iter __first, _Bi_iter __last, match_results< _Bi_iter, _Allocator > &__m, const basic_regex< _Ch_type, _Rx_traits > &__re, regex_constants::match_flag_type __flags=regex_constants::match_default)
- template<typename _Rx_traits , typename _Ch_type >
  basic_string< _Ch_type > std::regex_replace (const basic_string< _Ch_type > &__s, const basic_regex< _Ch_type, _Rx_traits > &__e, const basic_string< _Ch_type > &__fmt, regex_constants::match_flag_type __flags=regex_constants::match_default)
- template<typename _Out_iter , typename _Bi_iter , typename _Rx_traits , typename _Ch_type >
  _Out_iter std::regex_replace (_Out_iter __out, _Bi_iter __first, _Bi_iter __last, const basic_regex< _Ch_type, _Rx_traits > &__e, const basic_string< _Ch_type > &__fmt, regex_constants::match_flag_type __flags=regex_constants::match_default)
- template<typename _Ch_traits , typename _Ch_alloc , typename _Allocator , typename _Ch_type , typename _Rx_traits >
  bool std::regex_search (const basic_string< _Ch_type, _Ch_traits, _Ch_alloc > &__s, match_results< typename basic_string< _Ch_type, _Ch_traits, _Ch_alloc >::const_iterator, _Allocator > &__m, const basic_regex< _Ch_type, _Rx_traits > &__e, regex_constants::match_flag_type __f=regex_constants::match_default)
- template<typename _Ch_traits , typename _String_allocator , typename _Ch_type , typename _Rx_traits >
  bool std::regex_search (const basic_string< _Ch_type, _Ch_traits, _String_allocator > &__s, const basic_regex< _Ch_type, _Rx_traits > &__e, regex_constants::match_flag_type __flags=regex_constants::match_default)

- template<typename _Ch_type , typename _Rx_traits >
  bool std::regex_search (const _Ch_type *__s, const basic_regex< _Ch_type, _Rx_traits > &__e, regex_constants::match_flag_type __f=regex_constants::match_default)
- template<typename _Ch_type , class _Allocator , class _Rx_traits >
  bool std::regex_search (const _Ch_type *__s, match_results< const _Ch_type *, _Allocator > &__m, const basic_regex< _Ch_type, _Rx_traits > &__e, regex_constants::match_flag_type __f=regex_constants::match_default)
- template<typename _Bi_iter , typename _Ch_type , typename _Rx_traits >
  bool std::regex_search (_Bi_iter __first, _Bi_iter __last, const basic_regex< _Ch_type, _Rx_traits > &__re, regex_constants::match_flag_type __flags=regex_constants::match_default)
- template<typename _Bi_iter , typename _Allocator , typename _Ch_type , typename _Rx_traits >
  bool std::regex_search (_Bi_iter __first, _Bi_iter __last, match_results< _Bi_iter, _Allocator > &__m, const basic_regex< _Ch_type, _Rx_traits > &__re, regex_constants::match_flag_type __flags=regex_constants::match_default)

2.24.1 Detailed Description

A facility for performing regular expression pattern matching.

2.24.2 Typedef Documentation

2.24.2.1 typedef regex_token_iterator<const char*> std::cregex_token_iterator

Token iterator for C-style NULL-terminated strings.

Definition at line 2697 of file tr1_impl/regex.

2.24.2.2 typedef sub_match<const char*> std::csub_match

Standard regex submatch over a C-style null-terminated string.

Definition at line 1178 of file tr1_impl/regex.

2.24.2.3 typedef basic_regex<char> std::regex

Standard regular expressions.

Definition at line 1054 of file tr1_impl/regex.

2.24.2.4 typedef regex_token_iterator<string::const_iterator> std::sregex_token_iterator

Token iterator for standard strings.

Definition at line 2699 of file tr1_impl/regex.

2.24.2.5 typedef sub_match<string::const_iterator> std::ssub_match

Standard regex submatch over a standard string.

Definition at line 1180 of file tr1_impl/regex.

2.24.2.6 typedef regex_token_iterator<const wchar_t*> std::wcregex_token_iterator

Token iterator for C-style NULL-terminated wide strings.

Definition at line 2702 of file tr1_impl/regex.

2.24.2.7 typedef sub_match<const wchar_t*> std::wcsub_match

Regex submatch over a C-style null-terminated wide string.

Definition at line 1183 of file tr1_impl/regex.

2.24.2.8 typedef basic_regex<wchar_t> std::wregex

Standard wide-character regular expressions.

Definition at line 1057 of file tr1_impl/regex.

2.24.2.9 typedef regex_token_iterator<wstring::const_iterator> std::wsregex_token_iterator

Token iterator for standard wide-character strings.

Definition at line 2704 of file tr1_impl/regex.

2.24.2.10 typedef sub_match<wstring::const_iterator> std::wssub_match

Regex submatch over a standard wide string.

Definition at line 1185 of file tr1_impl/regex.

2.24.3 Function Documentation

2.24.3.1 template<typename _Ch_type > bool std::regex_traits< _Ch_type >::isctype (_Ch_type __c, char_class_type __f) const [inline, inherited]

Determines if `c` is a member of an identified class.

Parameters:

c a character.

f a class type (as returned from lookup_classname).

Returns:

true if the character `c` is a member of the classification represented by `f`, false otherwise.

Exceptions:

std::bad_cast if the current locale does not have a ctype facet.

Definition at line 655 of file tr1_impl/regex.

References std::__ctype_abstract_base< _CharT >::is(), std::regex_traits< _Ch_type >::lookup_classname(), std::use_facet(), and std::__ctype_abstract_base< _CharT >::widen().

2.24.3.2 template<typename _Bi_iter , class _Allocator > bool std::operator!= (const match_results< _Bi_iter, _Allocator > & __m1, const match_results< _Bi_iter, _Allocator > & __m2) [inline]

Compares two match_results for inequality.

Returns:

true if the two objects do not refer to the same match, false otherwise.

Definition at line 2072 of file tr1_impl/regex.

2.24.3.3 template<typename _Bi_iter > bool std::operator!= (const sub_match< _Bi_iter > & __lhs, typename iterator_traits< _Bi_iter >::value_type const & __rhs) [inline]

Tests the inequivalence of a regular expression submatch and a string.

Parameters:

lhs A regular expression submatch.

rhs A const string reference.

Returns:

true if *lhs* is not equivalent to *rhs*, false otherwise.

Definition at line 1673 of file tr1_impl/regex.

References std::sub_match< _BiIter >::str().

2.24.3.4 template<typename _Bi_iter > bool std::operator!= (typename iterator_traits< _Bi_iter >::value_type const & *__lhs*, const sub_match< _Bi_iter > & *__rhs*) [inline]

Tests the inequivalence of a string and a regular expression submatch.

Parameters:

lhs A string.

rhs A regular expression submatch.

Returns:

true if *lhs* is not equivalent to *rhs*, false otherwise.

Definition at line 1599 of file tr1_impl/regex.

References std::sub_match< _BiIter >::str().

2.24.3.5 template<typename _Bi_iter > bool std::operator!= (const sub_match< _Bi_iter > & *__lhs*, typename iterator_traits< _Bi_iter >::value_type const * *__rhs*) [inline]

Tests the inequivalence of a regular expression submatch and a string.

Parameters:

lhs A regular expression submatch.

rhs A pointer to a string.

Returns:

true if *lhs* is not equivalent to *rhs*, false otherwise.

Definition at line 1525 of file tr1_impl/regex.

References std::sub_match< _BiIter >::str().

2.24.3.6 template<typename _Bi_iter > bool std::operator!= (typename iterator_traits< _Bi_iter >::value_type const * *__lhs*, const sub_match< _Bi_iter > & *__rhs*) [inline]

Tests the inequivalence of an iterator value and a regular expression submatch.

Parameters:

lhs A regular expression submatch.

rhs A string.

Returns:

true if *lhs* is not equivalent to *rhs*, false otherwise.

Definition at line 1451 of file tr1_impl/regex.

References std::sub_match< _BiIter >::str().

2.24.3.7 template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc > bool std::operator!= (const sub_match< _Bi_iter > & *__lhs*, const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > & *__rhs*) [inline]

Tests the inequivalence of a regular expression submatch and a string.

Parameters:

lhs A regular expression submatch.

rhs A string.

Returns:

true if *lhs* is not equivalent to *rhs*, false otherwise.

Definition at line 1367 of file tr1_impl/regex.

References std::sub_match< _BiIter >::str().

2.24.3.8 template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc > bool std::operator!= (const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > & *__lhs*, const sub_match< _Bi_iter > & *__rhs*) [inline]

Tests the inequivalence of a string and a regular expression submatch.

Parameters:

lhs A string.

rhs A regular expression submatch.

Returns:

true if *lhs* is not equivalent to *rhs*, false otherwise.

Definition at line 1286 of file tr1_impl/regex.

References std::sub_match< _BiIter >::str().

2.24.3.9 template<typename _BiIter > bool std::operator!= (const sub_match< _BiIter > & *__lhs*, const sub_match< _BiIter > & *__rhs*) [inline]

Tests the inequivalence of two regular expression submatches.

Parameters:

lhs First regular expression submatch.

rhs Second regular expression submatch.

Returns:

true if *lhs* is not equivalent to *rhs*, false otherwise.

Definition at line 1210 of file tr1_impl/regex.

References std::sub_match< _BiIter >::compare().

2.24.3.10 template<typename _Bi_iter > bool std::operator< (const sub_match< _Bi_iter > & *__lhs*, typename iterator_traits< _Bi_iter >::value_type const & *__rhs*) [inline]

Tests the ordering of a regular expression submatch and a string.

Parameters:

lhs A regular expression submatch.

rhs A const string reference.

Returns:

true if *lhs* precedes *rhs*, false otherwise.

Definition at line 1685 of file tr1_impl/regex.

2.24.3.11 template<typename _Bi_iter > bool std::operator< (typename iterator_traits< _Bi_iter >::value_type const & *__lhs*, const sub_match< _Bi_iter > & *__rhs*) [inline]

Tests the ordering of a string and a regular expression submatch.

Parameters:

lhs A string.

rhs A regular expression submatch.

Returns:

true if *lhs* precedes *rhs*, false otherwise.

Definition at line 1611 of file tr1_impl/regex.

2.24.3.12 template<typename _Bi_iter > bool std::operator< (const sub_match< _Bi_iter > & *__lhs*, typename iterator_traits< _Bi_iter >::value_type const * *__rhs*) [inline]

Tests the ordering of a regular expression submatch and a string.

Parameters:

lhs A regular expression submatch.

rhs A string.

Returns:

true if *lhs* precedes *rhs*, false otherwise.

Definition at line 1537 of file tr1_impl/regex.

2.24.3.13 template<typename _Bi_iter > bool std::operator< (typename iterator_traits< _Bi_iter >::value_type const * *__lhs*, const sub_match< _Bi_iter > & *__rhs*) [inline]

Tests the ordering of a string and a regular expression submatch.

Parameters:

lhs A string.

rhs A regular expression submatch.

Returns:

true if *lhs* precedes *rhs*, false otherwise.

Definition at line 1463 of file tr1_impl/regex.

2.24.3.14 template<typename _Bi_iter , class _Ch_traits , class _Ch_alloc > bool std::operator< (const sub_match< _Bi_iter > & *__lhs*, const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > & *__rhs*) [inline]

Tests the ordering of a regular expression submatch and a string.

Parameters:

lhs A regular expression submatch.

rhs A string.

Returns:

true if *lhs* precedes *rhs*, false otherwise.

Definition at line 1381 of file tr1_impl/regex.

2.24.3.15 template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc > bool std::operator< (const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > & *__lhs*, const sub_match< _Bi_iter > & *__rhs*) [inline]

Tests the ordering of a string and a regular expression submatch.

Parameters:

lhs A string.

rhs A regular expression submatch.

Returns:

true if *lhs* precedes *rhs*, false otherwise.

Definition at line 1299 of file tr1_impl/regex.

References std::sub_match< _BiIter >::str().

2.24.3.16 template<typename _BiIter > bool std::operator< (const sub_match< _BiIter > & *__lhs*, const sub_match< _BiIter > & *__rhs*) [inline]

Tests the ordering of two regular expression submatches.

Parameters:

lhs First regular expression submatch.

rhs Second regular expression submatch.

Returns:

true if *lhs* precedes *rhs*, false otherwise.

Definition at line 1222 of file tr1_impl/regex.

2.24.3.17 template<typename _Ch_type , typename _Ch_traits , typename _Bi_iter > basic_ostream<_Ch_type, _Ch_traits>& std::operator<< (basic_ostream< _Ch_type, _Ch_traits > & *__os*, const sub_match< _Bi_iter > & *__m*) [inline]

Inserts a matched string into an output stream.

Parameters:

os The output stream.

m A submatch string.

Returns:

the output stream with the submatch string inserted.

Definition at line 1736 of file tr1_impl/regex.

2.24.3.18 template<typename _Bi_iter > bool std::operator<= (const sub_match< _Bi_iter > & *__lhs*, typename iterator_traits< _Bi_iter >::value_type const & *__rhs*) [inline]

Tests the ordering of a regular expression submatch and a string.

Parameters:

lhs A regular expression submatch.

rhs A const string reference.

Returns:

true if *lhs* does not succeed *rhs*, false otherwise.

Definition at line 1721 of file tr1_impl/regex.

2.24.3.19 template<typename _Bi_iter > bool std::operator<= (typename iterator_traits< _Bi_iter >::value_type const & *__lhs*, const sub_match< _Bi_iter > & *__rhs*) [inline]

Tests the ordering of a string and a regular expression submatch.

Parameters:

lhs A string.

rhs A regular expression submatch.

Returns:

true if *lhs* does not succeed *rhs*, false otherwise.

Definition at line 1647 of file tr1_impl/regex.

2.24.3.20 template<typename _Bi_iter > bool std::operator<= (const sub_match< _Bi_iter > & *__lhs*, typename iterator_traits< _Bi_iter >::value_type const * *__rhs*) [inline]

Tests the ordering of a regular expression submatch and a string.

Parameters:

lhs A regular expression submatch.

rhs A string.

Returns:

true if *lhs* does not succeed *rhs*, false otherwise.

Definition at line 1573 of file tr1_impl/regex.

2.24.3.21 template<typename _Bi_iter > bool std::operator<= (typename iterator_traits< _Bi_iter >::value_type const * *__lhs*, const sub_match< _Bi_iter > & *__rhs*) [inline]

Tests the ordering of a string and a regular expression submatch.

Parameters:

lhs A string.

rhs A regular expression submatch.

Returns:

true if *lhs* does not succeed *rhs*, false otherwise.

Definition at line 1499 of file tr1_impl/regex.

2.24.3.22 template<typename _Bi_iter , class _Ch_traits , class _Ch_alloc > bool std::operator<= (const sub_match< _Bi_iter > & *__lhs*, const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > & *__rhs*) [inline]

Tests the ordering of a regular expression submatch and a string.

Parameters:

lhs A regular expression submatch.

rhs A string.

Returns:

true if *lhs* does not succeed *rhs*, false otherwise.

Definition at line 1423 of file tr1_impl/regex.

2.24.3.23 template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc > bool std::operator<= (const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > & *__lhs*, const sub_match< _Bi_iter > & *__rhs*) [inline]

Tests the ordering of a string and a regular expression submatch.

Parameters:

lhs A string.

rhs A regular expression submatch.

Returns:

true if *lhs* does not succeed *rhs*, false otherwise.

Definition at line 1338 of file tr1_impl/regex.

References std::sub_match< _BiIter >::str().

2.24.3.24 template<typename _BiIter > bool std::operator<= (const sub_match< _BiIter > & *__lhs*, const sub_match< _BiIter > & *__rhs*) [inline]

Tests the ordering of two regular expression submatches.

Parameters:

lhs First regular expression submatch.

rhs Second regular expression submatch.

Returns:

true if *lhs* does not succeed *rhs*, false otherwise.

Definition at line 1234 of file tr1_impl/regex.

2.24.3.25 template<typename _Bi_iter , typename _Allocator > bool std::operator== (const match_results< _Bi_iter, _Allocator > & *__m1*, const match_results< _Bi_iter, _Allocator > & *__m2*) [inline]

Compares two match_results for equality.

Returns:

true if the two objects refer to the same match, false otherwise.

Todo

Implement this function.

2.24.3.26 template<typename _Bi_iter > bool std::operator== (const sub_match< _Bi_iter > & *__lhs*, typename iterator_traits< _Bi_iter >::value_type const & *__rhs*) [inline]

Tests the equivalence of a regular expression submatch and a string.

Parameters:

lhs A regular expression submatch.

rhs A const string reference.

Returns:

true if *lhs* is equivalent to *rhs*, false otherwise.

Definition at line 1660 of file tr1_impl/regex.

References std::sub_match< _BiIter >::str().

2.24.3.27 template<typename _Bi_iter > bool std::operator== (typename iterator_traits< _Bi_iter >::value_type const & *__lhs*, const sub_match< _Bi_iter > & *__rhs*) [inline]

Tests the equivalence of a string and a regular expression submatch.

Parameters:

lhs A string.

rhs A regular expression submatch.

Returns:

true if *lhs* is equivalent to *rhs*, false otherwise.

Definition at line 1586 of file tr1_impl/regex.

References std::sub_match< _BiIter >::str().

2.24.3.28 template<typename _Bi_iter > bool std::operator== (const sub_match< _Bi_iter > & *__lhs*, typename iterator_traits< _Bi_iter >::value_type const * *__rhs*) [inline]

Tests the equivalence of a regular expression submatch and a string.

Parameters:

lhs A regular expression submatch.

rhs A pointer to a string?

Returns:

true if *lhs* is equivalent to *rhs*, false otherwise.

Definition at line 1512 of file tr1_impl/regex.

References std::sub_match< _BiIter >::str().

2.24.3.29 template<typename _Bi_iter > bool std::operator== (typename iterator_traits< _Bi_iter >::value_type const * *__lhs*, const sub_match< _Bi_iter > & *__rhs*) [inline]

Tests the equivalence of a C string and a regular expression submatch.

Parameters:

lhs A C string.

rhs A regular expression submatch.

Returns:

true if *lhs* is equivalent to *rhs*, false otherwise.

Definition at line 1438 of file tr1_impl/regex.

References std::sub_match< _BiIter >::str().

2.24.3.30 template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc > bool std::operator== (const sub_match< _Bi_iter > & *__lhs*, const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > & *__rhs*) [inline]

Tests the equivalence of a regular expression submatch and a string.

Parameters:

lhs A regular expression submatch.

rhs A string.

Returns:

true if *lhs* is equivalent to *rhs*, false otherwise.

Definition at line 1352 of file tr1_impl/regex.

References std::sub_match< _BiIter >::str().

2.24.3.31 template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc > bool std::operator== (const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > & *__lhs*, const sub_match< _Bi_iter > & *__rhs*) [inline]

Tests the equivalence of a string and a regular expression submatch.

Parameters:

lhs A string.

rhs A regular expression submatch.

Returns:

true if *lhs* is equivalent to *rhs*, false otherwise.

Definition at line 1271 of file tr1_impl/regex.

References std::sub_match< _BiIter >::str().

2.24.3.32 template<typename _BiIter > bool std::operator== (const sub_match< _BiIter > & *__lhs*, const sub_match< _BiIter > & *__rhs*) [inline]

Tests the equivalence of two regular expression submatches.

Parameters:

lhs First regular expression submatch.

rhs Second regular expression submatch.

Returns:

true if *lhs* is equivalent to *rhs*, false otherwise.

Definition at line 1198 of file tr1_impl/regex.

References std::sub_match< _BiIter >::compare().

2.24.3.33 template<typename _Bi_iter > bool std::operator> (const sub_match< _Bi_iter > & *__lhs*, typename iterator_traits< _Bi_iter >::value_type const & *__rhs*) [inline]

Tests the ordering of a regular expression submatch and a string.

Parameters:

lhs A regular expression submatch.

rhs A const string reference.

Returns:

true if *lhs* succeeds *rhs*, false otherwise.

Definition at line 1697 of file tr1_impl/regex.

References std::sub_match< _BiIter >::str().

2.24.3.34 template<typename _Bi_iter > bool std::operator> (typename iterator_traits< _Bi_iter >::value_type const & *__lhs*, const sub_match< _Bi_iter > & *__rhs*) [inline]

Tests the ordering of a string and a regular expression submatch.

Parameters:

lhs A string.

rhs A regular expression submatch.

Returns:

true if *lhs* succeeds *rhs*, false otherwise.

Definition at line 1623 of file tr1_impl/regex.

References std::sub_match< _BiIter >::str().

2.24.3.35 template<typename _Bi_iter > bool std::operator> (const sub_match< _Bi_iter > & *__lhs*, typename iterator_traits< _Bi_iter >::value_type const * *__rhs*) [inline]

Tests the ordering of a regular expression submatch and a string.

Parameters:

lhs A regular expression submatch.

rhs A string.

Returns:

true if *lhs* succeeds *rhs*, false otherwise.

Definition at line 1549 of file tr1_impl/regex.

References std::sub_match< _BiIter >::str().

2.24.3.36 template<typename _Bi_iter > bool std::operator> (typename iterator_traits< _Bi_iter >::value_type const * *__lhs*, const sub_match< _Bi_iter > & *__rhs*) [inline]

Tests the ordering of a string and a regular expression submatch.

Parameters:

lhs A string.

rhs A regular expression submatch.

Returns:

true if *lhs* succeeds *rhs*, false otherwise.

Definition at line 1475 of file tr1_impl/regex.

References std::sub_match< _BiIter >::str().

2.24.3.37 template<typename _Bi_iter , class _Ch_traits , class _Ch_alloc > bool std::operator> (const sub_match< _Bi_iter > & *__lhs*, const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > & *__rhs*) [inline]

Tests the ordering of a regular expression submatch and a string.

Parameters:

lhs A regular expression submatch.

rhs A string.

Returns:

true if *lhs* succeeds *rhs*, false otherwise.

Definition at line 1395 of file tr1_impl/regex.

References std::sub_match< _BiIter >::str().

2.24.3.38 template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc > bool std::operator> (const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > & *__lhs*, const sub_match< _Bi_iter > & *__rhs*) [inline]

Tests the ordering of a string and a regular expression submatch.

Parameters:

lhs A string.

rhs A regular expression submatch.

Returns:

true if *lhs* succeeds *rhs*, false otherwise.

Definition at line 1312 of file tr1_impl/regex.

References std::sub_match< _BiIter >::str().

2.24.3.39 template<typename _BiIter > bool std::operator> (const sub_match< _BiIter > & *__lhs*, const sub_match< _BiIter > & *__rhs*) [inline]

Tests the ordering of two regular expression submatches.

Parameters:

lhs First regular expression submatch.

rhs Second regular expression submatch.

Returns:

true if *lhs* succeeds *rhs*, false otherwise.

Definition at line 1258 of file tr1_impl/regex.

References std::sub_match< _BiIter >::compare().

2.24.3.40 template<typename _Bi_iter > bool std::operator>= (const sub_match< _Bi_iter > & *__lhs*, typename iterator_traits< _Bi_iter >::value_type const & *__rhs*) [inline]

Tests the ordering of a regular expression submatch and a string.

Parameters:

lhs A regular expression submatch.

rhs A const string reference.

Returns:

true if *lhs* does not precede *rhs*, false otherwise.

Definition at line 1709 of file tr1_impl/regex.

References std::sub_match< _BiIter >::str().

2.24.3.41 template<typename _Bi_iter > bool std::operator>= (typename iterator_traits< _Bi_iter >::value_type const & *__lhs*, const sub_match< _Bi_iter > & *__rhs*) [inline]

Tests the ordering of a string and a regular expression submatch.

Parameters:

lhs A string.

rhs A regular expression submatch.

Returns:

true if *lhs* does not precede *rhs*, false otherwise.

Definition at line 1635 of file tr1_impl/regex.

References std::sub_match< _BiIter >::str().

2.24.3.42 template<typename _Bi_iter > bool std::operator>= (const sub_match< _Bi_iter > & *__lhs*, typename iterator_traits< _Bi_iter >::value_type const * *__rhs*) [inline]

Tests the ordering of a regular expression submatch and a string.

Parameters:

lhs A regular expression submatch.

rhs A string.

Returns:

true if *lhs* does not precede *rhs*, false otherwise.

Definition at line 1561 of file tr1_impl/regex.

References std::sub_match< _BiIter >::str().

2.24.3.43 template<typename _Bi_iter > bool std::operator>= (typename iterator_traits< _Bi_iter >::value_type const * *__lhs*, const sub_match< _Bi_iter > & *__rhs*) [inline]

Tests the ordering of a string and a regular expression submatch.

Parameters:

lhs A string.

rhs A regular expression submatch.

Returns:

true if *lhs* does not precede *rhs*, false otherwise.

Definition at line 1487 of file tr1_impl/regex.

References std::sub_match< _BiIter >::str().

2.24.3.44 template<typename _Bi_iter , class _Ch_traits , class _Ch_alloc > bool std::operator>= (const sub_match< _Bi_iter > & *__lhs*, const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > & *__rhs*) [inline]

Tests the ordering of a regular expression submatch and a string.

Parameters:

lhs A regular expression submatch.

rhs A string.

Returns:

true if *lhs* does not precede *rhs*, false otherwise.

Definition at line 1409 of file tr1_impl/regex.

References std::sub_match< _BiIter >::str().

2.24.3.45 template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc > bool std::operator>= (const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > & *__lhs*, const sub_match< _Bi_iter > & *__rhs*) [inline]

Tests the ordering of a string and a regular expression submatch.

Parameters:

lhs A string.

rhs A regular expression submatch.

Returns:

true if *lhs* does not precede *rhs*, false otherwise.

Definition at line 1325 of file tr1_impl/regex.

References std::sub_match< _BiIter >::str().

2.24.3.46 template<typename _BiIter > bool std::operator>= (const sub_match< _BiIter > & *__lhs*, const sub_match< _BiIter > & *__rhs*) [inline]

Tests the ordering of two regular expression submatches.

Parameters:

lhs First regular expression submatch.

rhs Second regular expression submatch.

Returns:

true if *lhs* does not precede *rhs*, false otherwise.

Definition at line 1246 of file tr1_impl/regex.

References std::sub_match< _BiIter >::compare().

2.24.3.47 template<typename _Ch_traits , typename _Str_allocator , typename _Ch_type , typename _Rx_traits > bool std::regex_match (const basic_string< _Ch_type, _Ch_traits, _Str_allocator > & __s, const basic_regex< _Ch_type, _Rx_traits > & __re, regex_constants::match_flag_type __flags = regex_constants::match_default) [inline]

Indicates if there is a match between the regular expression e and a string.

Parameters:

s [IN] The string to match.

re [IN] The regular expression.

flags [IN] Controls how the regular expression is matched.

Return values:

true A match exists.

false Otherwise.

Exceptions:

an exception of type regex_error.

Definition at line 2232 of file tr1_impl/regex.

References std::basic_string< _CharT, _Traits, _Alloc >::begin(), std::basic_string< _CharT, _Traits, _Alloc >::end(), and std::regex_match().

2.24.3.48 template<typename _Ch_type , class _Rx_traits > bool std::regex_match (const _Ch_type * __s, const basic_regex< _Ch_type, _Rx_traits > & __re, regex_constants::match_flag_type __f = regex_constants::match_default) [inline]

Indicates if there is a match between the regular expression e and a C-style null-terminated string.

Parameters:

s The C-style null-terminated string to match.

re The regular expression.

f Controls how the regular expression is matched.

Return values:

true A match exists.

false Otherwise.

Exceptions:

an exception of type regex_error.

Definition at line 2210 of file tr1_impl/regex.

References std::regex_match().

2.24.3.49 template<typename _Ch_traits , typename _Ch_alloc , typename _Allocator , typename _Ch_type , typename _Rx_traits > bool std::regex_match (const basic_string< _Ch_type, _Ch_traits, _Ch_alloc > & *__s*, match_results< typename basic_string< _Ch_type, _Ch_traits, _Ch_alloc >::const_iterator, _Allocator > & *__m*, const basic_regex< _Ch_type, _Rx_traits > & *__re*, regex_constants::match_flag_type *__flags* = `regex_constants::match_default`) [inline]

Determines if there is a match between the regular expression e and a string.

Parameters:

s The string to match.

m The match results.

re The regular expression.

flags Controls how the regular expression is matched.

Return values:

true A match exists.

false Otherwise.

Exceptions:

an exception of type regex_error.

Definition at line 2187 of file tr1_impl/regex.

References std::basic_string< _CharT, _Traits, _Alloc >::begin(), std::basic_string< _CharT, _Traits, _Alloc >::end(), and std::regex_match().

2.24.3.50 template<typename _Ch_type , typename _Allocator , typename _Rx_traits > bool std::regex_match (const _Ch_type * *__s*, match_results< const _Ch_type *, _Allocator > & *__m*, const basic_regex< _Ch_type, _Rx_traits > & *__re*, regex_constants::match_flag_type *__f* = `regex_constants::match_default`) `[inline]`

Determines if there is a match between the regular expression ∈ and a C-style null-terminated string.

Parameters:

s The C-style null-terminated string to match.

m The match results.

re The regular expression.

f Controls how the regular expression is matched.

Return values:

true A match exists.

false Otherwise.

Exceptions:

an exception of type regex_error.

Definition at line 2163 of file tr1_impl/regex.

References std::regex_match().

2.24.3.51 template<typename _Bi_iter , typename _Ch_type , typename _Rx_traits > bool std::regex_match (_Bi_iter *__first*, _Bi_iter *__last*, const basic_regex< _Ch_type, _Rx_traits > & *__re*, regex_constants::match_flag_type *__flags* = `regex_constants::match_default`) `[inline]`

Indicates if there is a match between the regular expression ∈ and all of the character sequence [first, last).

Parameters:

first Beginning of the character sequence to match.

last One-past-the-end of the character sequence to match.

re The regular expression.

flags Controls how the regular expression is matched.

Return values:

true A match exists.

false Otherwise.

Exceptions:

an exception of type regex_error.

Definition at line 2138 of file tr1_impl/regex.

References std::regex_match().

2.24.3.52 template<typename _Bi_iter , typename _Allocator , typename _Ch_type , typename _Rx_traits > bool std::regex_match (_Bi_iter *__first*, _Bi_iter *__last*, match_results< _Bi_iter, _Allocator > & *__m*, const basic_regex< _Ch_type, _Rx_traits > & *__re*, regex_constants::match_flag_type *__flags* = `regex_constants::match_default`) `[inline]`

Determines if there is a match between the regular expression ∈ and all of the character sequence [first, last).

Parameters:

first Beginning of the character sequence to match.

last One-past-the-end of the character sequence to match.

m The match results.

re The regular expression.

flags Controls how the regular expression is matched.

Return values:

true A match exists.

false Otherwise.

Exceptions:

an exception of type regex_error.

Todo

Implement this function.

Referenced by std::regex_match().

2.24.3.53 template<typename _Rx_traits , typename _Ch_type > basic_string<_Ch_type> std::regex_replace (const basic_string< _Ch_type > & *__s*, const basic_regex< _Ch_type, _Rx_traits > & *__e*, const basic_string< _Ch_type > & *__fmt*, regex_constants::match_flag_type *__flags* = `regex_constants::match_default`) `[inline]`

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg0000 for more.

Parameters:

s

e

fmt

flags

Returns:

a copy of string `s` with replacements.

Exceptions:

an exception of type regex_error.

Definition at line 2409 of file tr1_impl/regex.

References std::back_inserter(), std::basic_string< _CharT, _Traits, _Alloc >::begin(), std::basic_string< _CharT, _Traits, _Alloc >::end(), and std::regex_replace().

2.24.3.54 template<typename _Out_iter , typename _Bi_iter , typename _Rx_traits , typename _Ch_type > _Out_iter std::regex_replace (_Out_iter *__out*, _Bi_iter *__first*, _Bi_iter *__last*, const basic_regex< _Ch_type, _Rx_traits > & *__e*, const basic_string< _Ch_type > & *__fmt*, regex_constants::match_flag_type *__flags* = `regex_constants::match_default`) `[inline]`

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg0000 for more.

Parameters:

out

first

last

e

fmt

flags

Returns:

out

Exceptions:

an exception of type regex_error.

Todo

Implement this function.

Referenced by std::regex_replace().

2.24.3.55 template<typename _Ch_traits , typename _Ch_alloc , typename _Allocator , typename _Ch_type , typename _Rx_traits > bool std::regex_search (const basic_string< _Ch_type, _Ch_traits, _Ch_alloc > & __s, match_results< typename basic_string< _Ch_type, _Ch_traits, _Ch_alloc >::const_iterator, _Allocator > & __m, const basic_regex< _Ch_type, _Rx_traits > & __e, regex_constants::match_flag_type __f = regex_constants::match_default) [inline]

Searches for a regular expression within a string.

Parameters:

s [IN] A C++ string to search for the regex.

m [OUT] The set of regex matches.

e [IN] The regex to search for in `s`.

f [IN] The search flags.

Return values:

true A match was found within the string.

false No match was found within the string, the content of m is undefined.

Exceptions:

an exception of type regex_error.

Definition at line 2364 of file tr1_impl/regex.

References std::basic_string< _CharT, _Traits, _Alloc >::begin(), std::basic_string< _CharT, _Traits, _Alloc >::end(), and std::regex_search().

2.24.3.56 template<typename _Ch_traits , typename _String_allocator , typename _Ch_type , typename _Rx_traits > bool std::regex_search (const basic_string< _Ch_type, _Ch_traits, _String_allocator > & *__s*, const basic_regex< _Ch_type, _Rx_traits > & *__e*, regex_constants::match_flag_type *__flags* = `regex_constants::match_default`) [inline]

Searches for a regular expression within a string.

Parameters:

s [IN] The string to search.

e [IN] The regular expression to search for.

flags [IN] Search policy flags.

Return values:

true A match was found within the string.

false No match was found within the string.

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg0000 for more.

Exceptions:

an exception of type regex_error.

Definition at line 2341 of file tr1_impl/regex.

References std::regex_search().

2.24.3.57 template<typename _Ch_type , typename _Rx_traits > bool std::regex_search (const _Ch_type * *__s*, const basic_regex< _Ch_type, _Rx_traits > & *__e*, regex_constants::match_flag_type *__f* = `regex_constants::match_default`) [inline]

Searches for a regular expression within a C-string.

Parameters:

s [IN] The C-string to search.

e [IN] The regular expression to search for.

f [IN] Search policy flags.

Return values:

true A match was found within the string.

false No match was found within the string.

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Exceptions:

an exception of type regex_error.

Definition at line 2321 of file tr1_impl/regex.

References std::regex_search().

2.24.3.58 template<typename _Ch_type , class _Allocator , class _Rx_traits > bool std::regex_search (const _Ch_type * __s, match_results< const _Ch_type *, _Allocator > & __m, const basic_regex< _Ch_type, _Rx_traits > & __e, regex_constants::match_flag_type __f = regex_constants::match_default) [inline]

Searches for a regular expression within a C-string.

Parameters:

s [IN] A C-string to search for the regex.

m [OUT] The set of regex matches.

e [IN] The regex to search for in `s`.

f [IN] The search flags.

Return values:

true A match was found within the string.

false No match was found within the string, the content of m is undefined.

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Exceptions:

an exception of type regex_error.

Definition at line 2301 of file tr1_impl/regex.

References std::regex_search().

2.24.3.59 template<typename _Bi_iter , typename _Ch_type , typename _Rx_traits > bool std::regex_search (_Bi_iter *__first*, _Bi_iter *__last*, const basic_regex< _Ch_type, _Rx_traits > & *__re*, regex_constants::match_flag_type *__flags* = `regex_constants::match_default`) `[inline]`

Searches for a regular expression within a range.

Parameters:

first [IN] The start of the string to search.
last [IN] One-past-the-end of the string to search.
re [IN] The regular expression to search for.
flags [IN] Search policy flags.

Return values:

true A match was found within the string.
false No match was found within the string.

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg0000 for more.

Exceptions:

an exception of type regex_error.

Definition at line 2277 of file tr1_impl/regex.

References std::regex_search().

2.24.3.60 template<typename _Bi_iter , typename _Allocator , typename _Ch_type , typename _Rx_traits > bool std::regex_search (_Bi_iter *__first*, _Bi_iter *__last*, match_results< _Bi_iter, _Allocator > & *__m*, const basic_regex< _Ch_type, _Rx_traits > & *__re*, regex_constants::match_flag_type *__flags* = `regex_constants::match_default`) `[inline]`

Searches for a regular expression within a range.

Parameters:

first [IN] The start of the string to search.

last [IN] One-past-the-end of the string to search.

m [OUT] The match results.

re [IN] The regular expression to search for.

flags [IN] Search policy flags.

Return values:

true A match was found within the string.

false No match was found within the string, the content of m is undefined.

Exceptions:

an exception of type regex_error.

Todo

Implement this function.

Referenced by std::regex_search().

2.24.3.61 template<typename _Bi_iter , typename _Allocator > void std::swap (match_results< _Bi_iter, _Allocator > & *__lhs*, match_results< _Bi_iter, _Allocator > & *__rhs*) [inline]

Swaps two match results.

Parameters:

lhs A match result.

rhs A match result.

The contents of the two match_results objects are swapped.

Definition at line 2086 of file tr1_impl/regex.

References std::match_results< _Bi_iter, _Allocator >::swap().

2.24.3.62 template<typename _Ch_type , typename _Rx_traits > void std::swap (basic_regex< _Ch_type, _Rx_traits > & *__lhs*, basic_regex< _Ch_type, _Rx_traits > & *__rhs*) [inline]

Swaps the contents of two regular expression objects.

Parameters:

lhs First regular expression.

rhs Second regular expression.

Definition at line 1069 of file tr1_impl/regex.

References std::basic_regex< _Ch_type, _Rx_traits >::swap().

2.24.3.63 template<typename _Ch_type > int std::regex_traits< _Ch_type >::value (_Ch_type *__ch*, int *__radix*) const [inline, inherited]

Converts a digit to an int.

Parameters:

ch a character representing a digit.

radix the radix if the numeric conversion (limited to 8, 10, or 16).

Returns:

the value represented by the digit ch in base radix if the character ch is a valid digit in base radix; otherwise returns -1.

Definition at line 690 of file tr1_impl/regex.

References std::basic_ios< _CharT, _Traits >::fail(), std::hex(), and std::oct().

2.25 Type Traits

Collaboration diagram for Type Traits:

Classes

- struct std::__is_member_pointer_helper< _Tp >
  is_member_pointer
- struct std::add_const< _Tp >
  add_const
- struct std::add_cv< _Tp >
  add_cv
- struct std::add_lvalue_reference< _Tp >
  add_lvalue_reference
- struct std::add_pointer< _Tp >
  add_pointer
- struct std::add_rvalue_reference< _Tp >
  add_rvalue_reference
- struct std::add_volatile< _Tp >
  add_volatile
- struct std::aligned_storage< _Len, _Align >
  Alignment type.
- struct std::alignment_of< _Tp >
  alignment_of
- struct std::conditional< _Cond, _Iftrue, _Iffalse >
  conditional
- class std::decay< _Tp >
  decay

- struct std::enable_if< bool, _Tp >
  enable_if
- struct std::extent< typename, _Uint >
  extent
- struct std::has_nothrow_assign< _Tp >
  has_nothrow_assign
- struct std::has_nothrow_copy_constructor< _Tp >
  has_nothrow_copy_constructor
- struct std::has_nothrow_default_constructor< _Tp >
  has_nothrow_default_constructor
- struct std::has_trivial_assign< _Tp >
  has_trivial_assign
- struct std::has_trivial_copy_constructor< _Tp >
  has_trivial_copy_constructor
- struct std::has_trivial_default_constructor< _Tp >
  has_trivial_default_constructor
- struct std::has_trivial_destructor< _Tp >
  has_trivial_destructor
- struct std::has_virtual_destructor< _Tp >
  has_virtual_destructor
- struct std::integral_constant< _Tp, __v >
  integral_constant
- struct std::is_abstract< _Tp >
  is_abstract
- struct std::is_arithmetic< _Tp >
  is_arithmetic
- struct std::is_array< typename >
  is_array

- struct std::is_base_of< _Base, _Derived >
  is_base_of
- struct std::is_class< _Tp >
  is_class
- struct std::is_compound< _Tp >
  is_compound
- struct std::is_const< typename >
  is_const
- struct std::is_constructible< _Tp, _Args >
  is_constructible
- struct std::is_convertible< _From, _To >
  is_convertible
- struct std::is_empty< _Tp >
  is_empty
- struct std::is_enum< _Tp >
  is_enum
- struct std::is_explicitly_convertible< _From, _To >
  is_explicitly_convertible
- struct std::is_floating_point< _Tp >
  is_floating_point
- struct std::is_function< typename >
  is_function
- struct std::is_fundamental< _Tp >
  is_fundamental
- struct std::is_integral< _Tp >
  is_integral
- struct std::is_lvalue_reference< typename >
  is_lvalue_reference

- struct std::is_member_function_pointer< _Tp >
  is_member_function_pointer
- struct std::is_member_object_pointer< _Tp >
  is_member_object_pointer
- struct std::is_object< _Tp >
  is_object
- struct std::is_pod< _Tp >
  is_pod
- struct std::is_pointer< _Tp >
  is_pointer
- struct std::is_polymorphic< _Tp >
  is_polymorphic
- struct std::is_reference< _Tp >
  is_reference
- struct std::is_rvalue_reference< typename >
  is_rvalue_reference
- struct std::is_same< typename, typename >
  is_same
- struct std::is_scalar< _Tp >
  is_scalar
- struct std::is_signed< _Tp >
  is_signed
- struct std::is_standard_layout< _Tp >
  is_standard_layout
- struct std::is_trivial< _Tp >
  is_trivial
- struct std::is_union< _Tp >
  is_union

- struct std::is_unsigned< _Tp >

  is_unsigned

- struct std::is_void< _Tp >

  is_void

- struct std::is_volatile< typename >

  is_volatile

- struct std::make_signed< _Tp >

  make_signed

- struct std::make_unsigned< _Tp >

  make_unsigned

- struct std::rank< typename >

  rank

- struct std::remove_all_extents< _Tp >

  remove_all_extents

- struct std::remove_const< _Tp >

  remove_const

- struct std::remove_cv< _Tp >

  remove_cv

- struct std::remove_extent< _Tp >

  remove_extent

- struct std::remove_pointer< _Tp >

  remove_pointer

- struct std::remove_reference< _Tp >

  remove_reference

- struct std::remove_volatile< _Tp >

  remove_volatile

Defines

- #define **_DEFINE_SPEC**(_Order, _Trait, _Type, _Value)
- #define **_DEFINE_SPEC_0_HELPER**
- #define **_DEFINE_SPEC_1_HELPER**
- #define **_DEFINE_SPEC_2_HELPER**

Typedefs

- typedef integral_constant< bool, false > std::false_type
- typedef integral_constant< bool, true > std::true_type

Functions

- template<typename _Tp >
  add_rvalue_reference< _Tp >::type **std::declval** ()

Variables

- static const _Tp **std::integral_constant::value**

2.25.1 Detailed Description

Compile time type transformation and information.

2.25.2 Typedef Documentation

2.25.2.1 typedef integral_constant<bool, false> std::false_type

typedef for false_type

Definition at line 78 of file tr1_impl/type_traits.

2.25.2.2 typedef integral_constant<bool, true> std::true_type

typedef for true_type

Definition at line 75 of file tr1_impl/type_traits.

2.26 Decimal Floating-Point Arithmetic

Collaboration diagram for Decimal Floating-Point Arithmetic:

Namespaces

- namespace std::decimal

2.26.1 Detailed Description

Classes and functions for decimal floating-point arithmetic.

2.27 Binder Classes

Collaboration diagram for Binder Classes:

Classes

- class std::binder1st< _Operation >

  One of the binder functors.

- class std::binder2nd< _Operation >

  One of the binder functors.

- struct std::is_bind_expression< _Tp >

  Determines if the given type _Tp is a function object should be treated as a subexpression when evaluating calls to function objects returned by bind(). [TR1 3.6.1].

- struct std::is_bind_expression< _Bind< _Signature > >

  Class template _Bind is always a bind expression.

- struct std::is_bind_expression< _Bind_result< _Result, _Signature > >

  Class template _Bind is always a bind expression.

- struct std::is_placeholder< _Tp >

  Determines if the given type _Tp is a placeholder in a bind() expression and, if so, which placeholder it is. [TR1 3.6.2].

- struct std::is_placeholder< _Placeholder< _Num > >

Namespaces

- namespace std::placeholders

Functions

- template<typename _Functor , typename... _ArgTypes>
  _Bind< typename _Maybe_wrap_member_pointer< _Functor >::type(_ArgTypes...)> std::bind (_Functor __f, _ArgTypes...__args)

- template<typename _Operation , typename _Tp >
  binder1st< _Operation > std::bind1st (const _Operation &__fn, const _Tp &_-
  _x)
- template<typename _Operation , typename _Tp >
  binder2nd< _Operation > std::bind2nd (const _Operation &__fn, const _Tp &_-
  _x)

2.27.1 Detailed Description

Binders turn functions/functors with two arguments into functors with a single argument, storing an argument to be applied later. For example, a variable `B` of type `binder1st` is constructed from a functor `f` and an argument `x`. Later, B's `operator()` is called with a single argument `y`. The return value is the value of `f(x,y)`. `B` can be *called* with various arguments (y1, y2, ...) and will in turn call `f(x,y1)`, `f(x,y2)`, ...

The function `bind1st` is provided to save some typing. It takes the function and an argument as parameters, and returns an instance of `binder1st`.

The type `binder2nd` and its creator function `bind2nd` do the same thing, but the stored argument is passed as the second parameter instead of the first, e.g., `bind2nd`(std::minus<float>,1.3) will create a functor whose `operator()` accepts a floating-point number, subtracts 1.3 from it, and returns the result. (If `bind1st` had been used, the functor would perform *1.3 - x* instead.

Creator-wrapper functions like `bind1st` are intended to be used in calling algorithms. Their return values will be temporary objects. (The goal is to not require you to type names like `std::binder1st<std::plus<int>>` for declaring a variable to hold the return value from `bind1st(std::plus<int>,5)`.

These become more useful when combined with the composition functions.

2.27.2 Function Documentation

2.27.2.1 template<typename _Functor , typename... _ArgTypes> _Bind<typename _Maybe_wrap_member_pointer<_-Functor>::type(_ArgTypes...)> std::bind (_Functor __f, _ArgTypes... __args) [inline]

Function template for std::bind.

Definition at line 1372 of file functional.

2.27.2.2 template<typename _Operation , typename _Tp > binder1st<_Operation> std::bind1st (const _Operation & *__fn*, const _Tp & *__x*) [inline]

One of the binder functors.

Definition at line 125 of file binders.h.

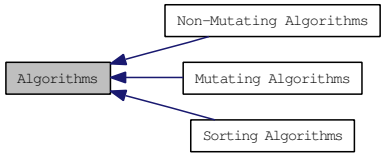
2.27.2.3 template<typename _Operation , typename _Tp > binder2nd<_Operation> std::bind2nd (const _Operation & *__fn*, const _Tp & *__x*) [inline]

One of the binder functors.

Definition at line 160 of file binders.h.

2.28 Algorithms

Collaboration diagram for Algorithms:



Modules

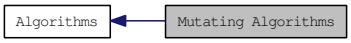
- Mutating Algorithms
- Non-Mutating Algorithms
- Sorting Algorithms

2.28.1 Detailed Description

Components for performing algorithmic operations. Includes non-modifying sequence, modifying (mutating) sequence, sorting, searching, merge, partition, heap, set, minima, maxima, and permutation operations.

2.29 Mutating Algorithms

Collaboration diagram for Mutating Algorithms:



Functions

- template<typename _II , typename _OI >
  _OI std::copy (_II __first, _II __last, _OI __result)
- template<typename _BI1 , typename _BI2 >
  _BI2 std::copy_backward (_BI1 __first, _BI1 __last, _BI2 __result)
- template<typename _InputIterator , typename _OutputIterator , typename _Predicate >
  _OutputIterator std::copy_if (_InputIterator __first, _InputIterator __last, _OutputIterator __result, _Predicate __pred)
- template<typename _InputIterator , typename _Size , typename _OutputIterator >
  _OutputIterator std::copy_n (_InputIterator __first, _Size __n, _OutputIterator __result)
- template<typename _ForwardIterator , typename _Tp >
  void std::fill (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__value)
- template<typename _OI , typename _Size , typename _Tp >
  _OI std::fill_n (_OI __first, _Size __n, const _Tp &__value)
- template<typename _ForwardIterator , typename _Generator >
  void std::generate (_ForwardIterator __first, _ForwardIterator __last, _Generator __gen)
- template<typename _OutputIterator , typename _Size , typename _Generator >
  _OutputIterator std::generate_n (_OutputIterator __first, _Size __n, _Generator __gen)
- template<typename _InputIterator , typename _Predicate >
  bool std::is_partitioned (_InputIterator __first, _InputIterator __last, _Predicate __pred)
- template<typename _ForwardIterator1 , typename _ForwardIterator2 >
  void std::iter_swap (_ForwardIterator1 __a, _ForwardIterator2 __b)
- template<typename _II , typename _OI >
  _OI std::move (_II __first, _II __last, _OI __result)
- template<typename _Tp >
  std::remove_reference< _Tp >::type && std::move (_Tp &&__t)
- template<typename _BI1 , typename _BI2 >
  _BI2 std::move_backward (_BI1 __first, _BI1 __last, _BI2 __result)
- template<typename _ForwardIterator , typename _Predicate >
  _ForwardIterator std::partition (_ForwardIterator __first, _ForwardIterator __last, _Predicate __pred)

- template<typename _InputIterator , typename _OutputIterator1 , typename _OutputIterator2 , typename _Predicate >
  pair< _OutputIterator1, _OutputIterator2 > std::partition_copy (_InputIterator __first, _InputIterator __last, _OutputIterator1 __out_true, _OutputIterator2 __out_false, _Predicate __pred)
- template<typename _ForwardIterator , typename _Predicate >
  _ForwardIterator std::partition_point (_ForwardIterator __first, _ForwardIterator __last, _Predicate __pred)
- template<typename _RandomAccessIterator , typename _RandomNumberGenerator >
  void std::random_shuffle (_RandomAccessIterator __first, _RandomAccessIterator __last, _RandomNumberGenerator &__rand)
- template<typename _RandomAccessIterator >
  void std::random_shuffle (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _ForwardIterator , typename _Tp >
  _ForwardIterator std::remove (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__value)
- template<typename _InputIterator , typename _OutputIterator , typename _Tp >
  _OutputIterator std::remove_copy (_InputIterator __first, _InputIterator __last, _OutputIterator __result, const _Tp &__value)
- template<typename _InputIterator , typename _OutputIterator , typename _Predicate >
  _OutputIterator std::remove_copy_if (_InputIterator __first, _InputIterator __last, _OutputIterator __result, _Predicate __pred)
- template<typename _ForwardIterator , typename _Predicate >
  _ForwardIterator std::remove_if (_ForwardIterator __first, _ForwardIterator __last, _Predicate __pred)
- template<typename _ForwardIterator , typename _Tp >
  void std::replace (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__old_value, const _Tp &__new_value)
- template<typename _InputIterator , typename _OutputIterator , typename _Predicate , typename _Tp >
  _OutputIterator std::replace_copy_if (_InputIterator __first, _InputIterator __last, _OutputIterator __result, _Predicate __pred, const _Tp &__new_value)
- template<typename _ForwardIterator , typename _Predicate , typename _Tp >
  void std::replace_if (_ForwardIterator __first, _ForwardIterator __last, _Predicate __pred, const _Tp &__new_value)
- template<typename _BidirectionalIterator >
  void std::reverse (_BidirectionalIterator __first, _BidirectionalIterator __last)
- template<typename _BidirectionalIterator , typename _OutputIterator >
  _OutputIterator std::reverse_copy (_BidirectionalIterator __first, _BidirectionalIterator __last, _OutputIterator __result)
- template<typename _ForwardIterator >
  void std::rotate (_ForwardIterator __first, _ForwardIterator __middle, _ForwardIterator __last)

- template<typename _ForwardIterator , typename _OutputIterator >
  _OutputIterator std::rotate_copy (_ForwardIterator __first, _ForwardIterator __middle, _ForwardIterator __last, _OutputIterator __result)
- template<typename _ForwardIterator , typename _Predicate >
  _ForwardIterator std::stable_partition (_ForwardIterator __first, _ForwardIterator __last, _Predicate __pred)
- template<typename _Tp >
  void std::swap (_Tp &__a, _Tp &__b)
- template<typename _ForwardIterator1 , typename _ForwardIterator2 >
  _ForwardIterator2 std::swap_ranges (_ForwardIterator1 __first1, _ForwardIterator1 __last1, _ForwardIterator2 __first2)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator , typename _BinaryOperation >
  _OutputIterator std::transform (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _OutputIterator __result, _BinaryOperation __binary_op)
- template<typename _InputIterator , typename _OutputIterator , typename _UnaryOperation >
  _OutputIterator std::transform (_InputIterator __first, _InputIterator __last, _OutputIterator __result, _UnaryOperation __unary_op)
- template<typename _ForwardIterator , typename _BinaryPredicate >
  _ForwardIterator std::unique (_ForwardIterator __first, _ForwardIterator __last, _BinaryPredicate __binary_pred)
- template<typename _ForwardIterator >
  _ForwardIterator std::unique (_ForwardIterator __first, _ForwardIterator __last)
- template<typename _InputIterator , typename _OutputIterator , typename _BinaryPredicate >
  _OutputIterator std::unique_copy (_InputIterator __first, _InputIterator __last, _OutputIterator __result, _BinaryPredicate __binary_pred)
- template<typename _InputIterator , typename _OutputIterator >
  _OutputIterator std::unique_copy (_InputIterator __first, _InputIterator __last, _OutputIterator __result)

2.29.1 Function Documentation

2.29.1.1 template<typename _II , typename _OI > _OI std::copy (_II *__first*, _II *__last*, _OI *__result*) [inline]

Copies the range [first,last) into result.

Parameters:

first An input iterator.

last An input iterator.

result An output iterator.

Returns:

result + (first - last)

This inline function will boil down to a call to `memmove` whenever possible. Failing that, if random access iterators are passed, then the loop count will be known (and therefore a candidate for compiler optimizations such as unrolling). Result may not be contained within [first,last); the copy_backward function should be used instead.

Note that the end of the output range is permitted to be contained within [first,last).

Definition at line 464 of file stl_algobase.h.

2.29.1.2 template<typename _BI1 , typename _BI2 > _BI2 std::copy_backward (_BI1 *__first*, _BI1 *__last*, _BI2 *__result*) [inline]

Copies the range [first,last) into result.

Parameters:

first A bidirectional iterator.

last A bidirectional iterator.

result A bidirectional iterator.

Returns:

result - (first - last)

The function has the same effect as copy, but starts at the end of the range and works its way to the start, returning the start of the result. This inline function will boil down to a call to `memmove` whenever possible. Failing that, if random access iterators are passed, then the loop count will be known (and therefore a candidate for compiler optimizations such as unrolling).

Result may not be in the range [first,last). Use copy instead. Note that the start of the output range may overlap [first,last).

Definition at line 633 of file stl_algobase.h.

2.29.1.3 template<typename _InputIterator , typename _OutputIterator , typename _Predicate > _OutputIterator std::copy_if (_InputIterator *__first*, _InputIterator *__last*, _OutputIterator *__result*, _Predicate *__pred*) [inline]

Copy the elements of a sequence for which a predicate is true.

Parameters:

first An input iterator.

last An input iterator.

result An output iterator.

pred A predicate.

Returns:

An iterator designating the end of the resulting sequence.

Copies each element in the range [first,last) for which `pred` returns true to the range beginning at `result`.

copy_if() is stable, so the relative order of elements that are copied is unchanged.

Definition at line 945 of file stl_algo.h.

2.29.1.4 template<typename _InputIterator , typename _Size , typename _OutputIterator > _OutputIterator std::copy_n (_InputIterator *__first*, _Size *__n*, _OutputIterator *__result*) [inline]

Copies the range [first,first+n) into [result,result+n).

Parameters:

first An input iterator.

n The number of elements to copy.

result An output iterator.

Returns:

result+n.

This inline function will boil down to a call to `memmove` whenever possible. Failing that, if random access iterators are passed, then the loop count will be known (and therefore a candidate for compiler optimizations such as unrolling).

Definition at line 1002 of file stl_algo.h.

References std::__iterator_category().

2.29.1.5 template<typename _ForwardIterator , typename _Tp > void std::fill (_ForwardIterator *__first*, _ForwardIterator *__last*, const _Tp & *__value*) [inline]

Fills the range [first,last) with copies of value.

Parameters:

first A forward iterator.

last A forward iterator.

value A reference-to-const of arbitrary type.

Returns:

Nothing.

This function fills a range with copies of the same value. For char types filling contiguous areas of memory, this becomes an inline call to `memset` or `wmemset`.

Definition at line 735 of file stl_algobase.h.

2.29.1.6 template<typename _OI , typename _Size , typename _Tp > _OI std::fill_n (_OI *__first*, _Size *__n*, const _Tp & *__value*) [inline]

Fills the range [first,first+n) with copies of value.

Parameters:

first An output iterator.

n The count of copies to perform.

value A reference-to-const of arbitrary type.

Returns:

The iterator at first+n.

This function fills a range with copies of the same value. For char types filling contiguous areas of memory, this becomes an inline call to `memset` or @ wmemset.

_GLIBCXX_RESOLVE_LIB_DEFECTS DR 865. More algorithms that throw away information

Definition at line 793 of file stl_algobase.h.

2.29.1.7 template<typename _ForwardIterator , typename _Generator > void std::generate (_ForwardIterator *__first*, _ForwardIterator *__last*, _Generator *__gen*) [inline]

Assign the result of a function object to each value in a sequence.

Parameters:

first A forward iterator.

last A forward iterator.

gen A function object taking no arguments and returning std::iterator_traits<_-ForwardIterator>::value_type

Returns:

generate() returns no value.

Performs the assignment `*i = gen()` for each `i` in the range [first,last).

Definition at line 4832 of file stl_algo.h.

2.29.1.8 template<typename _OutputIterator , typename _Size , typename _Generator > _OutputIterator std::generate_n (_OutputIterator *__first*, _Size *__n*, _Generator *__gen*) [inline]

Assign the result of a function object to each value in a sequence.

Parameters:

first A forward iterator.

n The length of the sequence.

gen A function object taking no arguments and returning std::iterator_traits<_-ForwardIterator>::value_type

Returns:

The end of the sequence, `first+n`

Performs the assignment `*i = gen()` for each `i` in the range [first,first+n).

_GLIBCXX_RESOLVE_LIB_DEFECTS DR 865. More algorithms that throw away information

Definition at line 4863 of file stl_algo.h.

2.29.1.9 template<typename _InputIterator , typename _Predicate > bool std::is_partitioned (_InputIterator *__first*, _InputIterator *__last*, _Predicate *__pred*) [inline]

Checks whether the sequence is partitioned.

Parameters:

first An input iterator.

last An input iterator.

pred A predicate.

Returns:

True if the range [first,last) is partioned by `pred`, i.e. if all elements that satisfy `pred` appear before those that do not.

Definition at line 797 of file stl_algo.h.

References std::find_if_not(), and std::none_of().

2.29.1.10 template<typename _ForwardIterator1 , typename _ForwardIterator2 > void std::iter_swap (_ForwardIterator1 *__a*, _ForwardIterator2 *__b*) [inline]

Swaps the contents of two iterators.

Parameters:

a An iterator.

b Another iterator.

Returns:

Nothing.

This function swaps the values pointed to by two iterators, not the iterators themselves.

Definition at line 117 of file stl_algobase.h.

Referenced by std::__merge_without_buffer(), std::__move_median_first(), std::__partition(), std::__reverse(), std::__rotate(), std::__unguarded_partition(), std::next_permutation(), std::prev_permutation(), std::random_shuffle(), and std::swap_ranges().

2.29.1.11 template<typename _II , typename _OI > _OI std::move (_II *__first*, _II *__last*, _OI *__result*) [inline]

Moves the range [first,last) into result.

Parameters:

first An input iterator.

last An input iterator.

result An output iterator.

Returns:

result + (first - last)

This inline function will boil down to a call to `memmove` whenever possible. Failing that, if random access iterators are passed, then the loop count will be known (and therefore a candidate for compiler optimizations such as unrolling). Result may not be contained within [first,last); the move_backward function should be used instead.

Note that the end of the output range is permitted to be contained within [first,last).

Definition at line 497 of file stl_algobase.h.

2.29.1.12 template<typename _Tp > std::remove_reference<_Tp>::type&& std::move (_Tp && *__t*) [inline]

Move a value.

Parameters:

__t A thing of arbitrary type.

Returns:

Same, moved.

Definition at line 81 of file move.h.

2.29.1.13 template<typename _BI1 , typename _BI2 > _BI2 std::move_backward (_BI1 *__first*, _BI1 *__last*, _BI2 *__result*) [inline]

Moves the range [first,last) into result.

Parameters:

first A bidirectional iterator.

last A bidirectional iterator.

result A bidirectional iterator.

Returns:

result - (first - last)

The function has the same effect as move, but starts at the end of the range and works its way to the start, returning the start of the result. This inline function will boil down to a call to `memmove` whenever possible. Failing that, if random access iterators are

passed, then the loop count will be known (and therefore a candidate for compiler optimizations such as unrolling).

Result may not be in the range [first,last). Use move instead. Note that the start of the output range may overlap [first,last).

Definition at line 669 of file stl_algobase.h.

2.29.1.14 template<typename _ForwardIterator , typename _Predicate > _ForwardIterator std::partition (_ForwardIterator *__first*, _ForwardIterator *__last*, _Predicate *__pred*) [inline]

Move elements for which a predicate is true to the beginning of a sequence.

Parameters:

first A forward iterator.

last A forward iterator.

pred A predicate functor.

Returns:

An iterator `middle` such that `pred(i)` is true for each iterator `i` in the range [first,middle) and false for each `i` in the range [middle,last).

`pred` must not modify its operand. `partition()` does not preserve the relative ordering of elements in each group, use `stable_partition()` if this is needed.

Definition at line 5030 of file stl_algo.h.

References std::__iterator_category(), and std::__partition().

2.29.1.15 template<typename _InputIterator , typename _OutputIterator1 , typename _OutputIterator2 , typename _Predicate > pair<_OutputIterator1, _OutputIterator2> std::partition_copy (_InputIterator *__first*, _InputIterator *__last*, _OutputIterator1 *__out_true*, _OutputIterator2 *__out_false*, _Predicate *__pred*) [inline]

Copy the elements of a sequence to separate output sequences depending on the truth value of a predicate.

Parameters:

first An input iterator.

last An input iterator.

out_true An output iterator.

out_false An output iterator.

pred A predicate.

Returns:

A pair designating the ends of the resulting sequences.

Copies each element in the range [first,last) for which `pred` returns true to the range beginning at `out_true` and each element for which `pred` returns false to `out_false`.

Definition at line 1031 of file stl_algo.h.

2.29.1.16 template<typename _ForwardIterator , typename _Predicate > _ForwardIterator std::partition_point (_ForwardIterator *__first*, _ForwardIterator *__last*, _Predicate *__pred*) [inline]

Find the partition point of a partitioned range.

Parameters:

first An iterator.

last Another iterator.

pred A predicate.

Returns:

An iterator `mid` such that `all_of(first, mid, pred)` and `none_of(mid, last, pred)` are both true.

Definition at line 815 of file stl_algo.h.

References std::advance(), and std::distance().

2.29.1.17 template<typename _RandomAccessIterator , typename _RandomNumberGenerator > void std::random_shuffle (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*, _RandomNumberGenerator & *__rand*) [inline]

Shuffle the elements of a sequence using a random number generator.

Parameters:

first A forward iterator.

last A forward iterator.

rand The RNG functor or function.

Returns:

Nothing.

Reorders the elements in the range [first,last) using `rand` to provide a random distribution. Calling `rand(N)` for a positive integer `N` should return a randomly chosen integer from the range [0,N).

Definition at line 4998 of file stl_algo.h.

References std::iter_swap().

2.29.1.18 template<typename _RandomAccessIterator > void std::random_shuffle (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*) [inline]

Randomly shuffle the elements of a sequence.

Parameters:

first A forward iterator.

last A forward iterator.

Returns:

Nothing.

Reorder the elements in the range [first,last) using a random distribution, so that every possible ordering of the sequence is equally likely.

Definition at line 4970 of file stl_algo.h.

References std::iter_swap().

2.29.1.19 template<typename _ForwardIterator , typename _Tp > _ForwardIterator std::remove (_ForwardIterator *__first*, _ForwardIterator *__last*, const _Tp & *__value*) [inline]

Remove elements from a sequence.

Parameters:

first An input iterator.

last An input iterator.

value The value to be removed.

Returns:

An iterator designating the end of the resulting sequence.

All elements equal to `value` are removed from the range [first,last).

remove() is stable, so the relative order of elements that are not removed is unchanged.

Elements between the end of the resulting sequence and `last` are still present, but their value is unspecified.

Definition at line 1080 of file stl_algo.h.

2.29.1.20 template<typename _InputIterator , typename _OutputIterator , typename _Tp > _OutputIterator std::remove_copy (_InputIterator *__first*, _InputIterator *__last*, _OutputIterator *__result*, const _Tp & *__value*) [inline]

Copy a sequence, removing elements of a given value.

Parameters:

first An input iterator.

last An input iterator.

result An output iterator.

value The value to be removed.

Returns:

An iterator designating the end of the resulting sequence.

Copies each element in the range [first,last) not equal to `value` to the range beginning at `result`. remove_copy() is stable, so the relative order of elements that are copied is unchanged.

Definition at line 868 of file stl_algo.h.

2.29.1.21 template<typename _InputIterator , typename _OutputIterator , typename _Predicate > _OutputIterator std::remove_copy_if (_InputIterator *__first*, _InputIterator *__last*, _OutputIterator *__result*, _Predicate *__pred*) [inline]

Copy a sequence, removing elements for which a predicate is true.

Parameters:

first An input iterator.

last An input iterator.

result An output iterator.

pred A predicate.

Returns:

An iterator designating the end of the resulting sequence.

Copies each element in the range [first,last) for which `pred` returns false to the range beginning at `result`.

remove_copy_if() is stable, so the relative order of elements that are copied is unchanged.

Definition at line 906 of file stl_algo.h.

2.29.1.22 template<typename _ForwardIterator , typename _Predicate > _ForwardIterator std::remove_if (_ForwardIterator *__first*, _ForwardIterator *__last*, _Predicate *__pred*) [inline]

Remove elements from a sequence using a predicate.

Parameters:

first A forward iterator.

last A forward iterator.

pred A predicate.

Returns:

An iterator designating the end of the resulting sequence.

All elements for which `pred` returns true are removed from the range [first,last).

remove_if() is stable, so the relative order of elements that are not removed is unchanged.

Elements between the end of the resulting sequence and `last` are still present, but their value is unspecified.

Definition at line 1123 of file stl_algo.h.

2.29.1.23 template<typename _ForwardIterator , typename _Tp > void std::replace (_ForwardIterator *__first*, _ForwardIterator *__last*, const _Tp & *__old_value*, const _Tp & *__new_value*) [inline]

Replace each occurrence of one value in a sequence with another value.

Parameters:

first A forward iterator.

last A forward iterator.

old_value The value to be replaced.

new_value The replacement value.

Returns:

replace() returns no value.

For each iterator `i` in the range [first,last) if `*i == old_value` then the assignment `*i = new_value` is performed.

Definition at line 4768 of file stl_algo.h.

2.29.1.24 template<typename _InputIterator , typename _OutputIterator , typename _Predicate , typename _Tp > _OutputIterator std::replace_copy_if (_InputIterator *__first*, _InputIterator *__last*, _OutputIterator *__result*, _Predicate *__pred*, const _Tp & *__new_value*) [inline]

Copy a sequence, replacing each value for which a predicate returns true with another value.

Parameters:

first An input iterator.

last An input iterator.

result An output iterator.

pred A predicate.

new_value The replacement value.

Returns:

The end of the output sequence, `result+`(last-first).

Copies each element in the range [first,last) to the range [result,result+(last-first)) replacing elements for which `pred` returns true with `new_value`.

Definition at line 3850 of file stl_algo.h.

2.29.1.25 template<typename _ForwardIterator , typename _Predicate , typename _Tp > void std::replace_if (_ForwardIterator *__first*, _ForwardIterator *__last*, _Predicate *__pred*, const _Tp & *__new_value*) [inline]

Replace each value in a sequence for which a predicate returns true with another value.

Parameters:

first A forward iterator.

last A forward iterator.

pred A predicate.

new_value The replacement value.

Returns:

replace_if() returns no value.

For each iterator `i` in the range [first,last) if `pred(*i)` is true then the assignment `*i = new_value` is performed.

Definition at line 4800 of file stl_algo.h.

2.29.1.26 template<typename _BidirectionalIterator > void std::reverse (_BidirectionalIterator *__first*, _BidirectionalIterator *__last*) [inline]

Reverse a sequence.

Parameters:

first A bidirectional iterator.

last A bidirectional iterator.

Returns:

reverse() returns no value.

Reverses the order of the elements in the range [first,last), so that the first element becomes the last etc. For every `i` such that `0<=i<=`(last-first)/2), `reverse()` swaps *(first+i) and *(last-(i+1))

Definition at line 1431 of file stl_algo.h.

References std::__iterator_category(), and std::__reverse().

Referenced by std::next_permutation(), and std::prev_permutation().

2.29.1.27 template<typename _BidirectionalIterator , typename _OutputIterator > _OutputIterator std::reverse_copy (_BidirectionalIterator *__first*, _BidirectionalIterator *__last*, _OutputIterator *__result*) [inline]

Copy a sequence, reversing its elements.

Parameters:

first A bidirectional iterator.

last A bidirectional iterator.

result An output iterator.

Returns:

An iterator designating the end of the resulting sequence.

Copies the elements in the range [first,last) to the range [result,result+(last-first)) such that the order of the elements is reversed. For every `i` such that `0<=i<=`(last-first), `reverse_copy()` performs the assignment ∗(result+(last-first)-i) = ∗(first+i). The ranges [first,last) and [result,result+(last-first)) must not overlap.

Definition at line 1458 of file stl_algo.h.

2.29.1.28 template<typename _ForwardIterator > void std::rotate (_ForwardIterator *__first*, _ForwardIterator *__middle*, _ForwardIterator *__last*) [inline]

Rotate the elements of a sequence.

Parameters:

first A forward iterator.

middle A forward iterator.

last A forward iterator.

Returns:

Nothing.

Rotates the elements of the range [first,last) by (middle-first) positions so that the element at `middle` is moved to `first`, the element at `middle+1` is moved to +1 and so on for each element in the range [first,last).

This effectively swaps the ranges [first,middle) and [middle,last).

Performs ∗(first+(n+(last-middle))%(last-first))=∗(first+n) for each `n` in the range [0,last-first).

Definition at line 1662 of file stl_algo.h.

References std::__rotate().

Referenced by std::__inplace_stable_partition(), std::__merge_without_buffer(), std::__rotate_adaptive(), and std::__stable_partition_adaptive().

2.29.1.29 template<typename _ForwardIterator , typename _OutputIterator > _OutputIterator std::rotate_copy (_ForwardIterator *__first*, _ForwardIterator *__middle*, _ForwardIterator *__last*, _OutputIterator *__result*) [inline]

Copy a sequence, rotating its elements.

Parameters:

first A forward iterator.

middle A forward iterator.

last A forward iterator.

result An output iterator.

Returns:

An iterator designating the end of the resulting sequence.

Copies the elements of the range [first,last) to the range beginning at

Returns:

, rotating the copied elements by (middle-first) positions so that the element at `middle` is moved to `result`, the element at `middle+1` is moved to +1 and so on for each element in the range [first,last).

Performs *(result+(n+(last-middle))%(last-first))=*(first+n) for each `n` in the range [0,last-first).

Definition at line 1696 of file stl_algo.h.

2.29.1.30 template<typename _ForwardIterator , typename _Predicate > _ForwardIterator std::stable_partition (_ForwardIterator *__first*, _ForwardIterator *__last*, _Predicate *__pred*) [inline]

Move elements for which a predicate is true to the beginning of a sequence, preserving relative ordering.

Parameters:

first A forward iterator.

last A forward iterator.

pred A predicate functor.

Returns:

An iterator `middle` such that `pred(i)` is true for each iterator `i` in the range [first,middle) and false for each `i` in the range [middle,last).

Performs the same function as `partition()` with the additional guarantee that the relative ordering of elements in each group is preserved, so any two elements `x` and `y` in the range [first,last) such that `pred(x)==pred(y)` will have the same relative ordering after calling `stable_partition()`.

Definition at line 1854 of file stl_algo.h.

References std::__inplace_stable_partition(), std::__stable_partition_adaptive(), std::_Temporary_buffer< _ForwardIterator, _Tp >::begin(), std::_Temporary_buffer< _ForwardIterator, _Tp >::requested_size(), and std::_Temporary_buffer< _ForwardIterator, _Tp >::size().

2.29.1.31 template<typename _Tp > void std::swap (_Tp & *__a*, _Tp & *__b*) [inline]

Swaps two values.

Parameters:

__a A thing of arbitrary type.

__b Another thing of arbitrary type.

Returns:

Nothing.

Definition at line 106 of file move.h.

2.29.1.32 template<typename _ForwardIterator1 , typename _ForwardIterator2 > _ForwardIterator2 std::swap_ranges (_ForwardIterator1 *__first1*, _ForwardIterator1 *__last1*, _ForwardIterator2 *__first2*) [inline]

Swap the elements of two sequences.

Parameters:

first1 A forward iterator.

last1 A forward iterator.

first2 A forward iterator.

Returns:

An iterator equal to `first2`+(last1-first1).

Swaps each element in the range [first1,last1) with the corresponding element in the range [first2,(last1-first1)). The ranges must not overlap.

Definition at line 158 of file stl_algobase.h.

References std::iter_swap().

Referenced by std::__rotate().

2.29.1.33 template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator , typename _BinaryOperation > _OutputIterator std::transform (_InputIterator1 *__first1*, _InputIterator1 *__last1*, _InputIterator2 *__first2*, _OutputIterator *__result*, _BinaryOperation *__binary_op*) [inline]

Perform an operation on corresponding elements of two sequences.

Parameters:

first1 An input iterator.

last1 An input iterator.

first2 An input iterator.

result An output iterator.

binary_op A binary operator.

Returns:

An output iterator equal to `result`+(last-first).

Applies the operator to the corresponding elements in the two input ranges and assigns the results to successive elements of the output sequence. Evaluates ∗(result+N)=binary_op(∗(first1+N),∗(first2+N)) for each `N` in the range [0,last1-first1).

`binary_op` must not alter either of its arguments.

Definition at line 4736 of file stl_algo.h.

2.29.1.34 template<typename _InputIterator , typename _OutputIterator , typename _UnaryOperation > _OutputIterator std::transform (_InputIterator *__first*, _InputIterator *__last*, _OutputIterator *__result*, _UnaryOperation *__unary_op*) [inline]

Perform an operation on a sequence.

Parameters:

first An input iterator.

last An input iterator.

result An output iterator.

unary_op A unary operator.

Returns:

An output iterator equal to `result+`(last-first).

Applies the operator to each element in the input range and assigns the results to successive elements of the output sequence. Evaluates ∗(result+N)=unary_op(∗(first+N)) for each `N` in the range [0,last-first).

`unary_op` must not alter its argument.

Definition at line 4700 of file stl_algo.h.

2.29.1.35 template<typename _ForwardIterator , typename _BinaryPredicate > _ForwardIterator std::unique (_ForwardIterator *__first*, _ForwardIterator *__last*, _BinaryPredicate *__binary_pred*) [inline]

Remove consecutive values from a sequence using a predicate.

Parameters:

first A forward iterator.

last A forward iterator.

binary_pred A binary predicate.

Returns:

An iterator designating the end of the resulting sequence.

Removes all but the first element from each group of consecutive values for which `binary_pred` returns true. unique() is stable, so the relative order of elements that are not removed is unchanged. Elements between the end of the resulting sequence and `last` are still present, but their value is unspecified.

Definition at line 1203 of file stl_algo.h.

2.29.1.36 template<typename _ForwardIterator > _ForwardIterator std::unique (_ForwardIterator *__first*, _ForwardIterator *__last*) [inline]

Remove consecutive duplicate values from a sequence.

Parameters:

first A forward iterator.

last A forward iterator.

Returns:

An iterator designating the end of the resulting sequence.

Removes all but the first element from each group of consecutive values that compare equal. unique() is stable, so the relative order of elements that are not removed is unchanged. Elements between the end of the resulting sequence and `last` are still present, but their value is unspecified.

Definition at line 1163 of file stl_algo.h.

2.29.1.37 template<typename _InputIterator , typename _OutputIterator , typename _BinaryPredicate > _OutputIterator std::unique_copy (_InputIterator *__first*, _InputIterator *__last*, _OutputIterator *__result*, _BinaryPredicate *__binary_pred*) [inline]

Copy a sequence, removing consecutive values using a predicate.

Parameters:

first An input iterator.

last An input iterator.

result An output iterator.

binary_pred A binary predicate.

Returns:

An iterator designating the end of the resulting sequence.

Copies each element in the range [first,last) to the range beginning at `result`, except that only the first element is copied from groups of consecutive elements for which `binary_pred` returns true. unique_copy() is stable, so the relative order of elements that are copied is unchanged.

_GLIBCXX_RESOLVE_LIB_DEFECTS DR 241. Does unique_copy() require Copy-Constructible and Assignable?

Definition at line 4939 of file stl_algo.h.

References std::__iterator_category(), and std::__unique_copy().

2.29.1.38 template<typename _InputIterator , typename _OutputIterator > _OutputIterator std::unique_copy (_InputIterator *__first*, _InputIterator *__last*, _OutputIterator *__result*) [inline]

Copy a sequence, removing consecutive duplicate values.

Parameters:

first An input iterator.

last An input iterator.

result An output iterator.

Returns:

An iterator designating the end of the resulting sequence.

Copies each element in the range [first,last) to the range beginning at `result`, except that only the first element is copied from groups of consecutive elements that compare equal. unique_copy() is stable, so the relative order of elements that are copied is unchanged.

_GLIBCXX_RESOLVE_LIB_DEFECTS DR 241. Does unique_copy() require Copy-Constructible and Assignable?

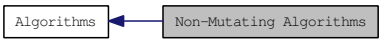
_GLIBCXX_RESOLVE_LIB_DEFECTS DR 538. 241 again: Does unique_copy() require CopyConstructible and Assignable?

Definition at line 4899 of file stl_algo.h.

References std::__iterator_category(), and std::__unique_copy().

2.30 Non-Mutating Algorithms

Collaboration diagram for Non-Mutating Algorithms:



Functions

- template<typename _ForwardIterator , typename _BinaryPredicate >
  _ForwardIterator std::adjacent_find (_ForwardIterator __first, _ForwardIterator __last, _BinaryPredicate __binary_pred)
- template<typename _ForwardIterator >
  _ForwardIterator std::adjacent_find (_ForwardIterator __first, _ForwardIterator __last)
- template<typename _InputIterator , typename _Predicate >
  bool std::all_of (_InputIterator __first, _InputIterator __last, _Predicate __pred)
- template<typename _InputIterator , typename _Predicate >
  bool std::any_of (_InputIterator __first, _InputIterator __last, _Predicate __pred)
- template<typename _InputIterator , typename _Tp >
  iterator_traits< _InputIterator >::difference_type std::count (_InputIterator __first, _InputIterator __last, const _Tp &__value)
- template<typename _InputIterator , typename _Predicate >
  iterator_traits< _InputIterator >::difference_type std::count_if (_InputIterator __first, _InputIterator __last, _Predicate __pred)
- template<typename _IIter1 , typename _IIter2 , typename _BinaryPredicate >
  bool std::equal (_IIter1 __first1, _IIter1 __last1, _IIter2 __first2, _BinaryPredicate __binary_pred)
- template<typename _II1 , typename _II2 >
  bool std::equal (_II1 __first1, _II1 __last1, _II2 __first2)
- template<typename _InputIterator , typename _Tp >
  _InputIterator std::find (_InputIterator __first, _InputIterator __last, const _Tp &__val)
- template<typename _ForwardIterator1 , typename _ForwardIterator2 , typename _BinaryPredicate >
  _ForwardIterator1 std::find_end (_ForwardIterator1 __first1, _ForwardIterator1 __last1, _ForwardIterator2 __first2, _ForwardIterator2 __last2, _BinaryPredicate __comp)
- template<typename _ForwardIterator1 , typename _ForwardIterator2 >
  _ForwardIterator1 std::find_end (_ForwardIterator1 __first1, _ForwardIterator1 __last1, _ForwardIterator2 __first2, _ForwardIterator2 __last2)
- template<typename _InputIterator , typename _ForwardIterator , typename _BinaryPredicate >
  _InputIterator std::find_first_of (_InputIterator __first1, _InputIterator __last1, _ForwardIterator __first2, _ForwardIterator __last2, _BinaryPredicate __comp)

- template<typename _InputIterator , typename _ForwardIterator >
  _InputIterator std::find_first_of (_InputIterator __first1, _InputIterator __last1, _ForwardIterator __first2, _ForwardIterator __last2)

- template<typename _InputIterator , typename _Predicate >
  _InputIterator std::find_if (_InputIterator __first, _InputIterator __last, _Predicate __pred)

- template<typename _InputIterator , typename _Predicate >
  _InputIterator std::find_if_not (_InputIterator __first, _InputIterator __last, _Predicate __pred)

- template<typename _InputIterator , typename _Function >
  _Function std::for_each (_InputIterator __first, _InputIterator __last, _Function __f)

- template<typename _InputIterator1 , typename _InputIterator2 , typename _BinaryPredicate >
  pair< _InputIterator1, _InputIterator2 > std::mismatch (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _BinaryPredicate __binary_pred)

- template<typename _InputIterator1 , typename _InputIterator2 >
  pair< _InputIterator1, _InputIterator2 > std::mismatch (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2)

- template<typename _InputIterator , typename _Predicate >
  bool std::none_of (_InputIterator __first, _InputIterator __last, _Predicate __pred)

- template<typename _ForwardIterator1 , typename _ForwardIterator2 , typename _BinaryPredicate >
  _ForwardIterator1 std::search (_ForwardIterator1 __first1, _ForwardIterator1 __last1, _ForwardIterator2 __first2, _ForwardIterator2 __last2, _BinaryPredicate __predicate)

- template<typename _ForwardIterator1 , typename _ForwardIterator2 >
  _ForwardIterator1 std::search (_ForwardIterator1 __first1, _ForwardIterator1 __last1, _ForwardIterator2 __first2, _ForwardIterator2 __last2)

- template<typename _ForwardIterator , typename _Integer , typename _Tp , typename _BinaryPredicate >
  _ForwardIterator std::search_n (_ForwardIterator __first, _ForwardIterator __last, _Integer __count, const _Tp &__val, _BinaryPredicate __binary_pred)

- template<typename _ForwardIterator , typename _Integer , typename _Tp >
  _ForwardIterator std::search_n (_ForwardIterator __first, _ForwardIterator __last, _Integer __count, const _Tp &__val)

2.30.1 Function Documentation

2.30.1.1 template<typename _ForwardIterator , typename _BinaryPredicate > _ForwardIterator std::adjacent_find (_ForwardIterator *__first*, _ForwardIterator *__last*, _BinaryPredicate *__binary_pred*) [inline]

Find two adjacent values in a sequence using a predicate.

Parameters:

first A forward iterator.

last A forward iterator.

binary_pred A binary predicate.

Returns:

The first iterator `i` such that `i` and `i+1` are both valid iterators in [first,last) and such that `binary_pred`(*i,*(i+1)) is true, or `last` if no such iterator exists.

Definition at line 4379 of file stl_algo.h.

2.30.1.2 template<typename _ForwardIterator > _ForwardIterator std::adjacent_find (_ForwardIterator *__first*, _ForwardIterator *__last*) [inline]

Find two adjacent values in a sequence that are equal.

Parameters:

first A forward iterator.

last A forward iterator.

Returns:

The first iterator `i` such that `i` and `i+1` are both valid iterators in [first,last) and such that `*i` == *(i+1), or `last` if no such iterator exists.

Definition at line 4347 of file stl_algo.h.

2.30.1.3 template<typename _InputIterator , typename _Predicate > bool std::all_of (_InputIterator *__first*, _InputIterator *__last*, _Predicate *__pred*) [inline]

Checks that a predicate is true for all the elements of a sequence.

Parameters:

first An input iterator.

last An input iterator.

pred A predicate.

Returns:

True if the check is true, false otherwise.

Returns true if `pred` is true for each element in the range [first,last), and false otherwise.

Definition at line 724 of file stl_algo.h.

References std::find_if_not().

2.30.1.4 template<typename _InputIterator , typename _Predicate > bool std::any_of (_InputIterator *__first*, _InputIterator *__last*, _Predicate *__pred*) [inline]

Checks that a predicate is false for at least an element of a sequence.

Parameters:

first An input iterator.

last An input iterator.

pred A predicate.

Returns:

True if the check is true, false otherwise.

Returns true if an element exists in the range [first,last) such that `pred` is true, and false otherwise.

Definition at line 758 of file stl_algo.h.

References std::none_of().

2.30.1.5 template<typename _InputIterator , typename _Tp > iterator_traits<_InputIterator>::difference_type std::count (_InputIterator *__first*, _InputIterator *__last*, const _Tp & *__value*) [inline]

Count the number of copies of a value in a sequence.

Parameters:

first An input iterator.

last An input iterator.

value The value to be counted.

Returns:

The number of iterators `i` in the range [first,last) for which `*i == value`

Definition at line 4411 of file stl_algo.h.

2.30.1.6 template<typename _InputIterator , typename _Predicate > iterator_traits<_InputIterator>::difference_type std::count_if (_InputIterator *__first*, _InputIterator *__last*, _Predicate *__pred*) [inline]

Count the elements of a sequence for which a predicate is true.

Parameters:

first An input iterator.

last An input iterator.

pred A predicate.

Returns:

The number of iterators `i` in the range [first,last) for which `pred(*i)` is true.

Definition at line 4436 of file stl_algo.h.

2.30.1.7 template<typename _IIter1 , typename _IIter2 , typename _BinaryPredicate > bool std::equal (_IIter1 *__first1*, _IIter1 *__last1*, _IIter2 *__first2*, _BinaryPredicate *__binary_pred*) [inline]

Tests a range for element-wise equality.

Parameters:

first1 An input iterator.

last1 An input iterator.

first2 An input iterator.

binary_pred A binary predicate functor.

Returns:

A boolean true or false.

This compares the elements of two ranges using the binary_pred parameter, and returns true or false depending on whether all of the corresponding elements of the ranges are equal.

Definition at line 991 of file stl_algobase.h.

2.30.1.8 template<typename _II1 , typename _II2 > bool std::equal (_II1 *__first1*, _II1 *__last1*, _II2 *__first2*) [inline]

Tests a range for element-wise equality.

Parameters:

first1 An input iterator.

last1 An input iterator.

first2 An input iterator.

Returns:

A boolean true or false.

This compares the elements of two ranges using == and returns true or false depending on whether all of the corresponding elements of the ranges are equal.

Definition at line 959 of file stl_algobase.h.

Referenced by std::operator==().

2.30.1.9 template<typename _InputIterator , typename _Tp > _InputIterator std::find (_InputIterator *__first*, _InputIterator *__last*, const _Tp & *__val*) [inline]

Find the first occurrence of a value in a sequence.

Parameters:

first An input iterator.

last An input iterator.

val The value to find.

Returns:

The first iterator `i` in the range [first,last) such that `*i == val`, or `last` if no such iterator exists.

Definition at line 4223 of file stl_algo.h.

References std::__find(), and std::__iterator_category().

2.30.1.10 template<typename _ForwardIterator1 , typename _ForwardIterator2 , typename _BinaryPredicate > _ForwardIterator1 std::find_end (_ForwardIterator1 *__first1*, _ForwardIterator1 *__last1*, _ForwardIterator2 *__first2*, _ForwardIterator2 *__last2*, _BinaryPredicate *__comp*) [inline]

Find last matching subsequence in a sequence using a predicate.

Parameters:

first1 Start of range to search.

last1 End of range to search.

first2 Start of sequence to match.

last2 End of sequence to match.

comp The predicate to use.

Returns:

The last iterator `i` in the range [first1,last1-(last2-first2)) such that `predicate`(*(i+N), (first2+N)) is true for each `N` in the range [0,last2-first2), or `last1` if no such iterator exists.

Searches the range [first1,last1) for a sub-sequence that compares equal value-by-value with the sequence given by [first2,last2) using comp as a predicate and returns an iterator to the first element of the sub-sequence, or `last1` if the sub-sequence is not found. The sub-sequence will be the last such subsequence contained in [first,last1).

Because the sub-sequence must lie completely within the range [first1,last1) it must start at a position less than `last1`-(last2-first2) where `last2-first2` is the length of the sub-sequence. This means that the returned iterator `i` will be in the range [first1,last1-(last2-first2))

Definition at line 690 of file stl_algo.h.

References std::__iterator_category().

2.30.1.11 template<typename _ForwardIterator1 , typename _ForwardIterator2 > _ForwardIterator1 std::find_end (_ForwardIterator1 *__first1*, _ForwardIterator1 *__last1*, _ForwardIterator2 *__first2*, _ForwardIterator2 *__last2*) [inline]

Find last matching subsequence in a sequence.

Parameters:

first1 Start of range to search.

last1 End of range to search.

first2 Start of sequence to match.

last2 End of sequence to match.

Returns:

The last iterator `i` in the range [first1,last1-(last2-first2)) such that *(i+N) == *(first2+N) for each `N` in the range [0,last2-first2), or `last1` if no such iterator exists.

Searches the range [first1,last1) for a sub-sequence that compares equal value-by-value with the sequence given by [first2,last2) and returns an iterator to the first element of the sub-sequence, or `last1` if the sub-sequence is not found. The sub-sequence will be the last such subsequence contained in [first,last1).

Because the sub-sequence must lie completely within the range [first1,last1) it must start at a position less than `last1-`(last2-first2) where `last2-first2` is the length of the sub-sequence. This means that the returned iterator `i` will be in the range [first1,last1-(last2-first2))

Definition at line 643 of file stl_algo.h.

References std::__iterator_category().

2.30.1.12 template<typename _InputIterator , typename _ForwardIterator , typename _BinaryPredicate > _InputIterator std::find_first_of (_InputIterator *__first1*, _InputIterator *__last1*, _ForwardIterator *__first2*, _ForwardIterator *__last2*, _BinaryPredicate *__comp*) [inline]

Find element from a set in a sequence using a predicate.

Parameters:

first1 Start of range to search.

last1 End of range to search.

first2 Start of match candidates.

last2 End of match candidates.

comp Predicate to use.

Returns:

The first iterator `i` in the range [first1,last1) such that `comp`(*i, *(i2)) is true and i2 is an iterator in [first2,last2), or `last1` if no such iterator exists.

Searches the range [first1,last1) for an element that is equal to some element in the range [first2,last2). If found, returns an iterator in the range [first1,last1), otherwise returns `last1`.

Definition at line 4316 of file stl_algo.h.

2.30.1.13 template<typename _InputIterator , typename _ForwardIterator > _InputIterator std::find_first_of (_InputIterator *__first1*, _InputIterator *__last1*, _ForwardIterator *__first2*, _ForwardIterator *__last2*) [inline]

Find element from a set in a sequence.

Parameters:

first1 Start of range to search.

last1 End of range to search.

first2 Start of match candidates.

last2 End of match candidates.

Returns:

The first iterator `i` in the range [first1,last1) such that `*i == *`(i2) such that i2 is an iterator in [first2,last2), or `last1` if no such iterator exists.

Searches the range [first1,last1) for an element that is equal to some element in the range [first2,last2). If found, returns an iterator in the range [first1,last1), otherwise returns `last1`.

Definition at line 4276 of file stl_algo.h.

2.30.1.14 template<typename _InputIterator , typename _Predicate > _InputIterator std::find_if (_InputIterator *__first*, _InputIterator *__last*, _Predicate *__pred*) [inline]

Find the first element in a sequence for which a predicate is true.

Parameters:

first An input iterator.

last An input iterator.

pred A predicate.

Returns:

The first iterator `i` in the range [first,last) such that `pred(*i)` is true, or `last` if no such iterator exists.

Definition at line 4247 of file stl_algo.h.

References std::__find_if(), and std::__iterator_category().

2.30.1.15 template<typename _InputIterator , typename _Predicate > _InputIterator std::find_if_not (_InputIterator *__first*, _InputIterator *__last*, _Predicate *__pred*) [inline]

Find the first element in a sequence for which a predicate is false.

Parameters:

first An input iterator.

last An input iterator.

pred A predicate.

Returns:

The first iterator `i` in the range [first,last) such that `pred(*i)` is false, or `last` if no such iterator exists.

Definition at line 773 of file stl_algo.h.

References std::__find_if_not(), and std::__iterator_category().

Referenced by std::all_of(), and std::is_partitioned().

2.30.1.16 template<typename _InputIterator , typename _Function > _Function std::for_each (_InputIterator *__first*, _InputIterator *__last*, _Function *__f*) [inline]

Apply a function to every element of a sequence.

Parameters:

first An input iterator.

last An input iterator.

f A unary function object.

Returns:

`f` (std::move(`f`) in C++0x).

Applies the function object `f` to each element in the range [first,last). `f` must not modify the order of the sequence. If `f` has a return value it is ignored.

Definition at line 4202 of file stl_algo.h.

2.30.1.17 template<typename _InputIterator1 , typename _InputIterator2 , typename _BinaryPredicate > pair<_InputIterator1, _InputIterator2> std::mismatch (_InputIterator1 *__first1*, _InputIterator1 *__last1*, _InputIterator2 *__first2*, _BinaryPredicate *__binary_pred*) [inline]

Finds the places in ranges which don't match.

Parameters:

first1 An input iterator.

last1 An input iterator.

first2 An input iterator.

binary_pred A binary predicate functor.

Returns:

A pair of iterators pointing to the first mismatch.

This compares the elements of two ranges using the binary_pred parameter, and returns a pair of iterators. The first iterator points into the first range, the second iterator points into the second range, and the elements pointed to by the iterators are not equal.

Definition at line 1134 of file stl_algobase.h.

2.30.1.18 template<typename _InputIterator1 , typename _InputIterator2 > pair<_InputIterator1, _InputIterator2> std::mismatch (_InputIterator1 *__first1*, _InputIterator1 *__last1*, _InputIterator2 *__first2*) [inline]

Finds the places in ranges which don't match.

Parameters:

first1 An input iterator.

last1 An input iterator.

first2 An input iterator.

Returns:

A pair of iterators pointing to the first mismatch.

This compares the elements of two ranges using == and returns a pair of iterators. The first iterator points into the first range, the second iterator points into the second range, and the elements pointed to by the iterators are not equal.

Definition at line 1096 of file stl_algobase.h.

2.30.1.19 template<typename _InputIterator , typename _Predicate > bool std::none_of (_InputIterator *__first*, _InputIterator *__last*, _Predicate *__pred*) [inline]

Checks that a predicate is false for all the elements of a sequence.

Parameters:

first An input iterator.

last An input iterator.

pred A predicate.

Returns:

True if the check is true, false otherwise.

Returns true if `pred` is false for each element in the range [first,last), and false otherwise.

Definition at line 741 of file stl_algo.h.

Referenced by std::any_of(), and std::is_partitioned().

2.30.1.20 template<typename _ForwardIterator1 , typename _ForwardIterator2 , typename _BinaryPredicate > _ForwardIterator1 std::search (_ForwardIterator1 *__first1*, _ForwardIterator1 *__last1*, _ForwardIterator2 *__first2*, _ForwardIterator2 *__last2*, _BinaryPredicate *__predicate*) [inline]

Search a sequence for a matching sub-sequence using a predicate.

Parameters:

first1 A forward iterator.

last1 A forward iterator.

first2 A forward iterator.

last2 A forward iterator.

predicate A binary predicate.

Returns:

The first iterator `i` in the range [first1,last1-(last2-first2)) such that `predicate`(∗(i+N),∗(first2+N)) is true for each `N` in the range [0,last2-first2), or `last1` if no such iterator exists.

Searches the range [first1,last1) for a sub-sequence that compares equal value-by-value with the sequence given by [first2,last2), using `predicate` to determine equality, and returns an iterator to the first element of the sub-sequence, or `last1` if no such iterator exists.

See also:

search(_ForwardIter1, _ForwardIter1, _ForwardIter2, _ForwardIter2)

Definition at line 4548 of file stl_algo.h.

2.30.1.21 template<typename _ForwardIterator1 , typename _ForwardIterator2 > _ForwardIterator1 std::search (_ForwardIterator1 *__first1*, _ForwardIterator1 *__last1*, _ForwardIterator2 *__first2*, _ForwardIterator2 *__last2*) [inline]

Search a sequence for a matching sub-sequence.

Parameters:

first1 A forward iterator.

last1 A forward iterator.

first2 A forward iterator.

last2 A forward iterator.

Returns:

The first iterator `i` in the range [first1,last1-(last2-first2)) such that *(i+N) == *(first2+N) for each `N` in the range [0,last2-first2), or `last1` if no such iterator exists.

Searches the range [first1,last1) for a sub-sequence that compares equal value-by-value with the sequence given by [first2,last2) and returns an iterator to the first element of the sub-sequence, or `last1` if the sub-sequence is not found.

Because the sub-sequence must lie completely within the range [first1,last1) it must start at a position less than `last1-`(last2-first2) where `last2-first2` is the length of the sub-sequence. This means that the returned iterator `i` will be in the range [first1,last1-(last2-first2))

Definition at line 4476 of file stl_algo.h.

2.30.1.22 template<typename _ForwardIterator , typename _Integer , typename _Tp , typename _BinaryPredicate > _ForwardIterator std::search_n (_ForwardIterator *__first*, _ForwardIterator *__last*, _Integer *__count*, const _Tp & *__val*, _BinaryPredicate *__binary_pred*) [inline]

Search a sequence for a number of consecutive values using a predicate.

Parameters:

first A forward iterator.

last A forward iterator.

count The number of consecutive values.

val The value to find.

binary_pred A binary predicate.

Returns:

The first iterator `i` in the range [first,last-count) such that `binary_pred`(*(i+N),val) is true for each `N` in the range [0,count), or `last` if no such iterator exists.

Searches the range [first,last) for `count` consecutive elements for which the predicate returns true.

Definition at line 4658 of file stl_algo.h.

References std::__iterator_category(), and std::__search_n().

2.30.1.23 template<typename _ForwardIterator , typename _Integer , typename _Tp > _ForwardIterator std::search_n (_ForwardIterator *__first*, _ForwardIterator *__last*, _Integer *__count*, const _Tp & *__val*) [inline]

Search a sequence for a number of consecutive values.

Parameters:

first A forward iterator.

last A forward iterator.

count The number of consecutive values.

val The value to find.

Returns:

The first iterator `i` in the range [first,last-count) such that *(i+N) == `val` for each `N` in the range [0,count), or `last` if no such iterator exists.

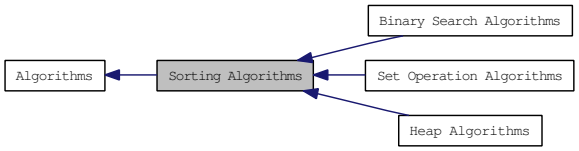
Searches the range [first,last) for `count` consecutive elements equal to `val`.

Definition at line 4621 of file stl_algo.h.

References std::__iterator_category(), and std::__search_n().

2.31 Sorting Algorithms

Collaboration diagram for Sorting Algorithms:



Modules

- Set Operation Algorithms
- Binary Search Algorithms
- Heap Algorithms

Functions

- template<typename _BidirectionalIterator , typename _Compare >
  void std::inplace_merge (_BidirectionalIterator __first, _BidirectionalIterator _-
  _middle, _BidirectionalIterator __last, _Compare __comp)
- template<typename _BidirectionalIterator >
  void std::inplace_merge (_BidirectionalIterator __first, _BidirectionalIterator _-
  _middle, _BidirectionalIterator __last)
- template<typename _ForwardIterator , typename _Compare >
  bool std::is_sorted (_ForwardIterator __first, _ForwardIterator __last, _Compare
  __comp)
- template<typename _ForwardIterator >
  bool std::is_sorted (_ForwardIterator __first, _ForwardIterator __last)
- template<typename _ForwardIterator , typename _Compare >
  _ForwardIterator std::is_sorted_until (_ForwardIterator __first, _ForwardIterator
  __last, _Compare __comp)
- template<typename _ForwardIterator >
  _ForwardIterator std::is_sorted_until (_ForwardIterator __first, _ForwardIterator
  __last)
- template<typename _II1 , typename _II2 , typename _Compare >
  bool std::lexicographical_compare (_II1 __first1, _II1 __last1, _II2 __first2, _II2
  __last2, _Compare __comp)
- template<typename _II1 , typename _II2 >
  bool std::lexicographical_compare (_II1 __first1, _II1 __last1, _II2 __first2, _II2
  __last2)
- template<typename _Tp , typename _Compare >
  const _Tp & std::max (const _Tp &__a, const _Tp &__b, _Compare __comp)

- template<typename _Tp >
  const _Tp & std::max (const _Tp &__a, const _Tp &__b)
- template<typename _ForwardIterator , typename _Compare >
  _ForwardIterator std::max_element (_ForwardIterator __first, _ForwardIterator __last, _Compare __comp)
- template<typename _ForwardIterator >
  _ForwardIterator std::max_element (_ForwardIterator __first, _ForwardIterator __last)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator , typename _Compare >
  _OutputIterator std::merge (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result, _Compare __comp)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator >
  _OutputIterator std::merge (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result)
- template<typename _Tp , typename _Compare >
  const _Tp & std::min (const _Tp &__a, const _Tp &__b, _Compare __comp)
- template<typename _Tp >
  const _Tp & std::min (const _Tp &__a, const _Tp &__b)
- template<typename _ForwardIterator , typename _Compare >
  _ForwardIterator std::min_element (_ForwardIterator __first, _ForwardIterator __last, _Compare __comp)
- template<typename _ForwardIterator >
  _ForwardIterator std::min_element (_ForwardIterator __first, _ForwardIterator __last)
- template<typename _Tp , typename _Compare >
  pair< const _Tp &, const _Tp & > std::minmax (const _Tp &__a, const _Tp &__b, _Compare __comp)
- template<typename _Tp >
  pair< const _Tp &, const _Tp & > std::minmax (const _Tp &__a, const _Tp &__b)
- template<typename _ForwardIterator , typename _Compare >
  pair< _ForwardIterator, _ForwardIterator > std::minmax_element (_ForwardIterator __first, _ForwardIterator __last, _Compare __comp)
- template<typename _ForwardIterator >
  pair< _ForwardIterator, _ForwardIterator > std::minmax_element (_ForwardIterator __first, _ForwardIterator __last)
- template<typename _BidirectionalIterator , typename _Compare >
  bool std::next_permutation (_BidirectionalIterator __first, _BidirectionalIterator __last, _Compare __comp)
- template<typename _BidirectionalIterator >
  bool std::next_permutation (_BidirectionalIterator __first, _BidirectionalIterator __last)

- template<typename _RandomAccessIterator , typename _Compare >
  void std::nth_element (_RandomAccessIterator __first, _RandomAccessIterator __nth, _RandomAccessIterator __last, _Compare __comp)

- template<typename _RandomAccessIterator >
  void std::nth_element (_RandomAccessIterator __first, _RandomAccessIterator __nth, _RandomAccessIterator __last)

- template<typename _RandomAccessIterator , typename _Compare >
  void std::partial_sort (_RandomAccessIterator __first, _RandomAccessIterator __middle, _RandomAccessIterator __last, _Compare __comp)

- template<typename _RandomAccessIterator >
  void std::partial_sort (_RandomAccessIterator __first, _RandomAccessIterator __middle, _RandomAccessIterator __last)

- template<typename _InputIterator , typename _RandomAccessIterator , typename _Compare >
  _RandomAccessIterator std::partial_sort_copy (_InputIterator __first, _InputIterator __last, _RandomAccessIterator __result_first, _RandomAccessIterator __result_last, _Compare __comp)

- template<typename _InputIterator , typename _RandomAccessIterator >
  _RandomAccessIterator std::partial_sort_copy (_InputIterator __first, _InputIterator __last, _RandomAccessIterator __result_first, _RandomAccessIterator __result_last)

- template<typename _BidirectionalIterator , typename _Compare >
  bool std::prev_permutation (_BidirectionalIterator __first, _BidirectionalIterator __last, _Compare __comp)

- template<typename _BidirectionalIterator >
  bool std::prev_permutation (_BidirectionalIterator __first, _BidirectionalIterator __last)

- template<typename _RandomAccessIterator , typename _Compare >
  void std::sort (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)

- template<typename _RandomAccessIterator >
  void std::sort (_RandomAccessIterator __first, _RandomAccessIterator __last)

- template<typename _RandomAccessIterator , typename _Compare >
  void std::stable_sort (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)

- template<typename _RandomAccessIterator >
  void std::stable_sort (_RandomAccessIterator __first, _RandomAccessIterator __last)

2.31.1 Function Documentation

2.31.1.1 template<typename _BidirectionalIterator , typename _Compare > void std::inplace_merge (_BidirectionalIterator *__first*, _BidirectionalIterator *__middle*, _BidirectionalIterator *__last*, _Compare *__comp*) [inline]

Merges two sorted ranges in place.

Parameters:

first An iterator.

middle Another iterator.

last Another iterator.

comp A functor to use for comparisons.

Returns:

Nothing.

Merges two sorted and consecutive ranges, [first,middle) and [middle,last), and puts the result in [first,last). The output will be sorted. The sort is *stable*, that is, for equivalent elements in the two ranges, elements from the first range will always come before elements from the second.

If enough additional memory is available, this takes (last-first)-1 comparisons. Otherwise an NlogN algorithm is used, where N is distance(first,last).

The comparison function should have the same effects on ordering as the function used for the initial sort.

Definition at line 3180 of file stl_algo.h.

References std::__merge_adaptive(), std::__merge_without_buffer(), std::_Temporary_buffer< _ForwardIterator, _Tp >::begin(), std::distance(), and std::_Temporary_buffer< _ForwardIterator, _Tp >::size().

2.31.1.2 template<typename _BidirectionalIterator > void std::inplace_merge (_BidirectionalIterator *__first*, _BidirectionalIterator *__middle*, _BidirectionalIterator *__last*) [inline]

Merges two sorted ranges in place.

Parameters:

first An iterator.

middle Another iterator.

last Another iterator.

Returns:

Nothing.

Merges two sorted and consecutive ranges, [first,middle) and [middle,last), and puts the result in [first,last). The output will be sorted. The sort is *stable*, that is, for equivalent elements in the two ranges, elements from the first range will always come before elements from the second.

If enough additional memory is available, this takes (last-first)-1 comparisons. Otherwise an NlogN algorithm is used, where N is distance(first,last).

Definition at line 3125 of file stl_algo.h.

References std::__merge_adaptive(), std::__merge_without_buffer(), std::_Temporary_buffer< _ForwardIterator, _Tp >::begin(), std::distance(), and std::_Temporary_buffer< _ForwardIterator, _Tp >::size().

2.31.1.3 template<typename _ForwardIterator , typename _Compare > bool std::is_sorted (_ForwardIterator *__first*, _ForwardIterator *__last*, _Compare *__comp*) [inline]

Determines whether the elements of a sequence are sorted according to a comparison functor.

Parameters:

first An iterator.

last Another iterator.

comp A comparison functor.

Returns:

True if the elements are sorted, false otherwise.

Definition at line 3894 of file stl_algo.h.

References std::is_sorted_until().

2.31.1.4 template<typename _ForwardIterator > bool std::is_sorted (_ForwardIterator *__first*, _ForwardIterator *__last*) [inline]

Determines whether the elements of a sequence are sorted.

Parameters:

first An iterator.

last Another iterator.

Returns:

True if the elements are sorted, false otherwise.

Definition at line 3880 of file stl_algo.h.

References std::is_sorted_until().

2.31.1.5 template<typename _ForwardIterator , typename _Compare > _ForwardIterator std::is_sorted_until (_ForwardIterator *__first*, _ForwardIterator *__last*, _Compare *__comp*) [inline]

Determines the end of a sorted sequence using comparison functor.

Parameters:

first An iterator.

last Another iterator.

comp A comparison functor.

Returns:

An iterator pointing to the last iterator i in [first, last) for which the range [first, i) is sorted.

Definition at line 3937 of file stl_algo.h.

Referenced by std::is_sorted().

2.31.1.6 template<typename _ForwardIterator > _ForwardIterator std::is_sorted_until (_ForwardIterator *__first*, _ForwardIterator *__last*) [inline]

Determines the end of a sorted sequence.

Parameters:

first An iterator.

last Another iterator.

Returns:

An iterator pointing to the last iterator i in [first, last) for which the range [first, i) is sorted.

Definition at line 3908 of file stl_algo.h.

2.31.1.7 template<typename _II1 , typename _II2 , typename _Compare > bool std::lexicographical_compare (_II1 *__first1*, _II1 *__last1*, _II2 *__first2*, _II2 *__last2*, _Compare *__comp*) [inline]

Performs **dictionary** comparison on ranges.

Parameters:

first1 An input iterator.

last1 An input iterator.

first2 An input iterator.

last2 An input iterator.

comp A comparison functor.

Returns:

A boolean true or false.

The same as the four-parameter `lexicographical_compare`, but uses the comp parameter instead of <.

Definition at line 1056 of file stl_algobase.h.

Referenced by std::operator<().

2.31.1.8 template<typename _II1 , typename _II2 > bool std::lexicographical_compare (_II1 *__first1*, _II1 *__last1*, _II2 *__first2*, _II2 *__last2*) [inline]

Performs **dictionary** comparison on ranges.

Parameters:

first1 An input iterator.

last1 An input iterator.

first2 An input iterator.

last2 An input iterator.

Returns:

A boolean true or false.

Returns true if the sequence of elements defined by the range [first1,last1) is lexicographically less than the sequence of elements defined by the range [first2,last2). Returns false otherwise. (Quoted from [25.3.8]/1.) If the iterators are all character pointers, then this is an inline call to `memcmp`.

Definition at line 1022 of file stl_algobase.h.

2.31.1.9 template<typename _Tp , typename _Compare > const _Tp & std::max (const _Tp & __a, const _Tp & __b, _Compare __comp) [inline]

This does what you think it does.

Parameters:

a A thing of arbitrary type.

b Another thing of arbitrary type.

comp A comparison functor.

Returns:

The greater of the parameters.

This will work on temporary expressions, since they are only evaluated once, unlike a preprocessor macro.

Definition at line 253 of file stl_algobase.h.

2.31.1.10 template<typename _Tp > const _Tp & std::max (const _Tp & __a, const _Tp & __b) [inline]

This does what you think it does.

Parameters:

a A thing of arbitrary type.

b Another thing of arbitrary type.

Returns:

The greater of the parameters.

This is the simple classic generic implementation. It will work on temporary expressions, since they are only evaluated once, unlike a preprocessor macro.

Definition at line 209 of file stl_algobase.h.

Referenced by std::_Deque_base< _Tp, _Alloc >::_M_initialize_map(), std::deque< _Tp, _Alloc >::_M_reallocate_map(), and std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow().

2.31.1.11 template<typename _ForwardIterator , typename _Compare > _ForwardIterator std::max_element (_ForwardIterator __first, _ForwardIterator __last, _Compare __comp) [inline]

Return the maximum element in a range using comparison functor.

Parameters:

first Start of range.

last End of range.

comp Comparison functor.

Returns:

Iterator referencing the first instance of the largest value according to comp.

Definition at line 6081 of file stl_algo.h.

Referenced by std::valarray< _Tp >::max().

2.31.1.12 template<typename _ForwardIterator > _ForwardIterator std::max_element (_ForwardIterator *__first*, _ForwardIterator *__last*) [inline]

Return the maximum element in a range.

Parameters:

first Start of range.

last End of range.

Returns:

Iterator referencing the first instance of the largest value.

Definition at line 6053 of file stl_algo.h.

2.31.1.13 template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator , typename _Compare > _OutputIterator std::merge (_InputIterator1 *__first1*, _InputIterator1 *__last1*, _InputIterator2 *__first2*, _InputIterator2 *__last2*, _OutputIterator *__result*, _Compare *__comp*) [inline]

Merges two sorted ranges.

Parameters:

first1 An iterator.

first2 Another iterator.

last1 Another iterator.

last2 Another iterator.

result An iterator pointing to the end of the merged range.

comp A functor to use for comparisons.

Returns:

An iterator pointing to the first element "not less than" *val*.

Merges the ranges [first1,last1) and [first2,last2) into the sorted range [result, result + (last1-first1) + (last2-first2)). Both input ranges must be sorted, and the output range must not overlap with either of the input ranges. The sort is *stable*, that is, for equivalent elements in the two ranges, elements from the first range will always come before elements from the second.

The comparison function should have the same effects on ordering as the function used for the initial sort.

Definition at line 5359 of file stl_algo.h.

2.31.1.14 template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator > _OutputIterator std::merge (_InputIterator1 *__first1*, _InputIterator1 *__last1*, _InputIterator2 *__first2*, _InputIterator2 *__last2*, _OutputIterator *__result*) [inline]

Merges two sorted ranges.

Parameters:

first1 An iterator.

first2 Another iterator.

last1 Another iterator.

last2 Another iterator.

result An iterator pointing to the end of the merged range.

Returns:

An iterator pointing to the first element *not less than val*.

Merges the ranges [first1,last1) and [first2,last2) into the sorted range [result, result + (last1-first1) + (last2-first2)). Both input ranges must be sorted, and the output range must not overlap with either of the input ranges. The sort is *stable*, that is, for equivalent elements in the two ranges, elements from the first range will always come before elements from the second.

Definition at line 5296 of file stl_algo.h.

2.31.1.15 template<typename _Tp , typename _Compare > const _Tp & std::min (const _Tp & __a, const _Tp & __b, _Compare __comp) [inline]

This does what you think it does.

Parameters:

a A thing of arbitrary type.

b Another thing of arbitrary type.

comp A comparison functor.

Returns:

The lesser of the parameters.

This will work on temporary expressions, since they are only evaluated once, unlike a preprocessor macro.

Definition at line 232 of file stl_algobase.h.

2.31.1.16 template<typename _Tp > const _Tp & std::min (const _Tp & __a, const _Tp & __b) [inline]

This does what you think it does.

Parameters:

a A thing of arbitrary type.

b Another thing of arbitrary type.

Returns:

The lesser of the parameters.

This is the simple classic generic implementation. It will work on temporary expressions, since they are only evaluated once, unlike a preprocessor macro.

Definition at line 186 of file stl_algobase.h.

Referenced by __gnu_parallel::__parallel_random_shuffle_drs(), __gnu_parallel::__sequential_random_shuffle(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::compare(), std::basic_string< _CharT, _Traits, _Alloc >::compare(), std::basic_string< char >::compare(), std::generate_canonical(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), __gnu_cxx::random_sample_n(), std::basic_istream< _CharT, _Traits >::readsome(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::rfind(), std::basic_string< _CharT, _Traits, _Alloc

>::rfind(), std::basic_filebuf< _CharT, _Traits >::underflow(), std::basic_streambuf< _CharT, _Traits >::xsgetn(), std::basic_streambuf< _CharT, _Traits >::xsputn(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

2.31.1.17 template<typename _ForwardIterator , typename _Compare > _ForwardIterator std::min_element (_ForwardIterator *__first*, _ForwardIterator *__last*, _Compare *__comp*) [inline]

Return the minimum element in a range using comparison functor.

Parameters:

first Start of range.

last End of range.

comp Comparison functor.

Returns:

Iterator referencing the first instance of the smallest value according to comp.

Definition at line 6025 of file stl_algo.h.

Referenced by std::valarray< _Tp >::min().

2.31.1.18 template<typename _ForwardIterator > _ForwardIterator std::min_element (_ForwardIterator *__first*, _ForwardIterator *__last*) [inline]

Return the minimum element in a range.

Parameters:

first Start of range.

last End of range.

Returns:

Iterator referencing the first instance of the smallest value.

Definition at line 5997 of file stl_algo.h.

2.31.1.19 template<typename _Tp , typename _Compare > pair< const _Tp &, const _Tp & > std::minmax (const _Tp & *__a*, const _Tp & *__b*, _Compare *__comp*) [inline]

Determines min and max at once as an ordered pair.

Parameters:

a A thing of arbitrary type.

b Another thing of arbitrary type.

comp A comparison functor.

Returns:

A pair(b, a) if b is smaller than a, pair(a, b) otherwise.

Definition at line 3985 of file stl_algo.h.

2.31.1.20 template<typename _Tp > pair< const _Tp &, const _Tp & > std::minmax (const _Tp & *__a*, const _Tp & *__b*) [inline]

Determines min and max at once as an ordered pair.

Parameters:

a A thing of arbitrary type.

b Another thing of arbitrary type.

Returns:

A pair(b, a) if b is smaller than a, pair(a, b) otherwise.

Definition at line 3966 of file stl_algo.h.

2.31.1.21 template<typename _ForwardIterator , typename _Compare > pair<_ForwardIterator, _ForwardIterator> std::minmax_element (_ForwardIterator *__first*, _ForwardIterator *__last*, _Compare *__comp*) [inline]

Return a pair of iterators pointing to the minimum and maximum elements in a range.

Parameters:

first Start of range.

last End of range.

comp Comparison functor.

Returns:

make_pair(m, M), where m is the first iterator i in [first, last) such that no other element in the range is smaller, and where M is the last iterator i in [first, last) such that no other element in the range is larger.

Definition at line 4080 of file stl_algo.h.

2.31.1.22 template<typename _ForwardIterator > pair<_ForwardIterator, _ForwardIterator> std::minmax_element (_ForwardIterator *__first*, _ForwardIterator *__last*) [inline]

Return a pair of iterators pointing to the minimum and maximum elements in a range.

Parameters:

first Start of range.

last End of range.

Returns:

make_pair(m, M), where m is the first iterator i in [first, last) such that no other element in the range is smaller, and where M is the last iterator i in [first, last) such that no other element in the range is larger.

Definition at line 4004 of file stl_algo.h.

2.31.1.23 template<typename _BidirectionalIterator , typename _Compare > bool std::next_permutation (_BidirectionalIterator *__first*, _BidirectionalIterator *__last*, _Compare *__comp*) [inline]

Permute range into the next *dictionary* ordering using comparison functor.

Parameters:

first Start of range.

last End of range.

comp A comparison functor.

Returns:

False if wrapped to first permutation, true otherwise.

Treats all permutations of the range [first,last) as a set of *dictionary* sorted sequences ordered by *comp*. Permutes the current sequence into the next one of this set. Returns true if there are more sequences to generate. If the sequence is the largest of the set, the smallest is generated and false returned.

Definition at line 3639 of file stl_algo.h.

References std::iter_swap(), and std::reverse().

2.31.1.24 template<typename _BidirectionalIterator > bool std::next_permutation (_BidirectionalIterator *__first*, _BidirectionalIterator *__last*) [inline]

Permute range into the next *dictionary* ordering.

Parameters:

first Start of range.

last End of range.

Returns:

False if wrapped to first permutation, true otherwise.

Treats all permutations of the range as a set of *dictionary* sorted sequences. Permutes the current sequence into the next one of this set. Returns true if there are more sequences to generate. If the sequence is the largest of the set, the smallest is generated and false returned.

Definition at line 3582 of file stl_algo.h.

References std::iter_swap(), and std::reverse().

2.31.1.25 template<typename _RandomAccessIterator , typename _Compare > void std::nth_element (_RandomAccessIterator *__first*, _RandomAccessIterator *__nth*, _RandomAccessIterator *__last*, _Compare *__comp*) [inline]

Sort a sequence just enough to find a particular position using a predicate for comparison.

Parameters:

first An iterator.

nth Another iterator.

last Another iterator.

comp A comparison functor.

Returns:

Nothing.

Rearranges the elements in the range [first,last) so that `*nth` is the same element that would have been in that position had the whole sequence been sorted. The elements either side of `*nth` are not completely sorted, but for any iterator in the range [first,nth) and any iterator in the range [nth,last) it holds that `comp(*j,*i)` is false.

Definition at line 5180 of file stl_algo.h.

References std::__lg().

2.31.1.26 template<typename _RandomAccessIterator > void std::nth_element (_RandomAccessIterator *__first*, _RandomAccessIterator *__nth*, _RandomAccessIterator *__last*) [inline]

Sort a sequence just enough to find a particular position.

Parameters:

first An iterator.

nth Another iterator.

last Another iterator.

Returns:

Nothing.

Rearranges the elements in the range [first,last) so that `*nth` is the same element that would have been in that position had the whole sequence been sorted. whole sequence been sorted. The elements either side of `*nth` are not completely sorted, but for any iterator in the range [first,nth) and any iterator in the range [nth,last) it holds that `*j<*i` is false.

Definition at line 5141 of file stl_algo.h.

References std::__lg().

2.31.1.27 template<typename _RandomAccessIterator , typename _Compare > void std::partial_sort (_RandomAccessIterator *__first*, _RandomAccessIterator *__middle*, _RandomAccessIterator *__last*, _Compare *__comp*) [inline]

Sort the smallest elements of a sequence using a predicate for comparison.

Parameters:

first An iterator.

middle Another iterator.

last Another iterator.

comp A comparison functor.

Returns:

Nothing.

Sorts the smallest (middle-first) elements in the range [first,last) and moves them to the range [first,middle). The order of the remaining elements in the range [middle,last) is undefined. After the sort if `i` and are iterators in the range [first,middle) such that precedes and is an iterator in the range [middle,last) then `*comp(j,*i)` and `comp(*k,*i)` are both false.

Definition at line 5103 of file stl_algo.h.

References std::__heap_select(), and std::sort_heap().

2.31.1.28 template<typename _RandomAccessIterator > void std::partial_sort (_RandomAccessIterator *__first*, _RandomAccessIterator *__middle*, _RandomAccessIterator *__last*) [inline]

Sort the smallest elements of a sequence.

Parameters:

first An iterator.

middle Another iterator.

last Another iterator.

Returns:

Nothing.

Sorts the smallest (middle-first) elements in the range [first,last) and moves them to the range [first,middle). The order of the remaining elements in the range [middle,last) is undefined. After the sort if `i` and are iterators in the range [first,middle) such that precedes and is an iterator in the range [middle,last) then `*j<*i` and `*k<*i` are both false.

Definition at line 5064 of file stl_algo.h.

References std::__heap_select(), and std::sort_heap().

2.31.1.29 template<typename _InputIterator , typename _RandomAccessIterator , typename _Compare > _RandomAccessIterator std::partial_sort_copy (_InputIterator *__first*, _InputIterator *__last*, _RandomAccessIterator *__result_first*, _RandomAccessIterator *__result_last*, _Compare *__comp*) [inline]

Copy the smallest elements of a sequence using a predicate for comparison.

Parameters:

first An input iterator.

last Another input iterator.

result_first A random-access iterator.

result_last Another random-access iterator.

comp A comparison functor.

Returns:

An iterator indicating the end of the resulting sequence.

Copies and sorts the smallest N values from the range [first,last) to the range beginning at `result_first`, where the number of elements to be copied, `N`, is the smaller of (last-first) and (result_last-result_first). After the sort if `i` and are iterators in the range [result_first,result_first+N) such that precedes then `comp(*j,*i)` is false. The value returned is `result_first+N`.

Definition at line 2002 of file stl_algo.h.

References std::make_heap(), and std::sort_heap().

2.31.1.30 template<typename _InputIterator , typename _RandomAccessIterator > _RandomAccessIterator std::partial_sort_copy (_InputIterator *__first*, _InputIterator *__last*, _RandomAccessIterator *__result_first*, _RandomAccessIterator *__result_last*) [inline]

Copy the smallest elements of a sequence.

Parameters:

first An iterator.

last Another iterator.

result_first A random-access iterator.

result_last Another random-access iterator.

Returns:

An iterator indicating the end of the resulting sequence.

Copies and sorts the smallest N values from the range [first,last) to the range beginning at `result_first`, where the number of elements to be copied, `N`, is the smaller of (last-first) and (result_last-result_first). After the sort if `i` and are iterators in the range [result_first,result_first+N) such that precedes then `*j<*i` is false. The value returned is `result_first+N`.

Definition at line 1936 of file stl_algo.h.

References std::make_heap(), and std::sort_heap().

2.31.1.31 template<typename _BidirectionalIterator , typename _Compare > bool std::prev_permutation (_BidirectionalIterator *__first*, _BidirectionalIterator *__last*, _Compare *__comp*) [inline]

Permute range into the previous *dictionary* ordering using comparison functor.

Parameters:

first Start of range.

last End of range.

comp A comparison functor.

Returns:

False if wrapped to last permutation, true otherwise.

Treats all permutations of the range [first,last) as a set of *dictionary* sorted sequences ordered by *comp*. Permutes the current sequence into the previous one of this set. Returns true if there are more sequences to generate. If the sequence is the smallest of the set, the largest is generated and false returned.

Definition at line 3752 of file stl_algo.h.

References std::iter_swap(), and std::reverse().

2.31.1.32 template<typename _BidirectionalIterator > bool std::prev_permutation (_BidirectionalIterator *__first*, _BidirectionalIterator *__last*) [inline]

Permute range into the previous *dictionary* ordering.

Parameters:

first Start of range.

last End of range.

Returns:

False if wrapped to last permutation, true otherwise.

Treats all permutations of the range as a set of *dictionary* sorted sequences. Permutes the current sequence into the previous one of this set. Returns true if there are more sequences to generate. If the sequence is the smallest of the set, the largest is generated and false returned.

Definition at line 3695 of file stl_algo.h.

References std::iter_swap(), and std::reverse().

2.31.1.33 template<typename _RandomAccessIterator , typename _Compare > void std::sort (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*, _Compare *__comp*) [inline]

Sort the elements of a sequence using a predicate for comparison.

Parameters:

first An iterator.

last Another iterator.

comp A comparison functor.

Returns:

Nothing.

Sorts the elements in the range [first,last) in ascending order, such that `comp`(*(i+1),*i) is false for every iterator `i` in the range [first,last-1).

The relative ordering of equivalent elements is not preserved, use `stable_sort()` if this is needed.

Definition at line 5254 of file stl_algo.h.

References std::__final_insertion_sort(), std::__introsort_loop(), and std::__lg().

2.31.1.34 template<typename _RandomAccessIterator > void std::sort (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*) [inline]

Sort the elements of a sequence.

Parameters:

first An iterator.

last Another iterator.

Returns:

Nothing.

Sorts the elements in the range [first,last) in ascending order, such that *(i+1)<*i is false for each iterator `i` in the range [first,last-1).

The relative ordering of equivalent elements is not preserved, use `stable_sort()` if this is needed.

Definition at line 5218 of file stl_algo.h.

References std::__final_insertion_sort(), std::__introsort_loop(), and std::__lg().

2.31.1.35 template<typename _RandomAccessIterator , typename _Compare > void std::stable_sort (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*, _Compare *__comp*) [inline]

Sort the elements of a sequence using a predicate for comparison, preserving the relative order of equivalent elements.

Parameters:

first An iterator.

last Another iterator.

comp A comparison functor.

Returns:

Nothing.

Sorts the elements in the range [first,last) in ascending order, such that `comp(*(i+1),*i)` is false for each iterator `i` in the range [first,last-1).

The relative ordering of equivalent elements is preserved, so any two elements `x` and `y` in the range [first,last) such that `comp(x,y)` is false and `comp(y,x)` is false will have the same relative ordering after calling `stable_sort()`.

Definition at line 5460 of file stl_algo.h.

References std::__inplace_stable_sort(), std::_Temporary_buffer< _ForwardIterator, _Tp >::begin(), and std::_Temporary_buffer< _ForwardIterator, _Tp >::size().

2.31.1.36 template<typename _RandomAccessIterator > void std::stable_sort (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*) [inline]

Sort the elements of a sequence, preserving the relative order of equivalent elements.

Parameters:

first An iterator.

last Another iterator.

Returns:

Nothing.

Sorts the elements in the range [first,last) in ascending order, such that *(i+1)<*i is false for each iterator `i` in the range [first,last-1).

The relative ordering of equivalent elements is preserved, so any two elements `x` and `y` in the range [first,last) such that `x<y` is false and `y<x` is false will have the same relative ordering after calling `stable_sort()`.

Definition at line 5418 of file stl_algo.h.

References std::__inplace_stable_sort(), std::_Temporary_buffer< _ForwardIterator, _Tp >::begin(), and std::_Temporary_buffer< _ForwardIterator, _Tp >::size().

2.32 Set Operation Algorithms

Collaboration diagram for Set Operation Algorithms:

Functions

- template<typename _InputIterator1 , typename _InputIterator2 , typename _Compare >
  bool std::includes (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _Compare __comp)
- template<typename _InputIterator1 , typename _InputIterator2 >
  bool std::includes (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator , typename _Compare >
  _OutputIterator std::set_difference (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result, _Compare __comp)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator >
  _OutputIterator std::set_difference (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator , typename _Compare >
  _OutputIterator std::set_intersection (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result, _Compare __comp)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator >
  _OutputIterator std::set_intersection (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator , typename _Compare >
  _OutputIterator std::set_symmetric_difference (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result, _Compare __comp)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator >
  _OutputIterator std::set_symmetric_difference (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator , typename _Compare >
  _OutputIterator std::set_union (_InputIterator1 __first1, _InputIterator1 __last1,

_InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result, _-Compare __comp)

- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator > _OutputIterator std::set_union (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result)

2.32.1 Detailed Description

These algorithms are common set operations performed on sequences that are already sorted. The number of comparisons will be linear.

2.32.2 Function Documentation

2.32.2.1 template<typename _InputIterator1 , typename _InputIterator2 , typename _Compare > bool std::includes (_InputIterator1 *__first1*, _InputIterator1 *__last1*, _InputIterator2 *__first2*, _InputIterator2 *__last2*, _Compare *__comp*) [inline]

Determines whether all elements of a sequence exists in a range using comparison.

Parameters:

first1 Start of search range.

last1 End of search range.

first2 Start of sequence

last2 End of sequence.

comp Comparison function to use.

Returns:

True if each element in [first2,last2) is contained in order within [first1,last1) according to comp. False otherwise.

This operation expects both [first1,last1) and [first2,last2) to be sorted. Searches for the presence of each element in [first2,last2) within [first1,last1), using comp to decide. The iterators over each range only move forward, so this is a linear algorithm. If an element in [first2,last2) is not found before the search iterator reaches *last2*, false is returned.

Definition at line 3528 of file stl_algo.h.

2.32.2.2 template<typename _InputIterator1 , typename _InputIterator2 > bool std::includes (_InputIterator1 *__first1*, _InputIterator1 *__last1*, _InputIterator2 *__first2*, _InputIterator2 *__last2*) [inline]

Determines whether all elements of a sequence exists in a range.

Parameters:

first1 Start of search range.

last1 End of search range.

first2 Start of sequence

last2 End of sequence.

Returns:

True if each element in [first2,last2) is contained in order within [first1,last1). False otherwise.

This operation expects both [first1,last1) and [first2,last2) to be sorted. Searches for the presence of each element in [first2,last2) within [first1,last1). The iterators over each range only move forward, so this is a linear algorithm. If an element in [first2,last2) is not found before the search iterator reaches *last2*, false is returned.

Definition at line 3478 of file stl_algo.h.

2.32.2.3 template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator , typename _Compare > _OutputIterator std::set_difference (_InputIterator1 *__first1*, _InputIterator1 *__last1*, _InputIterator2 *__first2*, _InputIterator2 *__last2*, _OutputIterator *__result*, _Compare *__comp*) [inline]

Return the difference of two sorted ranges using comparison functor.

Parameters:

first1 Start of first range.

last1 End of first range.

first2 Start of second range.

last2 End of second range.

comp The comparison functor.

Returns:

End of the output range.

This operation iterates over both ranges, copying elements present in the first range but not the second in order to the output range. Iterators increment for each range. When the current element of the first range is less than the second according to *comp*, that element is copied and the iterator advances. If the current element of the second range is less, no element is copied and the iterator advances. If an element is contained in both ranges according to *comp*, no elements are copied and both ranges advance. The output range may not overlap either input range.

Definition at line 5817 of file stl_algo.h.

2.32.2.4 template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator > _OutputIterator std::set_difference (_InputIterator1 *__first1*, _InputIterator1 *__last1*, _InputIterator2 *__first2*, _InputIterator2 *__last2*, _OutputIterator *__result*) [inline]

Return the difference of two sorted ranges.

Parameters:

first1 Start of first range.

last1 End of first range.

first2 Start of second range.

last2 End of second range.

Returns:

End of the output range.

This operation iterates over both ranges, copying elements present in the first range but not the second in order to the output range. Iterators increment for each range. When the current element of the first range is less than the second, that element is copied and the iterator advances. If the current element of the second range is less, the iterator advances, but no element is copied. If an element is contained in both ranges, no elements are copied and both ranges advance. The output range may not overlap either input range.

Definition at line 5756 of file stl_algo.h.

2.32.2.5 template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator , typename _Compare > _OutputIterator std::set_intersection (_InputIterator1 *__first1*, _InputIterator1 *__last1*, _InputIterator2 *__first2*, _InputIterator2 *__last2*, _OutputIterator *__result*, _Compare *__comp*) [inline]

Return the intersection of two sorted ranges using comparison functor.

Parameters:

first1 Start of first range.

last1 End of first range.

first2 Start of second range.

last2 End of second range.

comp The comparison functor.

Returns:

End of the output range.

This operation iterates over both ranges, copying elements present in both ranges in order to the output range. Iterators increment for each range. When the current element of one range is less than the other according to *comp*, that iterator advances. If an element is contained in both ranges according to *comp*, the element from the first range is copied and both ranges advance. The output range may not overlap either input range.

Definition at line 5698 of file stl_algo.h.

2.32.2.6 template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator > _OutputIterator std::set_intersection (_InputIterator1 *__first1*, _InputIterator1 *__last1*, _InputIterator2 *__first2*, _InputIterator2 *__last2*, _OutputIterator *__result*) [inline]

Return the intersection of two sorted ranges.

Parameters:

first1 Start of first range.

last1 End of first range.

first2 Start of second range.

last2 End of second range.

Returns:

End of the output range.

This operation iterates over both ranges, copying elements present in both ranges in order to the output range. Iterators increment for each range. When the current element of one range is less than the other, that iterator advances. If an element is contained in both ranges, the element from the first range is copied and both ranges advance. The output range may not overlap either input range.

Definition at line 5641 of file stl_algo.h.

2.32.2.7 template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator , typename _Compare > _OutputIterator std::set_symmetric_difference (_InputIterator1 *__first1*, _InputIterator1 *__last1*, _InputIterator2 *__first2*, _InputIterator2 *__last2*, _OutputIterator *__result*, _Compare *__comp*) [inline]

Return the symmetric difference of two sorted ranges using comparison functor.

Parameters:

first1 Start of first range.

last1 End of first range.

first2 Start of second range.

last2 End of second range.

comp The comparison functor.

Returns:

End of the output range.

This operation iterates over both ranges, copying elements present in one range but not the other in order to the output range. Iterators increment for each range. When the current element of one range is less than the other according to *comp*, that element is copied and the iterator advances. If an element is contained in both ranges according to *comp*, no elements are copied and both ranges advance. The output range may not overlap either input range.

Definition at line 5941 of file stl_algo.h.

2.32.2.8 template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator > _OutputIterator std::set_symmetric_difference (_InputIterator1 *__first1*, _InputIterator1 *__last1*, _InputIterator2 *__first2*, _InputIterator2 *__last2*, _OutputIterator *__result*) [inline]

Return the symmetric difference of two sorted ranges.

Parameters:

first1 Start of first range.

last1 End of first range.

first2 Start of second range.

last2 End of second range.

Returns:

End of the output range.

This operation iterates over both ranges, copying elements present in one range but not the other in order to the output range. Iterators increment for each range. When the current element of one range is less than the other, that element is copied and the iterator advances. If an element is contained in both ranges, no elements are copied and both ranges advance. The output range may not overlap either input range.

Definition at line 5875 of file stl_algo.h.

2.32.2.9 template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator , typename _Compare > _OutputIterator std::set_union (_InputIterator1 *__first1*, _InputIterator1 *__last1*, _InputIterator2 *__first2*, _InputIterator2 *__last2*, _OutputIterator *__result*, _Compare *__comp*) [inline]

Return the union of two sorted ranges using a comparison functor.

Parameters:

first1 Start of first range.

last1 End of first range.

first2 Start of second range.

last2 End of second range.

comp The comparison functor.

Returns:

End of the output range.

This operation iterates over both ranges, copying elements present in each range in order to the output range. Iterators increment for each range. When the current element of one range is less than the other according to *comp*, that element is copied and the iterator advanced. If an equivalent element according to *comp* is contained in both ranges, the element from the first range is copied and both ranges advance. The output range may not overlap either input range.

Definition at line 5574 of file stl_algo.h.

2.32.2.10 template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator > _OutputIterator std::set_union (_InputIterator1 *__first1*, _InputIterator1 *__last1*, _InputIterator2 *__first2*, _InputIterator2 *__last2*, _OutputIterator *__result*) [inline]

Return the union of two sorted ranges.

Parameters:

first1 Start of first range.

last1 End of first range.

first2 Start of second range.

last2 End of second range.

Returns:

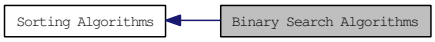
End of the output range.

This operation iterates over both ranges, copying elements present in each range in order to the output range. Iterators increment for each range. When the current element of one range is less than the other, that element is copied and the iterator advanced. If an element is contained in both ranges, the element from the first range is copied and both ranges advance. The output range may not overlap either input range.

Definition at line 5507 of file stl_algo.h.

2.33 Binary Search Algorithms

Collaboration diagram for Binary Search Algorithms:



Functions

- template<typename _ForwardIterator , typename _Tp , typename _Compare >
  bool std::binary_search (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__val, _Compare __comp)
- template<typename _ForwardIterator , typename _Tp >
  bool std::binary_search (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__val)
- template<typename _ForwardIterator , typename _Tp , typename _Compare >
  pair< _ForwardIterator, _ForwardIterator > std::equal_range (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__val, _Compare __comp)
- template<typename _ForwardIterator , typename _Tp >
  pair< _ForwardIterator, _ForwardIterator > std::equal_range (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__val)
- template<typename _ForwardIterator , typename _Tp , typename _Compare >
  _ForwardIterator std::lower_bound (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__val, _Compare __comp)
- template<typename _ForwardIterator , typename _Tp >
  _ForwardIterator std::lower_bound (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__val)
- template<typename _ForwardIterator , typename _Tp , typename _Compare >
  _ForwardIterator std::upper_bound (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__val, _Compare __comp)
- template<typename _ForwardIterator , typename _Tp >
  _ForwardIterator std::upper_bound (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__val)

2.33.1 Detailed Description

These algorithms are variations of a classic binary search, and all assume that the sequence being searched is already sorted.

The number of comparisons will be logarithmic (and as few as possible). The number of steps through the sequence will be logarithmic for random-access iterators (e.g., pointers), and linear otherwise.

The LWG has passed Defect Report 270, which notes: *The proposed resolution reinterprets binary search. Instead of thinking about searching for a value in a sorted range, we view that as an important special case of a more general algorithm: searching for the partition point in a partitioned range. We also add a guarantee that the old wording did not: we ensure that the upper bound is no earlier than the lower bound, that the pair returned by equal_range is a valid range, and that the first part of that pair is the lower bound.*

The actual effect of the first sentence is that a comparison functor passed by the user doesn't necessarily need to induce a strict weak ordering relation. Rather, it partitions the range.

2.33.2 Function Documentation

2.33.2.1 template<typename _ForwardIterator , typename _Tp , typename _Compare > bool std::binary_search (_ForwardIterator *__first*, _ForwardIterator *__last*, const _Tp & *__val*, _Compare *__comp*) [inline]

Determines whether an element exists in a range.

Parameters:

first An iterator.

last Another iterator.

val The search term.

comp A functor to use for comparisons.

Returns:

True if *val* (or its equivalent) is in [*first*,*last*].

Note that this does not actually return an iterator to *val*. For that, use std::find or a container's specialized find member functions.

The comparison function should have the same effects on ordering as the function used for the initial sort.

Definition at line 2765 of file stl_algo.h.

References std::lower_bound().

2.33.2.2 template<typename _ForwardIterator , typename _Tp > bool std::binary_search (_ForwardIterator *__first*, _ForwardIterator *__last*, const _Tp & *__val*) [inline]

Determines whether an element exists in a range.

Parameters:

first An iterator.

last Another iterator.

val The search term.

Returns:

True if *val* (or its equivalent) is in [*first*,*last*].

Note that this does not actually return an iterator to *val*. For that, use std::find or a container's specialized find member functions.

Definition at line 2732 of file stl_algo.h.

References std::lower_bound().

2.33.2.3 template<typename _ForwardIterator , typename _Tp , typename _Compare > pair<_ForwardIterator, _ForwardIterator> std::equal_range (_ForwardIterator *__first*, _ForwardIterator *__last*, const _Tp & *__val*, _Compare *__comp*) [inline]

Finds the largest subrange in which *val* could be inserted at any place in it without changing the ordering.

Parameters:

first An iterator.

last Another iterator.

val The search term.

comp A functor to use for comparisons.

Returns:

An pair of iterators defining the subrange.

This is equivalent to

```
std::make_pair(lower_bound(first, last, val, comp),
               upper_bound(first, last, val, comp))
```

but does not actually call those functions.

Definition at line 2671 of file stl_algo.h.

References std::advance(), std::distance(), std::lower_bound(), and std::upper_bound().

2.33.2.4 template<typename _ForwardIterator , typename _Tp > pair<_ForwardIterator, _ForwardIterator> std::equal_range (_ForwardIterator *__first*, _ForwardIterator *__last*, const _Tp & *__val*) [inline]

Finds the largest subrange in which *val* could be inserted at any place in it without changing the ordering.

Parameters:

first An iterator.

last Another iterator.

val The search term.

Returns:

An pair of iterators defining the subrange.

This is equivalent to

```
std::make_pair(lower_bound(first, last, val),
               upper_bound(first, last, val))
```

but does not actually call those functions.

Definition at line 2609 of file stl_algo.h.

References std::advance(), std::distance(), std::lower_bound(), and std::upper_bound().

2.33.2.5 template<typename _ForwardIterator , typename _Tp , typename _Compare > _ForwardIterator std::lower_bound (_ForwardIterator *__first*, _ForwardIterator *__last*, const _Tp & *__val*, _Compare *__comp*) [inline]

Finds the first position in which *val* could be inserted without changing the ordering.

Parameters:

first An iterator.

last Another iterator.

val The search term.

comp A functor to use for comparisons.

Returns:

An iterator pointing to the first element *not less than val*, or end() if every element is less than *val*.

The comparison function should have the same effects on ordering as the function used for the initial sort.

Definition at line 2454 of file stl_algo.h.

References std::advance(), and std::distance().

Referenced by std::__merge_adaptive(), std::__merge_without_buffer(), std::binary_search(), and std::equal_range().

2.33.2.6 template<typename _ForwardIterator , typename _Tp > _ForwardIterator std::lower_bound (_ForwardIterator *__first*, _ForwardIterator *__last*, const _Tp & *__val*) [inline]

Finds the first position in which *val* could be inserted without changing the ordering.

Parameters:

first An iterator.

last Another iterator.

val The search term.

Returns:

An iterator pointing to the first element *not less than val*, or end() if every element is less than *val*.

Definition at line 2402 of file stl_algo.h.

References std::advance(), and std::distance().

2.33.2.7 template<typename _ForwardIterator , typename _Tp , typename _Compare > _ForwardIterator std::upper_bound (_ForwardIterator *__first*, _ForwardIterator *__last*, const _Tp & *__val*, _Compare *__comp*) [inline]

Finds the last position in which *val* could be inserted without changing the ordering.

Parameters:

first An iterator.

last Another iterator.

val The search term.

comp A functor to use for comparisons.

Returns:

An iterator pointing to the first element greater than *val*, or end() if no elements are greater than *val*.

The comparison function should have the same effects on ordering as the function used for the initial sort.

Definition at line 2554 of file stl_algo.h.

References std::advance(), and std::distance().

Referenced by std::__merge_adaptive(), std::__merge_without_buffer(), and std::equal_range().

2.33.2.8 template<typename _ForwardIterator , typename _Tp > _ForwardIterator std::upper_bound (_ForwardIterator *__first*, _ForwardIterator *__last*, const _Tp & *__val*) [inline]

Finds the last position in which *val* could be inserted without changing the ordering.

Parameters:

first An iterator.

last Another iterator.

val The search term.

Returns:

An iterator pointing to the first element greater than *val*, or end() if no elements are greater than *val*.

Definition at line 2503 of file stl_algo.h.

References std::advance(), and std::distance().

2.34 Allocators

Collaboration diagram for Allocators:

Classes

- class __gnu_cxx::__mt_alloc< _Tp, _Poolp >

  This is a fixed size (power of 2) allocator which - when compiled with thread support - will maintain one freelist per size per thread plus a global one. Steps are taken to limit the per thread freelist sizes (by returning excess back to the global list).
  Further details: http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt12ch32.html.

- class __gnu_cxx::__pool_alloc< _Tp >

  Allocator using a memory pool with a single lock.

- class __gnu_cxx::_ExtPtr_allocator< _Tp >

  An example allocator which uses a non-standard pointer type.
  This allocator specifies that containers use a 'relative pointer' as it's pointer type. (See ext/pointer.h) Memory allocation in this example is still performed using std::allocator.

- class __gnu_cxx::array_allocator< _Tp, _Array >

  An allocator that uses previously allocated memory. This memory can be externally, globally, or otherwise allocated.

- class __gnu_cxx::bitmap_allocator< _Tp >

  Bitmap Allocator, primary template.

- class __gnu_cxx::debug_allocator< _Alloc >

  A meta-allocator with debugging bits, as per [20.4].
  This is precisely the allocator defined in the C++ Standard.
  - *all allocation calls operator new*
  - *all deallocation calls operator delete.*

- class __gnu_cxx::malloc_allocator< _Tp >

  An allocator that uses malloc.
  This is precisely the allocator defined in the C++ Standard.
  - *all allocation calls malloc*
  - *all deallocation calls free.*

- class __gnu_cxx::new_allocator< _Tp >

  An allocator that uses global new, as per [20.4].
  This is precisely the allocator defined in the C++ Standard.
  - *all allocation calls operator new*
  - *all deallocation calls operator delete.*

- class __gnu_cxx::throw_allocator_base< _Tp, _Cond >

  Allocator class with logging and exception generation control. Intended to be used as an allocator_type in templatized code.
  Note: Deallocate not allowed to throw.

- class std::allocator< _Tp >

  The standard allocator, as per [20.4].
  Further details: http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt04ch11.html.

2.34.1 Detailed Description

Classes encapsulating memory operations.

2.35 Atomics

Classes

- struct std::atomic< _Tp >

  atomic 29.4.3, Generic atomic type, primary class template.

- struct std::atomic< _Tp * >

  Partial specialization for pointer types.

- struct std::atomic< bool >

  Explicit specialization for bool.

- struct std::atomic< char >

  Explicit specialization for char.

- struct std::atomic< char16_t >

  Explicit specialization for char16_t.

- struct std::atomic< char32_t >

  Explicit specialization for char32_t.

- struct std::atomic< int >

  Explicit specialization for int.

- struct std::atomic< long >

  Explicit specialization for long.

- struct std::atomic< long long >

  Explicit specialization for long long.

- struct std::atomic< short >

  Explicit specialization for short.

- struct std::atomic< signed char >

  Explicit specialization for signed char.

- struct std::atomic< unsigned char >

  Explicit specialization for unsigned char.

- struct std::atomic< unsigned int >

  Explicit specialization for unsigned int.

- struct std::atomic< unsigned long >

  Explicit specialization for unsigned long.

- struct std::atomic< unsigned long long >

  Explicit specialization for unsigned long long.

- struct std::atomic< unsigned short >

  Explicit specialization for unsigned short.

- struct std::atomic< void * >

  Explicit specialization for void.*

- struct std::atomic< wchar_t >

  Explicit specialization for wchar_t.

Defines

- #define **_ATOMIC_CMPEXCHNG_**(__a, __e, __m, __x)
- #define **_ATOMIC_LOAD_**(__a, __x)
- #define **_ATOMIC_MODIFY_**(__a, __o, __m, __x)
- #define **_ATOMIC_STORE_**(__a, __m, __x)
- #define **_GLIBCXX_ATOMIC_NAMESPACE**
- #define _GLIBCXX_ATOMIC_PROPERTY
- #define **ATOMIC_ADDRESS_LOCK_FREE**
- #define **ATOMIC_FLAG_INIT**
- #define **ATOMIC_INTEGRAL_LOCK_FREE**

Typedefs

- typedef struct std::__atomic_flag_base **std::__atomic_flag_base**
- typedef __atomic_base< char > atomic_char
- typedef __atomic_base< char16_t > atomic_char16_t
- typedef __atomic_base< char32_t > atomic_char32_t
- typedef __atomic_base< int > atomic_int
- typedef atomic_short **std::atomic_int_fast16_t**
- typedef atomic_int **std::atomic_int_fast32_t**
- typedef atomic_llong **std::atomic_int_fast64_t**
- typedef atomic_schar **std::atomic_int_fast8_t**
- typedef atomic_short **std::atomic_int_least16_t**
- typedef atomic_int **std::atomic_int_least32_t**

- typedef atomic_llong **std::atomic_int_least64_t**
- typedef atomic_schar **std::atomic_int_least8_t**
- typedef atomic_llong **std::atomic_intmax_t**
- typedef atomic_long **std::atomic_intptr_t**
- typedef __atomic_base< long long > atomic_llong
- typedef __atomic_base< long > atomic_long
- typedef atomic_long **std::atomic_ptrdiff_t**
- typedef __atomic_base< signed char > atomic_schar
- typedef __atomic_base< short > atomic_short
- typedef atomic_ulong **std::atomic_size_t**
- typedef atomic_long **std::atomic_ssize_t**
- typedef __atomic_base< unsigned char > atomic_uchar
- typedef __atomic_base< unsigned int > atomic_uint
- typedef atomic_ushort **std::atomic_uint_fast16_t**
- typedef atomic_uint **std::atomic_uint_fast32_t**
- typedef atomic_ullong **std::atomic_uint_fast64_t**
- typedef atomic_uchar **std::atomic_uint_fast8_t**
- typedef atomic_ushort **std::atomic_uint_least16_t**
- typedef atomic_uint **std::atomic_uint_least32_t**
- typedef atomic_ullong **std::atomic_uint_least64_t**
- typedef atomic_uchar **std::atomic_uint_least8_t**
- typedef atomic_ullong **std::atomic_uintmax_t**
- typedef atomic_ulong **std::atomic_uintptr_t**
- typedef __atomic_base< unsigned long long > atomic_ullong
- typedef __atomic_base< unsigned long > atomic_ulong
- typedef __atomic_base< unsigned short > atomic_ushort
- typedef __atomic_base< wchar_t > atomic_wchar_t
- typedef enum std::memory_order std::memory_order

Enumerations

- enum std::memory_order {

  memory_order_relaxed, **memory_order_consume**, **memory_order_-acquire**, **memory_order_release**,

  memory_order_acq_rel, **memory_order_seq_cst** }

Functions

- void **std::__atomic_flag_wait_explicit** (__atomic_flag_base *, memory_order) throw ()
- **std::__attribute__** ((__const__)) __atomic_flag_base *__atomic_flag_for_address(const void *__z) throw ()
- memory_order **std::__calculate_memory_order** (memory_order __m)
- template<typename _ITp >
  bool **std::atomic_compare_exchange_strong** (__atomic_base< _ITp > *__a, _ITp *__i1, _ITp __i2)
- bool **std::atomic_compare_exchange_strong** (atomic_bool *__a, bool *__i1, bool __i2)
- bool **std::atomic_compare_exchange_strong** (atomic_address *__a, void **__v1, void *__v2)
- template<typename _ITp >
  bool **std::atomic_compare_exchange_strong_explicit** (__atomic_base< _ITp > *__a, _ITp *__i1, _ITp __i2, memory_order __m1, memory_order __m2)
- bool **std::atomic_compare_exchange_strong_explicit** (atomic_bool *__a, bool *__i1, bool __i2, memory_order __m1, memory_order __m2)
- bool **std::atomic_compare_exchange_strong_explicit** (atomic_address *__a, void **__v1, void *__v2, memory_order __m1, memory_order __m2)
- template<typename _ITp >
  bool **std::atomic_compare_exchange_weak** (__atomic_base< _ITp > *__a, _ITp *__i1, _ITp __i2)
- bool **std::atomic_compare_exchange_weak** (atomic_bool *__a, bool *__i1, bool __i2)
- bool **std::atomic_compare_exchange_weak** (atomic_address *__a, void **__v1, void *__v2)
- template<typename _ITp >
  bool **std::atomic_compare_exchange_weak_explicit** (__atomic_base< _ITp > *__a, _ITp *__i1, _ITp __i2, memory_order __m1, memory_order __m2)
- bool **std::atomic_compare_exchange_weak_explicit** (atomic_bool *__a, bool *__i1, bool __i2, memory_order __m1, memory_order __m2)
- bool **std::atomic_compare_exchange_weak_explicit** (atomic_address *__a, void **__v1, void *__v2, memory_order __m1, memory_order __m2)
- template<typename _ITp >
  _ITp **std::atomic_exchange** (__atomic_base< _ITp > *__a, _ITp __i)
- bool **std::atomic_exchange** (atomic_bool *__a, bool __i)
- void * **std::atomic_exchange** (atomic_address *__a, void *__v)
- template<typename _ITp >
  _ITp **std::atomic_exchange_explicit** (__atomic_base< _ITp > *__a, _ITp __i, memory_order __m)
- bool **std::atomic_exchange_explicit** (atomic_bool *__a, bool __i, memory_order __m)

- void * **std::atomic_exchange_explicit** (atomic_address *__a, void *__v, memory_order __m)
- template<typename _ITp >
  _ITp **std::atomic_fetch_add** (__atomic_base< _ITp > *__a, _ITp __i)
- void * **std::atomic_fetch_add** (atomic_address *__a, ptrdiff_t __d)
- template<typename _ITp >
  _ITp **std::atomic_fetch_add_explicit** (__atomic_base< _ITp > *__a, _ITp __i, memory_order __m)
- void * **std::atomic_fetch_add_explicit** (atomic_address *__a, ptrdiff_t __d, memory_order __m)
- template<typename _ITp >
  _ITp **std::atomic_fetch_and** (__atomic_base< _ITp > *__a, _ITp __i)
- template<typename _ITp >
  _ITp **std::atomic_fetch_and_explicit** (__atomic_base< _ITp > *__a, _ITp __i, memory_order __m)
- template<typename _ITp >
  _ITp **std::atomic_fetch_or** (__atomic_base< _ITp > *__a, _ITp __i)
- template<typename _ITp >
  _ITp **std::atomic_fetch_or_explicit** (__atomic_base< _ITp > *__a, _ITp __i, memory_order __m)
- template<typename _ITp >
  _ITp **std::atomic_fetch_sub** (__atomic_base< _ITp > *__a, _ITp __i)
- void * **std::atomic_fetch_sub** (atomic_address *__a, ptrdiff_t __d)
- template<typename _ITp >
  _ITp **std::atomic_fetch_sub_explicit** (__atomic_base< _ITp > *__a, _ITp __i, memory_order __m)
- void * **std::atomic_fetch_sub_explicit** (atomic_address *__a, ptrdiff_t __d, memory_order __m)
- template<typename _ITp >
  _ITp **std::atomic_fetch_xor** (__atomic_base< _ITp > *__a, _ITp __i)
- template<typename _ITp >
  _ITp **std::atomic_fetch_xor_explicit** (__atomic_base< _ITp > *__a, _ITp __i, memory_order __m)
- void **std::atomic_flag_clear** (__atomic_flag_base *__a)
- void **std::atomic_flag_clear_explicit** (__atomic_flag_base *, memory_order) throw ()
- void **std::atomic_flag_clear_explicit** (atomic_flag *__a, memory_order __m)
- bool **std::atomic_flag_test_and_set** (__atomic_flag_base *__a)
- bool **std::atomic_flag_test_and_set_explicit** (__atomic_flag_base *, memory_order) throw ()
- bool **std::atomic_flag_test_and_set_explicit** (atomic_flag *__a, memory_order __m)
- template<typename _ITp >
  bool **std::atomic_is_lock_free** (const __atomic_base< _ITp > *__a)

- bool **std::atomic_is_lock_free** (const atomic_bool *__a)
- bool **std::atomic_is_lock_free** (const atomic_address *__a)
- template<typename _ITp >
  _ITp **std::atomic_load** (const __atomic_base< _ITp > *__a)
- bool **std::atomic_load** (const atomic_bool *__a)
- void * **std::atomic_load** (const atomic_address *__a)
- template<typename _ITp >
  _ITp **std::atomic_load_explicit** (const __atomic_base< _ITp > *__a, memory_order __m)
- bool **std::atomic_load_explicit** (const atomic_bool *__a, memory_order __m)
- void * **std::atomic_load_explicit** (const atomic_address *__a, memory_order __m)
- template<typename _ITp >
  void **std::atomic_store** (__atomic_base< _ITp > *__a, _ITp __i)
- void **std::atomic_store** (atomic_bool *__a, bool __i)
- void **std::atomic_store** (atomic_address *__a, void *__v)
- template<typename _ITp >
  void **std::atomic_store_explicit** (__atomic_base< _ITp > *__a, _ITp __i, memory_order __m)
- void **std::atomic_store_explicit** (atomic_bool *__a, bool __i, memory_order _-_m)
- void **std::atomic_store_explicit** (atomic_address *__a, void *__v, memory_-order __m)
- bool **std::atomic< _Tp * >::compare_exchange_strong** (_Tp *&, _Tp *, memory_order=memory_order_seq_cst)
- bool **std::atomic< _Tp * >::compare_exchange_strong** (_Tp *&, _Tp *, memory_order, memory_order)
- bool **std::atomic< _Tp * >::compare_exchange_weak** (_Tp *&, _Tp *, memory_order=memory_order_seq_cst)
- bool **std::atomic< _Tp * >::compare_exchange_weak** (_Tp *&, _Tp *, memory_order, memory_order)
- _Tp * **std::atomic< _Tp * >::exchange** (_Tp *, memory_order=memory_-order_seq_cst)
- _Tp * **std::atomic< _Tp * >::fetch_add** (ptrdiff_t, memory_order=memory_-order_seq_cst)
- _Tp * **std::atomic< _Tp * >::fetch_sub** (ptrdiff_t, memory_order=memory_-order_seq_cst)
- template<typename _Tp >
  _Tp std::kill_dependency (_Tp __y)
- _Tp * **std::atomic< _Tp * >::load** (memory_order=memory_order_seq_cst) const

2.35.1 Detailed Description

Components for performing atomic operations.

2.35.2 Define Documentation

2.35.2.1 #define _GLIBCXX_ATOMIC_PROPERTY

29.2 Lock-free Property

Definition at line 68 of file atomic_base.h.

2.35.3 Typedef Documentation

2.35.3.1 typedef __atomic_base<char> atomic_char

atomic_char

Definition at line 71 of file atomicfwd_cxx.h.

2.35.3.2 typedef __atomic_base<char16_t> atomic_char16_t

atomic_char16_t

Definition at line 107 of file atomicfwd_cxx.h.

2.35.3.3 typedef __atomic_base<char32_t> atomic_char32_t

atomic_char32_t

Definition at line 110 of file atomicfwd_cxx.h.

2.35.3.4 typedef __atomic_base<int> atomic_int

atomic_int

Definition at line 86 of file atomicfwd_cxx.h.

2.35.3.5 typedef __atomic_base<long long> atomic_llong

atomic_llong

Definition at line 98 of file atomicfwd_cxx.h.

2.35.3.6 typedef __atomic_base<long> atomic_long

atomic_long

Definition at line 92 of file atomicfwd_cxx.h.

2.35.3.7 typedef __atomic_base<signed char> atomic_schar

atomic_schar

Definition at line 74 of file atomicfwd_cxx.h.

2.35.3.8 typedef __atomic_base<short> atomic_short

atomic_short

Definition at line 80 of file atomicfwd_cxx.h.

2.35.3.9 typedef __atomic_base<unsigned char> atomic_uchar

atomic_uchar

Definition at line 77 of file atomicfwd_cxx.h.

2.35.3.10 typedef __atomic_base<unsigned int> atomic_uint

atomic_uint

Definition at line 89 of file atomicfwd_cxx.h.

2.35.3.11 typedef __atomic_base<unsigned long long> atomic_ullong

atomic_ullong

Definition at line 101 of file atomicfwd_cxx.h.

2.35.3.12 typedef __atomic_base<unsigned long> atomic_ulong

atomic_ulong

Definition at line 95 of file atomicfwd_cxx.h.

2.35.3.13 typedef __atomic_base<unsigned short> atomic_ushort

atomic_ushort

Definition at line 83 of file atomicfwd_cxx.h.

2.35.3.14 typedef __atomic_base<wchar_t> atomic_wchar_t

atomic_wchar_t

Definition at line 104 of file atomicfwd_cxx.h.

2.35.3.15 typedef enum std::memory_order std::memory_order

Enumeration for memory_order.

2.35.4 Enumeration Type Documentation

2.35.4.1 enum std::memory_order

Enumeration for memory_order.

Definition at line 47 of file atomic_base.h.

2.35.5 Function Documentation

2.35.5.1 template<typename _Tp > _Tp std::kill_dependency (_Tp __y) [inline]

kill_dependency

Definition at line 54 of file atomic.

2.36 Hashes

Collaboration diagram for Hashes:

Classes

- struct std::hash< _Tp >

  Primary class template hash.

- struct std::hash< _Tp * >

  Partial specializations for pointer types.

Defines

- #define **_Cxx_hashtable_define_trivial_hash**(_Tp)

2.36.1 Detailed Description

Hashing functors taking a variable type and returning a `std::size_t`.

2.37 Locales

Classes

- class std::codecvt< _InternT, _ExternT, _StateT >

  Primary class template codecvt.
  NB: Generic, mostly useless implementation.

- class std::ctype< _CharT >

  Primary class template ctype facet.
  This template class defines classification and conversion functions for character sets. It wraps cctype functionality. Ctype gets used by streams for many I/O operations.

- class std::ctype< char >

  The ctype<char> specialization.
  This class defines classification and conversion functions for the char type. It gets used by char streams for many I/O operations. The char specialization provides a number of optimizations as well.

- class std::ctype< wchar_t >

  The ctype<wchar_t> specialization.
  This class defines classification and conversion functions for the wchar_t type. It gets used by wchar_t streams for many I/O operations. The wchar_t specialization provides a number of optimizations as well.

- class std::locale

  Container class for localization functionality.
  The locale class is first a class wrapper for C library locales. It is also an extensible container for user-defined localization. A locale is a collection of facets that implement various localization features such as money, time, and number printing.

- class std::locale::facet

  Localization functionality base class.
  The facet class is the base class for a localization feature, such as money, time, and number printing. It provides common support for facets and reference management.

- class std::locale::id

  Facet ID class.
  The ID class provides facets with an index used to identify them. Every facet class must define a public static member locale::id, or be derived from a facet that provides this member, otherwise the facet cannot be used in a locale. The locale::id ensures that each class type gets a unique identifier.

- class std::messages< _CharT >

Primary class template messages.
This facet encapsulates the code to retrieve messages from message catalogs. The only thing defined by the standard for this facet is the interface. All underlying functionality is implementation-defined.

- struct std::messages_base

  Messages facet base class providing catalog typedef.

- class std::money_base

  Money format ordering data.
  This class contains an ordered array of 4 fields to represent the pattern for formatting a money amount. Each field may contain one entry from the part enum. symbol, sign, and value must be present and the remaining field must contain either none or space.

- class std::money_get< _CharT, _InIter >

  Primary class template money_get.
  This facet encapsulates the code to parse and return a monetary amount from a string.

- class std::money_put< _CharT, _OutIter >

  Primary class template money_put.
  This facet encapsulates the code to format and output a monetary amount.

- class std::moneypunct< _CharT, _Intl >

  Primary class template moneypunct.
  This facet encapsulates the punctuation, grouping and other formatting features of money amount string representations.

- class std::num_get< _CharT, _InIter >

  Primary class template num_get.
  This facet encapsulates the code to parse and return a number from a string. It is used by the istream numeric extraction operators.

- class std::num_put< _CharT, _OutIter >

  Primary class template num_put.
  This facet encapsulates the code to convert a number to a string. It is used by the ostream numeric insertion operators.

- class std::numpunct< _CharT >

  Primary class template numpunct.
  This facet stores several pieces of information related to printing and scanning numbers, such as the decimal point character. It takes a template parameter specifying the char type. The numpunct facet is used by streams for many I/O operations involving numbers.

- class std::time_base

Time format ordering data.
This class provides an enum representing different orderings of time: day, month, and year.

- class std::time_get< _CharT, _InIter >

  Primary class template time_get.
  This facet encapsulates the code to parse and return a date or time from a string. It is used by the istream numeric extraction operators.

- class std::time_put< _CharT, _OutIter >

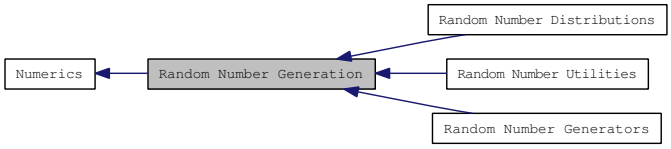
  Primary class template time_put.
  This facet encapsulates the code to format and output dates and times according to formats used by strftime().

2.37.1 Detailed Description

Classes and functions for internationalization and localization.

2.38 Random Number Generation

Collaboration diagram for Random Number Generation:



Namespaces

- namespace std::__detail

Modules

- Random Number Generators
- Random Number Distributions
- Random Number Utilities

Functions

- template<typename _RealType , size_t __bits, typename _UniformRandomNumberGenerator > _RealType std::generate_canonical (_UniformRandomNumberGenerator &__g)

2.38.1 Detailed Description

A facility for generating random numbers on selected distributions.

2.38.2 Function Documentation

2.38.2.1 template<typename _RealType , size_t __bits, typename _UniformRandomNumberGenerator > _RealType std::generate_canonical (_UniformRandomNumberGenerator & __g) [inline]

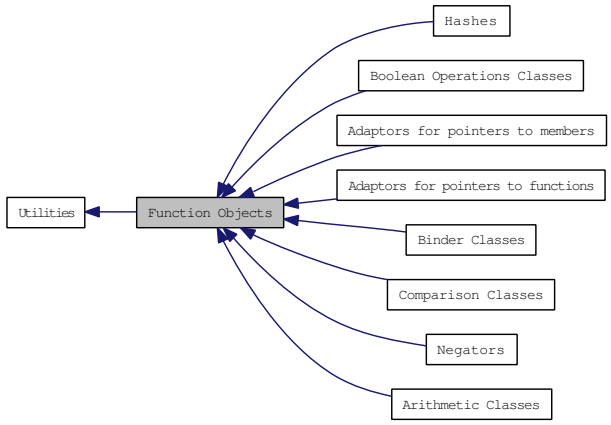
A function template for converting the output of a (integral) uniform random number generator to a floatng point result in the range [0-1).

Definition at line 2735 of file random.tcc.

References std::log(), and std::min().

2.39 Function Objects

Collaboration diagram for Function Objects:



Classes

- struct std::binary_function< _Arg1, _Arg2, _Result >
- class std::function< _Res(_ArgTypes...)>

  Primary class template for std::function.
  Polymorphic function wrapper.

- class std::reference_wrapper< _Tp >

  Primary class template for reference_wrapper.

- struct std::unary_function< _Arg, _Result >

Modules

- Binder Classes
- Hashes
- Arithmetic Classes
- Comparison Classes
- Boolean Operations Classes
- Negators
- Adaptors for pointers to functions
- Adaptors for pointers to members

Functions

- template<typename _Tp , typename _Class >
  _Mem_fn< _Tp _Class::* > std::mem_fn (_Tp _Class::*__pm)

2.39.1 Detailed Description

Function objects, or *functors*, are objects with an `operator()` defined and accessible. They can be passed as arguments to algorithm templates and used in place of a function pointer. Not only is the resulting expressiveness of the library increased, but the generated code can be more efficient than what you might write by hand. When we refer to *functors*, then, generally we include function pointers in the description as well.

Often, functors are only created as temporaries passed to algorithm calls, rather than being created as named variables.

Two examples taken from the standard itself follow. To perform a by-element addition of two vectors `a` and `b` containing `double`, and put the result in `a`, use

```
transform (a.begin(), a.end(), b.begin(), a.begin(), plus<double>());
```

To negate every element in `a`, use

```
transform(a.begin(), a.end(), a.begin(), negate<double>());
```

The addition and negation functions will be inlined directly.

The standard functors are derived from structs named `unary_function` and `binary_function`. These two classes contain nothing but typedefs, to aid in generic (template) programming. If you write your own functors, you might consider doing the same.

2.39.2 Function Documentation

2.39.2.1 template<typename _Tp , typename _Class > _Mem_fn<_Tp _Class::*> std::mem_fn (_Tp _Class::* *__pm*) [inline]

Returns a function object that forwards to the member pointer *pm*.

Definition at line 766 of file functional.

2.40 Arithmetic Classes

Collaboration diagram for Arithmetic Classes:

Classes

- struct std::divides< _Tp >
  One of the math functors.
- struct std::minus< _Tp >
  One of the math functors.
- struct std::modulus< _Tp >
  One of the math functors.
- struct std::multiplies< _Tp >
  One of the math functors.
- struct std::negate< _Tp >
  One of the math functors.
- struct std::plus< _Tp >
  One of the math functors.

2.40.1 Detailed Description

Because basic math often needs to be done during an algorithm, the library provides functors for those operations. See the documentation for the base classes for examples of their use.

2.41 Comparison Classes

Collaboration diagram for Comparison Classes:

Classes

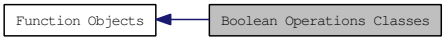
- struct std::equal_to< _Tp >
  One of the comparison functors.
- struct std::greater< _Tp >
  One of the comparison functors.
- struct std::greater_equal< _Tp >
  One of the comparison functors.
- struct std::less< _Tp >
  One of the comparison functors.
- struct std::less_equal< _Tp >
  One of the comparison functors.
- struct std::not_equal_to< _Tp >
  One of the comparison functors.

2.41.1 Detailed Description

The library provides six wrapper functors for all the basic comparisons in C++, like <.

2.42 Boolean Operations Classes

Collaboration diagram for Boolean Operations Classes:



Classes

- struct std::logical_and< _Tp >

  One of the Boolean operations functors.

- struct std::logical_not< _Tp >

  One of the Boolean operations functors.

- struct std::logical_or< _Tp >

  One of the Boolean operations functors.

2.42.1 Detailed Description

Here are wrapper functors for Boolean operations: `&&`, ||, and `!`.

2.43 Negators

Collaboration diagram for Negators:

Classes

- class std::binary_negate< _Predicate >

  One of the negation functors.

- class std::unary_negate< _Predicate >

  One of the negation functors.

Functions

- template<typename _Predicate >
  unary_negate< _Predicate > std::not1 (const _Predicate &__pred)
- template<typename _Predicate >
  binary_negate< _Predicate > std::not2 (const _Predicate &__pred)

2.43.1 Detailed Description

The functions `not1` and `not2` each take a predicate functor and return an instance of `unary_negate` or `binary_negate`, respectively. These classes are functors whose `operator()` performs the stored predicate function and then returns the negation of the result.

For example, given a vector of integers and a trivial predicate,

```
struct IntGreaterThanThree
  : public std::unary_function<int, bool>
{
    bool operator() (int x) { return x > 3; }
};

std::find_if (v.begin(), v.end(), not1(IntGreaterThanThree()));
```

The call to `find_if` will locate the first index (i) of `v` for which `!(v[i] > 3)` is true.

The not1/unary_negate combination works on predicates taking a single argument. The not2/binary_negate combination works on predicates which take two arguments.

2.43.2 Function Documentation

2.43.2.1 template<typename _Predicate > unary_negate<_Predicate> std::not1 (const _Predicate & *__pred*) [inline]

One of the negation functors.

Definition at line 364 of file stl_function.h.

2.43.2.2 template<typename _Predicate > binary_negate<_Predicate> std::not2 (const _Predicate & *__pred*) [inline]

One of the negation functors.

Definition at line 389 of file stl_function.h.

2.44 Adaptors for pointers to functions

Collaboration diagram for Adaptors for pointers to functions:

Classes

- class std::pointer_to_binary_function< _Arg1, _Arg2, _Result >

  One of the adaptors for function pointers.

- class std::pointer_to_unary_function< _Arg, _Result >

  One of the adaptors for function pointers.

Functions

- template<typename _Arg1 , typename _Arg2 , typename _Result >
  pointer_to_binary_function< _Arg1, _Arg2, _Result > std::ptr_fun (_-Result(*__x)(_Arg1, _Arg2))
- template<typename _Arg , typename _Result >
  pointer_to_unary_function< _Arg, _Result > std::ptr_fun (_Result(*__x)(_-Arg))

2.44.1 Detailed Description

The advantage of function objects over pointers to functions is that the objects in the standard library declare nested typedefs describing their argument and result types with uniform names (e.g., `result_type` from the base classes `unary_function` and `binary_function`). Sometimes those typedefs are required, not just optional.

Adaptors are provided to turn pointers to unary (single-argument) and binary (double-argument) functions into function objects. The long-winded functor `pointer_to_-unary_function` is constructed with a function pointer `f`, and its `operator()` called with argument `x` returns `f(x)`. The functor `pointer_to_binary_-function` does the same thing, but with a double-argument `f` and `operator()`.

The function `ptr_fun` takes a pointer-to-function `f` and constructs an instance of the appropriate functor.

2.44.2 Function Documentation

2.44.2.1 template<typename _Arg1 , typename _Arg2 , typename _Result > pointer_to_binary_function<_Arg1, _Arg2, _Result> std::ptr_fun (_Result(*)(_Arg1, _Arg2) __x) [inline]

One of the adaptors for function pointers.

Definition at line 463 of file stl_function.h.

2.44.2.2 template<typename _Arg , typename _Result > pointer_to_unary_function<_Arg, _Result> std::ptr_fun (_Result(*)(_Arg) __x) [inline]

One of the adaptors for function pointers.

Definition at line 437 of file stl_function.h.

2.45 Adaptors for pointers to members

Collaboration diagram for Adaptors for pointers to members:

Classes

- class std::const_mem_fun1_ref_t< _Ret, _Tp, _Arg >
  One of the adaptors for member pointers.
- class std::const_mem_fun1_t< _Ret, _Tp, _Arg >
  One of the adaptors for member pointers.
- class std::const_mem_fun_ref_t< _Ret, _Tp >
  One of the adaptors for member pointers.
- class std::const_mem_fun_t< _Ret, _Tp >
  One of the adaptors for member pointers.
- class std::mem_fun1_ref_t< _Ret, _Tp, _Arg >
  One of the adaptors for member pointers.
- class std::mem_fun1_t< _Ret, _Tp, _Arg >
  One of the adaptors for member pointers.
- class std::mem_fun_ref_t< _Ret, _Tp >
  One of the adaptors for member pointers.
- class std::mem_fun_t< _Ret, _Tp >
  One of the adaptors for member pointers.

Functions

- template<typename _Ret , typename _Tp , typename _Arg >
  mem_fun1_t< _Ret, _Tp, _Arg > **std::mem_fun** (_Ret(_Tp::*__f)(_Arg))
- template<typename _Ret , typename _Tp >
  mem_fun_t< _Ret, _Tp > **std::mem_fun** (_Ret(_Tp::*__f)())

- template<typename _Ret , typename _Tp , typename _Arg >
  mem_fun1_ref_t< _Ret, _Tp, _Arg > **std::mem_fun_ref** (_Ret(_Tp::*__f)(_Arg))
- template<typename _Ret , typename _Tp >
  mem_fun_ref_t< _Ret, _Tp > **std::mem_fun_ref** (_Ret(_Tp::*__f)())

2.45.1 Detailed Description

There are a total of 8 = 2^3 function objects in this family. (1) Member functions taking no arguments vs member functions taking one argument. (2) Call through pointer vs call through reference. (3) Const vs non-const member function.

All of this complexity is in the function objects themselves. You can ignore it by using the helper function mem_fun and mem_fun_ref, which create whichever type of adaptor is appropriate.

2.46 Heap Algorithms

Collaboration diagram for Heap Algorithms:

Functions

- template<typename _RandomAccessIterator , typename _Compare >
  bool std::is_heap (_RandomAccessIterator __first, _RandomAccessIterator __-
  last, _Compare __comp)
- template<typename _RandomAccessIterator >
  bool std::is_heap (_RandomAccessIterator __first, _RandomAccessIterator __-
  last)
- template<typename _RandomAccessIterator , typename _Compare >
  _RandomAccessIterator std::is_heap_until (_RandomAccessIterator __first, _-
  RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  _RandomAccessIterator std::is_heap_until (_RandomAccessIterator __first, _-
  RandomAccessIterator __last)
- template<typename _RandomAccessIterator , typename _Compare >
  void std::make_heap (_RandomAccessIterator __first, _RandomAccessIterator
  __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  void std::make_heap (_RandomAccessIterator __first, _RandomAccessIterator
  __last)
- template<typename _RandomAccessIterator , typename _Compare >
  void std::pop_heap (_RandomAccessIterator __first, _RandomAccessIterator _-
  _last, _Compare __comp)
- template<typename _RandomAccessIterator >
  void std::pop_heap (_RandomAccessIterator __first, _RandomAccessIterator _-
  _last)
- template<typename _RandomAccessIterator , typename _Compare >
  void std::push_heap (_RandomAccessIterator __first, _RandomAccessIterator
  __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  void std::push_heap (_RandomAccessIterator __first, _RandomAccessIterator
  __last)
- template<typename _RandomAccessIterator , typename _Compare >
  void std::sort_heap (_RandomAccessIterator __first, _RandomAccessIterator _-
  _last, _Compare __comp)

- template<typename _RandomAccessIterator >
  void std::sort_heap (_RandomAccessIterator __first, _RandomAccessIterator _-
  _last)

2.46.1 Function Documentation

2.46.1.1 template<typename _RandomAccessIterator , typename _Compare > bool std::is_heap (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*, _Compare *__comp*) [inline]

Determines whether a range is a heap using comparison functor.

Parameters:

first Start of range.

last End of range.

comp Comparison functor to use.

Returns:

True if range is a heap, false otherwise.

Definition at line 571 of file stl_heap.h.

References std::is_heap_until().

2.46.1.2 template<typename _RandomAccessIterator > bool std::is_heap (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*) [inline]

Determines whether a range is a heap.

Parameters:

first Start of range.

last End of range.

Returns:

True if range is a heap, false otherwise.

Definition at line 558 of file stl_heap.h.

References std::is_heap_until().

2.46.1.3 template<typename _RandomAccessIterator , typename _Compare > _RandomAccessIterator std::is_heap_until (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*, _Compare *__comp*) [inline]

Search the end of a heap using comparison functor.

Parameters:

first Start of range.

last End of range.

comp Comparison functor to use.

Returns:

An iterator pointing to the first element not in the heap.

This operation returns the last iterator i in [first, last) for which the range [first, i) is a heap. Comparisons are made using comp.

Definition at line 536 of file stl_heap.h.

References std::distance().

Referenced by std::is_heap().

2.46.1.4 template<typename _RandomAccessIterator > _RandomAccessIterator std::is_heap_until (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*) [inline]

Search the end of a heap.

Parameters:

first Start of range.

last End of range.

Returns:

An iterator pointing to the first element not in the heap.

This operation returns the last iterator i in [first, last) for which the range [first, i) is a heap.

Definition at line 510 of file stl_heap.h.

References std::distance().

2.46.1.5 template<typename _RandomAccessIterator , typename _Compare > void std::make_heap (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*, _Compare *__comp*) [inline]

Construct a heap over a range using comparison functor.

Parameters:

first Start of heap.

last End of heap.

comp Comparison functor to use.

This operation makes the elements in [first,last) into a heap. Comparisons are made using comp.

Definition at line 413 of file stl_heap.h.

Referenced by std::__heap_select(), std::partial_sort_copy(), and std::priority_queue< _Tp, _Sequence, _Compare >::priority_queue().

2.46.1.6 template<typename _RandomAccessIterator > void std::make_heap (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*) [inline]

Construct a heap over a range.

Parameters:

first Start of heap.

last End of heap.

This operation makes the elements in [first,last) into a heap.

Definition at line 373 of file stl_heap.h.

2.46.1.7 template<typename _RandomAccessIterator , typename _Compare > void std::pop_heap (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*, _Compare *__comp*) [inline]

Pop an element off a heap using comparison functor.

Parameters:

first Start of heap.

last End of heap.

comp Comparison functor to use.

This operation pops the top of the heap. The elements first and last-1 are swapped and [first,last-1) is made into a heap. Comparisons are made using comp.

Definition at line 350 of file stl_heap.h.

Referenced by std::priority_queue< _Tp, _Sequence, _Compare >::pop().

2.46.1.8 template<typename _RandomAccessIterator > void std::pop_heap (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*) [inline]

Pop an element off a heap.

Parameters:

first Start of heap.

last End of heap.

This operation pops the top of the heap. The elements first and last-1 are swapped and [first,last-1) is made into a heap.

Definition at line 276 of file stl_heap.h.

2.46.1.9 template<typename _RandomAccessIterator , typename _Compare > void std::push_heap (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*, _Compare *__comp*) [inline]

Push an element onto a heap using comparison functor.

Parameters:

first Start of heap.

last End of heap + element.

comp Comparison functor.

This operation pushes the element at last-1 onto the valid heap over the range [first,last-1). After completion, [first,last) is a valid heap. Compare operations are performed using comp.

Definition at line 203 of file stl_heap.h.

Referenced by std::priority_queue< _Tp, _Sequence, _Compare >::push().

2.46.1.10 template<typename _RandomAccessIterator > void std::push_heap (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*) [inline]

Push an element onto a heap.

Parameters:

first Start of heap.

last End of heap + element.

This operation pushes the element at last-1 onto the valid heap over the range [first,last-1). After completion, [first,last) is a valid heap.

Definition at line 154 of file stl_heap.h.

2.46.1.11 template<typename _RandomAccessIterator , typename _Compare > void std::sort_heap (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*, _Compare *__comp*) [inline]

Sort a heap using comparison functor.

Parameters:

first Start of heap.

last End of heap.

comp Comparison functor to use.

This operation sorts the valid heap in the range [first,last). Comparisons are made using comp.

Definition at line 481 of file stl_heap.h.

Referenced by std::partial_sort(), and std::partial_sort_copy().

2.46.1.12 template<typename _RandomAccessIterator > void std::sort_heap (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*) [inline]

Sort a heap.

Parameters:

first Start of heap.

last End of heap.

This operation sorts the valid heap in the range [first,last).

Definition at line 452 of file stl_heap.h.

2.47 Iterators

Classes

- class std::back_insert_iterator< _Container >

  Turns assignment into insertion.

- struct std::bidirectional_iterator_tag

  Bidirectional iterators support a superset of forward iterator operations.

- struct std::forward_iterator_tag

  Forward iterators support a superset of input iterator operations.

- class std::front_insert_iterator< _Container >

  Turns assignment into insertion.

- struct std::input_iterator_tag

  Marking input iterators.

- class std::insert_iterator< _Container >

  Turns assignment into insertion.

- class std::istream_iterator< _Tp, _CharT, _Traits, _Dist >

  Provides input iterator semantics for streams.

- class std::istreambuf_iterator< _CharT, _Traits >

  Provides input iterator semantics for streambufs.

- struct std::iterator< _Category, _Tp, _Distance, _Pointer, _Reference >

  Common iterator class.

- struct std::iterator_traits< _Iterator >

  Traits class for iterators.

- struct std::iterator_traits< _Tp * >

  Partial specialization for pointer types.

- struct std::iterator_traits< const _Tp * >

  Partial specialization for const pointer types.

- class std::move_iterator< _Iterator >
- class std::ostream_iterator< _Tp, _CharT, _Traits >

Provides output iterator semantics for streams.

- class std::ostreambuf_iterator< _CharT, _Traits >

  Provides output iterator semantics for streambufs.

- struct std::output_iterator_tag

  Marking output iterators.

- struct std::random_access_iterator_tag

  Random-access iterators support a superset of bidirectional iterator operations.

- class std::reverse_iterator< _Iterator >

Functions

- template<bool _IsMove, typename _CharT >
  __gnu_cxx::__enable_if< __is_char< _CharT >::__value, _CharT * >::__type **std::__copy_move_a2** (istreambuf_iterator< _CharT > __first, istreambuf_iterator< _CharT > __last, _CharT *__result)
- template<bool _IsMove, typename _CharT >
  __gnu_cxx::__enable_if< __is_char< _CharT >::__value, ostreambuf_iterator< _CharT > >::__type **std::__copy_move_a2** (const _CharT *__first, const _CharT *__last, ostreambuf_iterator< _CharT > __result)
- template<bool _IsMove, typename _CharT >
  __gnu_cxx::__enable_if< __is_char< _CharT >::__value, ostreambuf_iterator< _CharT > >::__type **std::__copy_move_a2** (_CharT *__first, _CharT *__last, ostreambuf_iterator< _CharT > __result)
- template<typename _Iter >
  iterator_traits< _Iter >::iterator_category std::__iterator_category (const _Iter &)
- template<typename _Container >
  back_insert_iterator< _Container > std::back_inserter (_Container &__x)
- template<typename _CharT >
  __gnu_cxx::__enable_if< __is_char< _CharT >::__value, ostreambuf_iterator< _CharT > >::__type **std::copy** (istreambuf_iterator< _CharT > __first, istreambuf_iterator< _CharT > __last, ostreambuf_iterator< _CharT > __result)
- template<typename _CharT >
  __gnu_cxx::__enable_if< __is_char< _CharT >::__value, istreambuf_iterator< _CharT > >::__type **std::find** (istreambuf_iterator< _CharT > __first, istreambuf_iterator< _CharT > __last, const _CharT &__val)
- template<typename _Container >
  front_insert_iterator< _Container > std::front_inserter (_Container &__x)

- template<typename _Container , typename _Iterator >
  insert_iterator< _Container > std::inserter (_Container &__x, _Iterator __i)
- template<typename _Iterator >
  move_iterator< _Iterator > **std::make_move_iterator** (const _Iterator &__i)
- template<typename _CharT , typename _Traits >
  bool **std::operator!=** (const istreambuf_iterator< _CharT, _Traits > &__a, const istreambuf_iterator< _CharT, _Traits > &__b)
- template<class _Tp , class _CharT , class _Traits , class _Dist >
  bool std::operator!= (const istream_iterator< _Tp, _CharT, _Traits, _Dist > &_-_x, const istream_iterator< _Tp, _CharT, _Traits, _Dist > &__y)
- template<typename _IteratorL , typename _IteratorR >
  bool **std::operator!=** (const move_iterator< _IteratorL > &__x, const move_-iterator< _IteratorR > &__y)
- template<typename _IteratorL , typename _IteratorR >
  bool **std::operator!=** (const reverse_iterator< _IteratorL > &__x, const reverse_iterator< _IteratorR > &__y)
- template<typename _Iterator >
  bool **std::operator!=** (const reverse_iterator< _Iterator > &__x, const reverse_-iterator< _Iterator > &__y)
- template<typename _Iterator >
  move_iterator< _Iterator > **std::operator+** (typename move_iterator< _Iterator >::difference_type __n, const move_iterator< _Iterator > &__x)
- template<typename _Iterator >
  reverse_iterator< _Iterator > **std::operator+** (typename reverse_iterator< _-Iterator >::difference_type __n, const reverse_iterator< _Iterator > &__x)
- template<typename _IteratorL , typename _IteratorR >
  auto **std::operator-** (const move_iterator< _IteratorL > &__x, const move_-iterator< _IteratorR > &__y)-> decltype(__x.base()-__y.base())
- template<typename _IteratorL , typename _IteratorR >
  auto **std::operator-** (const reverse_iterator< _IteratorL > &__x, const reverse_-iterator< _IteratorR > &__y)-> decltype(__y.base()-__x.base())
- template<typename _Iterator >
  reverse_iterator< _Iterator >::difference_type **std::operator-** (const reverse_-iterator< _Iterator > &__x, const reverse_iterator< _Iterator > &__y)
- template<typename _IteratorL , typename _IteratorR >
  bool **std::operator<** (const move_iterator< _IteratorL > &__x, const move_-iterator< _IteratorR > &__y)
- template<typename _IteratorL , typename _IteratorR >
  bool **std::operator<** (const reverse_iterator< _IteratorL > &__x, const reverse_iterator< _IteratorR > &__y)
- template<typename _Iterator >
  bool **std::operator<** (const reverse_iterator< _Iterator > &__x, const reverse_-iterator< _Iterator > &__y)

- template<typename _IteratorL , typename _IteratorR >
  bool **std::operator<=** (const move_iterator< _IteratorL > &__x, const move_iterator< _IteratorR > &__y)
- template<typename _IteratorL , typename _IteratorR >
  bool **std::operator<=** (const reverse_iterator< _IteratorL > &__x, const reverse_iterator< _IteratorR > &__y)
- template<typename _Iterator >
  bool **std::operator<=** (const reverse_iterator< _Iterator > &__x, const reverse_iterator< _Iterator > &__y)
- template<typename _CharT , typename _Traits >
  bool **std::operator==** (const istreambuf_iterator< _CharT, _Traits > &__a, const istreambuf_iterator< _CharT, _Traits > &__b)
- template<typename _Tp , typename _CharT , typename _Traits , typename _Dist >
  bool std::operator== (const istream_iterator< _Tp, _CharT, _Traits, _Dist > &__x, const istream_iterator< _Tp, _CharT, _Traits, _Dist > &__y)
- template<typename _IteratorL , typename _IteratorR >
  bool **std::operator==** (const move_iterator< _IteratorL > &__x, const move_iterator< _IteratorR > &__y)
- template<typename _IteratorL , typename _IteratorR >
  bool **std::operator==** (const reverse_iterator< _IteratorL > &__x, const reverse_iterator< _IteratorR > &__y)
- template<typename _Iterator >
  bool std::operator== (const reverse_iterator< _Iterator > &__x, const reverse_iterator< _Iterator > &__y)
- template<typename _IteratorL , typename _IteratorR >
  bool **std::operator>** (const move_iterator< _IteratorL > &__x, const move_iterator< _IteratorR > &__y)
- template<typename _IteratorL , typename _IteratorR >
  bool **std::operator>** (const reverse_iterator< _IteratorL > &__x, const reverse_iterator< _IteratorR > &__y)
- template<typename _Iterator >
  bool **std::operator>** (const reverse_iterator< _Iterator > &__x, const reverse_iterator< _Iterator > &__y)
- template<typename _IteratorL , typename _IteratorR >
  bool **std::operator>=** (const move_iterator< _IteratorL > &__x, const move_iterator< _IteratorR > &__y)
- template<typename _IteratorL , typename _IteratorR >
  bool **std::operator>=** (const reverse_iterator< _IteratorL > &__x, const reverse_iterator< _IteratorR > &__y)
- template<typename _Iterator >
  bool **std::operator>=** (const reverse_iterator< _Iterator > &__x, const reverse_iterator< _Iterator > &__y)

2.47.1 Detailed Description

These are empty types, used to distinguish different iterators. The distinction is not made by what they contain, but simply by what they are. Different underlying algorithms can then be used based on the different operations supported by different iterator types.

2.47.2 Function Documentation

2.47.2.1 template<typename _Iter > iterator_traits<_Iter>::iterator_category std::__iterator_category (const _Iter &) [inline]

This function is not a part of the C++ standard but is syntactic sugar for internal library use only.

Definition at line 168 of file stl_iterator_base_types.h.

Referenced by std::advance(), std::copy_n(), __gnu_cxx::copy_n(), std::distance(), __gnu_cxx::distance(), std::find(), std::find_end(), std::find_if(), std::find_if_not(), std::partition(), std::reverse(), std::search_n(), std::uninitialized_copy_n(), __gnu_cxx::uninitialized_copy_n(), and std::unique_copy().

2.47.2.2 template<typename _Container > back_insert_iterator<_Container> std::back_inserter (_Container & __x) [inline]

Parameters:

x A container of arbitrary type.

Returns:

An instance of back_insert_iterator working on `x`.

This wrapper function helps in creating back_insert_iterator instances. Typing the name of the iterator requires knowing the precise full type of the container, which can be tedious and impedes generic programming. Using this function lets you take advantage of automatic template parameter deduction, making the compiler match the correct types for you.

Definition at line 464 of file stl_iterator.h.

Referenced by std::regex_replace().

2.47.2.3 template<typename _Container > front_insert_iterator<_Container> std::front_inserter (_Container & __x) [inline]

Parameters:

x A container of arbitrary type.

Returns:

An instance of front_insert_iterator working on x.

This wrapper function helps in creating front_insert_iterator instances. Typing the name of the iterator requires knowing the precise full type of the container, which can be tedious and impedes generic programming. Using this function lets you take advantage of automatic template parameter deduction, making the compiler match the correct types for you.

Definition at line 547 of file stl_iterator.h.

2.47.2.4 template<typename _Container , typename _Iterator > insert_iterator<_Container> std::inserter (_Container & __x, _Iterator __i) [inline]

Parameters:

x A container of arbitrary type.

Returns:

An instance of insert_iterator working on x.

This wrapper function helps in creating insert_iterator instances. Typing the name of the iterator requires knowing the precise full type of the container, which can be tedious and impedes generic programming. Using this function lets you take advantage of automatic template parameter deduction, making the compiler match the correct types for you.

Definition at line 653 of file stl_iterator.h.

2.47.2.5 template<class _Tp , class _CharT , class _Traits , class _Dist > bool std::operator!= (const istream_iterator< _Tp, _CharT, _Traits, _Dist > & __x, const istream_iterator< _Tp, _CharT, _Traits, _Dist > & __y) [inline]

Return false if x and y are both end or not end, or x and y are the same.

Definition at line 135 of file stream_iterator.h.

2.47.2.6 template<typename _Tp , typename _CharT , typename _Traits , typename _Dist > bool std::operator== (const istream_iterator< _Tp, _CharT, _Traits, _Dist > & __x, const istream_iterator< _Tp, _CharT, _Traits, _Dist > & __y) [inline]

Return true if x and y are both end or not end, or x and y are the same.

Definition at line 128 of file stream_iterator.h.

2.47.2.7 template<typename _Iterator > bool std::operator== (const reverse_iterator< _Iterator > & __x, const reverse_iterator< _Iterator > & __y) [inline]

Parameters:

x A reverse_iterator.

y A reverse_iterator.

Returns:

A simple bool.

Reverse iterators forward many operations to their underlying base() iterators. Others are implemented in terms of one another.

Definition at line 283 of file stl_iterator.h.

References std::reverse_iterator< _Iterator >::base().

2.48 Policy-Based Data Structures

Collaboration diagram for Policy-Based Data Structures:

Classes

- class __gnu_pbds::basic_hash_table< Key, Mapped, Hash_Fn, Eq_Fn, Resize_Policy, Store_Hash, Tag, Policy_TL, Allocator >

  An abstract basic hash-based associative container.

- class __gnu_pbds::basic_tree< Key, Mapped, Tag, Node_Update, Policy_Tl, Allocator >

  An abstract basic tree-like (tree, trie) associative container.

- class __gnu_pbds::cc_hash_table< Key, Mapped, Hash_Fn, Eq_Fn, Comb_Hash_Fn, Resize_Policy, Store_Hash, Allocator >

  A concrete collision-chaining hash-based associative container.

- class __gnu_pbds::container_base< Key, Mapped, Tag, Policy_Tl, Allocator >

  An abstract basic associative container.

- class __gnu_pbds::gp_hash_table< Key, Mapped, Hash_Fn, Eq_Fn, Comb_Probe_Fn, Probe_Fn, Resize_Policy, Store_Hash, Allocator >

  A concrete general-probing hash-based associative container.

- class __gnu_pbds::list_update< Key, Mapped, Eq_Fn, Update_Policy, Allocator >

  A list-update based associative container.

- class __gnu_pbds::tree< Key, Mapped, Cmp_Fn, Tag, Node_Update, Allocator >

  A concrete basic tree-based associative container.

- class __gnu_pbds::trie< Key, Mapped, E_Access_Traits, Tag, Node_Update, Allocator >

  A concrete basic trie-based associative container.

Defines

- #define **PB_DS_BASE_C_DEC**
- #define **PB_DS_BASE_C_DEC**
- #define **PB_DS_BASE_C_DEC**
- #define **PB_DS_BASE_C_DEC**
- #define **PB_DS_BASE_C_DEC**
- #define **PB_DS_BASE_C_DEC**
- #define **PB_DS_BASE_C_DEC**
- #define **PB_DS_BASE_C_DEC**
- #define **PB_DS_TREE_NODE_AND_IT_TRAITS_C_DEC**
- #define **PB_DS_TRIE_NODE_AND_ITS_TRAITS**

2.48.1 Detailed Description

This is a library of policy-based elementary data structures: associative containers and priority queues. It is designed for high-performance, flexibility, semantic safety, and conformance to the corresponding containers in std (except for some points where it differs by design).

For details, see: http://gcc.gnu.org/onlinedocs/libstdc++/ext/pb_ds/index.html

2.49 Random Number Generators

Collaboration diagram for Random Number Generators:

Classes

- class std::discard_block_engine< _RandomNumberEngine, __p, __r >
- class std::independent_bits_engine< _RandomNumberEngine, __w, _UIntType >
- class std::linear_congruential_engine< _UIntType, __a, __c, __m >

  A model of a linear congruential random number generator.

- class std::random_device
- class std::shuffle_order_engine< _RandomNumberEngine, __k >

  Produces random numbers by combining random numbers from some base engine to produce random numbers with a specifies number of bits __w.

Typedefs

- typedef minstd_rand0 **std::default_random_engine**
- typedef shuffle_order_engine< minstd_rand0, 256 > **std::knuth_b**
- typedef linear_congruential_engine< uint_fast32_t, 48271UL, 0UL, 2147483647UL > std::minstd_rand
- typedef linear_congruential_engine< uint_fast32_t, 16807UL, 0UL, 2147483647UL > std::minstd_rand0
- typedef mersenne_twister_engine< uint_fast32_t, 32, 624, 397, 31, 0x9908b0dfUL, 11, 0xffffffffUL, 7, 0x9d2c5680UL, 15, 0xefc60000UL, 18, 1812433253UL > std::mt19937
- typedef mersenne_twister_engine< uint_fast64_t, 64, 312, 156, 31, 0xb5026f5aa96619e9ULL, 29, 0x5555555555555555ULL, 17, 0x71d67fffeda60000ULL, 37, 0xfff7eee000000000ULL, 43, 6364136223846793005ULL > std::mt19937_64
- typedef discard_block_engine< ranlux24_base, 223, 23 > **std::ranlux24**
- typedef subtract_with_carry_engine< uint_fast32_t, 24, 10, 24 > **std::ranlux24_base**
- typedef discard_block_engine< ranlux48_base, 389, 11 > **std::ranlux48**
- typedef subtract_with_carry_engine< uint_fast64_t, 48, 5, 12 > **std::ranlux48_base**

Functions

- template<typename _RandomNumberEngine , size_t __w, typename _UIntType , typename _CharT , typename _Traits >
  std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > &__os, const std::independent_bits_engine< _RandomNumberEngine, __w, _UIntType > &__x)

2.49.1 Detailed Description

These classes define objects which provide random or pseudorandom numbers, either from a discrete or a continuous interval. The random number generator supplied as a part of this library are all uniform random number generators which provide a sequence of random number uniformly distributed over their range.

A number generator is a function object with an operator() that takes zero arguments and returns a number.

A compliant random number generator must satisfy the following requirements.

To be documented.

Table 2.1: Random Number Generator Requirements

2.49.2 Typedef Documentation

2.49.2.1 typedef linear_congruential_engine<uint_fast32_t, 48271UL, 0UL, 2147483647UL> std::minstd_rand

An alternative LCR (Lehmer Generator function).

Definition at line 1341 of file random.h.

2.49.2.2 typedef linear_congruential_engine<uint_fast32_t, 16807UL, 0UL, 2147483647UL> std::minstd_rand0

The classic Minimum Standard rand0 of Lewis, Goodman, and Miller.

Definition at line 1335 of file random.h.

2.49.2.3 typedef mersenne_twister_engine< uint_fast32_t, 32, 624, 397, 31, 0x9908b0dfUL, 11, 0xffffffffUL, 7, 0x9d2c5680UL, 15, 0xefc60000UL, 18, 1812433253UL> std::mt19937

The classic Mersenne Twister.

Reference: M. Matsumoto and T. Nishimura, Mersenne Twister: A 623-Dimensionally Equidistributed Uniform Pseudo-Random Number Generator, ACM Transactions on Modeling and Computer Simulation, Vol. 8, No. 1, January 1998, pp 3-30.

Definition at line 1357 of file random.h.

2.49.2.4 typedef mersenne_twister_engine< uint_fast64_t, 64, 312, 156, 31, 0xb5026f5aa96619e9ULL, 29, 0x5555555555555555ULL, 17, 0x71d67fffeda60000ULL, 37, 0xfff7eee000000000ULL, 43, 6364136223846793005ULL> std::mt19937_64

An alternative Mersenne Twister.

Definition at line 1369 of file random.h.

2.49.3 Function Documentation

2.49.3.1 template<typename _RandomNumberEngine , size_t __w, typename _UIntType , typename _CharT , typename _Traits > std::basic_ostream<_CharT, _Traits>& std::operator<< (std::basic_ostream< _CharT, _Traits > & *__os*, const std::independent_bits_engine< _RandomNumberEngine, __w, _UIntType > & *__x*) [inline]

Inserts the current state of a independent_bits_engine random number generator engine __x into the output stream __os.

Parameters:

__os An output stream.

__x A independent_bits_engine random number generator engine.

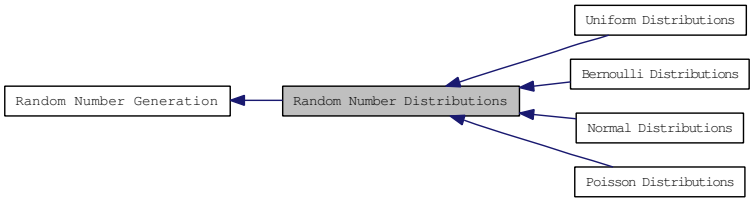
Returns:

The output stream with the state of __x inserted or in an error state.

Definition at line 1109 of file random.h.

2.50 Random Number Distributions

Collaboration diagram for Random Number Distributions:



Modules

- Uniform Distributions
- Normal Distributions
- Bernoulli Distributions
- Poisson Distributions

2.51 Uniform Distributions

Collaboration diagram for Uniform Distributions:

Classes

- class std::uniform_int_distribution< _IntType >

  Uniform discrete distribution for random numbers. A discrete random distribution on the range $[min, max]$ with equal probability throughout the range.

- class std::uniform_real_distribution< _RealType >

  Uniform continuous distribution for random numbers.

Functions

- template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > &, const std::uniform_real_distribution< _RealType > &)
- template<typename _IntType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > &, const std::uniform_int_distribution< _IntType > &)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > &, std::uniform_real_distribution< _RealType > &)
- template<typename _IntType , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > &, std::uniform_int_distribution< _IntType > &)

2.51.1 Function Documentation

2.51.1.1 template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > & *__os*, const std::uniform_real_distribution< _RealType > & *__x*) [inline]

Inserts a uniform_real_distribution random number distribution __x into the output stream __os.

Parameters:

__os An output stream.

__x A uniform_real_distribution random number distribution.

Returns:

The output stream with the state of __x inserted or in an error state.

Definition at line 890 of file random.tcc.

References std::ios_base::flags(), std::left(), and std::scientific().

2.51.1.2 template<typename _IntType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > & *__os*, const std::uniform_int_distribution< _IntType > & *__x*) [inline]

Inserts a uniform_int_distribution random number distribution __x into the output stream os.

Parameters:

__os An output stream.

__x A uniform_int_distribution random number distribution.

Returns:

The output stream with the state of __x inserted or in an error state.

Definition at line 848 of file random.tcc.

References std::left(), and std::scientific().

2.51.1.3 template<typename _RealType , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > & *__is*, std::uniform_real_distribution< _RealType > & *__x*) [inline]

Extracts a uniform_real_distribution random number distribution __x from the input stream __is.

Parameters:

__is An input stream.

__x A uniform_real_distribution random number generator engine.

Returns:

The input stream with __x extracted or in an error state.

Definition at line 914 of file random.tcc.

References std::ios_base::flags(), std::uniform_real_distribution< _RealType >::param(), and std::skipws().

2.51.1.4 template<typename _IntType , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > & __is, std::uniform_int_distribution< _IntType > & __x) [inline]

Extracts a uniform_int_distribution random number distribution __x from the input stream __is.

Parameters:

__is An input stream.

__x A uniform_int_distribution random number generator engine.

Returns:

The input stream with __x extracted or in an error state.

Definition at line 869 of file random.tcc.

References std::dec(), std::ios_base::flags(), std::uniform_int_distribution< _IntType >::param(), and std::skipws().

2.52 Normal Distributions

Collaboration diagram for Normal Distributions:

Classes

- class std::cauchy_distribution< _RealType >

  A cauchy_distribution random number distribution.

- class std::chi_squared_distribution< _RealType >

  A chi_squared_distribution random number distribution.

- class std::fisher_f_distribution< _RealType >

  A fisher_f_distribution random number distribution.

- class std::gamma_distribution< _RealType >

  A gamma continuous distribution for random numbers.

- class std::lognormal_distribution< _RealType >

  A lognormal_distribution random number distribution.

- class std::normal_distribution< _RealType >

  A normal continuous distribution for random numbers.

- class std::student_t_distribution< _RealType >

  A student_t_distribution random number distribution.

Functions

- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > &, const std::cauchy_distribution< _RealType > &)
- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > &, std::cauchy_distribution< _RealType > &)

2.52.1 Function Documentation

2.52.1.1 template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > & __os, const std::cauchy_distribution< _RealType > & __x) [inline]

Inserts a cauchy_distribution random number distribution __x into the output stream __os.

Parameters:

__os An output stream.

__x A cauchy_distribution random number distribution.

Returns:

The output stream with the state of __x inserted or in an error state.

Definition at line 1792 of file random.tcc.

References std::left(), and std::scientific().

2.52.1.2 template<typename _RealType , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > & __is, std::cauchy_distribution< _RealType > & __x) [inline]

Extracts a cauchy_distribution random number distribution __x from the input stream __is.

Parameters:

__is An input stream.

__x A cauchy_distribution random number generator engine.

Returns:

The input stream with __x extracted or in an error state.

Definition at line 1816 of file random.tcc.

References std::dec(), std::ios_base::flags(), std::cauchy_distribution< _RealType >::param(), and std::skipws().

2.53 Bernoulli Distributions

Collaboration diagram for Bernoulli Distributions:

Classes

- class std::bernoulli_distribution

  A Bernoulli random number distribution.

- class std::binomial_distribution< _IntType >

  A discrete binomial random number distribution.

- class std::geometric_distribution< _IntType >

  A discrete geometric random number distribution.

- class std::negative_binomial_distribution< _IntType >

  A negative_binomial_distribution random number distribution.

Functions

- template<typename _IntType , typename _CharT , typename _Traits >
  std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > &, const std::geometric_distribution< _IntType > &)
- template<typename _CharT , typename _Traits >
  std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > &, const std::bernoulli_distribution &)
- template<typename _IntType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > &, std::geometric_distribution< _IntType > &)
- template<typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > &__is, std::bernoulli_distribution &__x)

2.53.1 Function Documentation

2.53.1.1 template<typename _IntType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > & __os, const std::geometric_distribution< _IntType > & __x) [inline]

Inserts a geometric_distribution random number distribution __x into the output stream __os.

Parameters:

__os An output stream.

__x A geometric_distribution random number distribution.

Returns:

The output stream with the state of __x inserted or in an error state.

Definition at line 985 of file random.tcc.

References std::left(), and std::scientific().

2.53.1.2 template<typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > & __os, const std::bernoulli_distribution & __x) [inline]

Inserts a bernoulli_distribution random number distribution __x into the output stream __os.

Parameters:

__os An output stream.

__x A bernoulli_distribution random number distribution.

Returns:

The output stream with the state of __x inserted or in an error state.

Definition at line 935 of file random.tcc.

References std::ios_base::flags(), std::left(), and std::scientific().

2.53.1.3 template<typename _IntType , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > & __is, std::geometric_distribution< _IntType > & __x) [inline]

Extracts a geometric_distribution random number distribution __x from the input stream __is.

Parameters:

__is An input stream.

__x A geometric_distribution random number generator engine.

Returns:

The input stream with __x extracted or in an error state.

Definition at line 1009 of file random.tcc.

References std::ios_base::flags(), std::geometric_distribution< _IntType >::param(), and std::skipws().

2.53.1.4 template<typename _CharT , typename _Traits > std::basic_istream<_CharT, _Traits>& std::operator>> (std::basic_istream< _CharT, _Traits > & __is, std::bernoulli_distribution & __x) [inline]

Extracts a bernoulli_distribution random number distribution __x from the input stream __is.

Parameters:

__is An input stream.

__x A bernoulli_distribution random number generator engine.

Returns:

The input stream with __x extracted or in an error state.

Definition at line 3005 of file random.h.

References std::bernoulli_distribution::param().

2.54 Poisson Distributions

Collaboration diagram for Poisson Distributions:

Classes

- class std::discrete_distribution< _IntType >

  A discrete_distribution random number distribution.

- class std::exponential_distribution< _RealType >

  An exponential continuous distribution for random numbers.

- class std::extreme_value_distribution< _RealType >

  A extreme_value_distribution random number distribution.

- class std::piecewise_constant_distribution< _RealType >

  A piecewise_constant_distribution random number distribution.

- class std::piecewise_linear_distribution< _RealType >

  A piecewise_linear_distribution random number distribution.

- class std::poisson_distribution< _IntType >

  A discrete Poisson random number distribution.

- class std::weibull_distribution< _RealType >

  A weibull_distribution random number distribution.

Functions

- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > &, const std::extreme_value_distribution< _RealType > &)
- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > &, const std::weibull_distribution< _RealType > &)

- template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > &, const std::exponential_distribution< _RealType > &)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > &, std::extreme_value_distribution< _RealType > &)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > &, std::weibull_distribution< _RealType > &)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > &, std::exponential_distribution< _RealType > &)

2.54.1 Function Documentation

2.54.1.1 template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > & *__os*, const std::extreme_value_distribution< _RealType > & *__x*) [inline]

Inserts a extreme_value_distribution random number distribution __x into the output stream __os.

Parameters:

__os An output stream.

__x A extreme_value_distribution random number distribution.

Returns:

The output stream with the state of __x inserted or in an error state.

Definition at line 2102 of file random.tcc.

References std::left(), and std::scientific().

2.54.1.2 template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > & *__os*, const std::weibull_distribution< _RealType > & *__x*) [inline]

Inserts a weibull_distribution random number distribution __x into the output stream __os.

Parameters:

__os An output stream.

__x A weibull_distribution random number distribution.

Returns:

The output stream with the state of __x inserted or in an error state.

Definition at line 2045 of file random.tcc.

References std::left(), and std::scientific().

2.54.1.3 template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > & *__os*, const std::exponential_distribution< _RealType > & *__x*) [inline]

Inserts a exponential_distribution random number distribution __x into the output stream __os.

Parameters:

__os An output stream.

__x A exponential_distribution random number distribution.

Returns:

The output stream with the state of __x inserted or in an error state.

Definition at line 1545 of file random.tcc.

References std::ios_base::flags(), std::left(), and std::scientific().

2.54.1.4 template<typename _RealType , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > & *__is*, std::extreme_value_distribution< _RealType > & *__x*) [inline]

Extracts a extreme_value_distribution random number distribution __x from the input stream __is.

Parameters:

__is An input stream.

__x A extreme_value_distribution random number generator engine.

Returns:

The input stream with __x extracted or in an error state.

Definition at line 2126 of file random.tcc.

References std::dec(), std::ios_base::flags(), std::extreme_value_distribution< _RealType >::param(), and std::skipws().

2.54.1.5 template<typename _RealType , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > & __is, std::weibull_distribution< _RealType > & __x) [inline]

Extracts a weibull_distribution random number distribution __x from the input stream __is.

Parameters:

__is An input stream.

__x A weibull_distribution random number generator engine.

Returns:

The input stream with __x extracted or in an error state.

Definition at line 2069 of file random.tcc.

References std::dec(), std::ios_base::flags(), std::weibull_distribution< _RealType >::param(), and std::skipws().

2.54.1.6 template<typename _RealType , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > & __is, std::exponential_distribution< _RealType > & __x) [inline]

Extracts a exponential_distribution random number distribution __x from the input stream __is.

Parameters:

__is An input stream.

__x A exponential_distribution random number generator engine.

Returns:

The input stream with __x extracted or in an error state.

Definition at line 1568 of file random.tcc.

References std::dec(), std::ios_base::flags(), std::exponential_distribution< _RealType >::param(), and std::skipws().

2.55 Random Number Utilities

Collaboration diagram for Random Number Utilities:

Classes

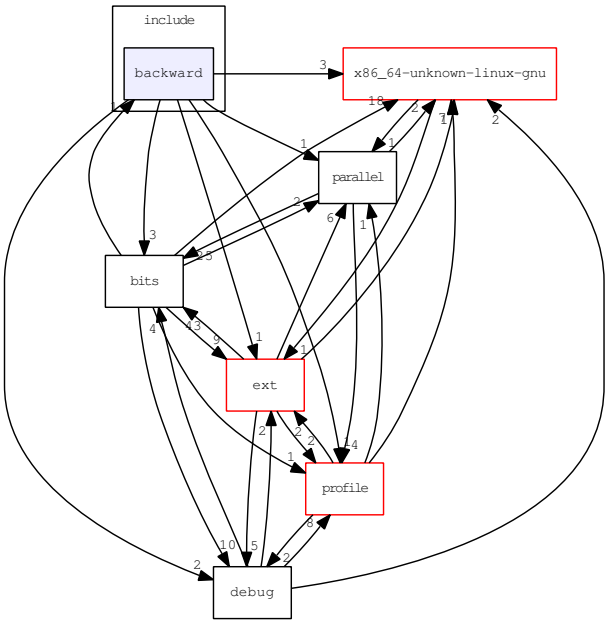
- class std::seed_seq

  The seed_seq class generates sequences of seeds for random number generators.

Chapter 3

Directory Documentation

3.1 include/backward/ Directory Reference

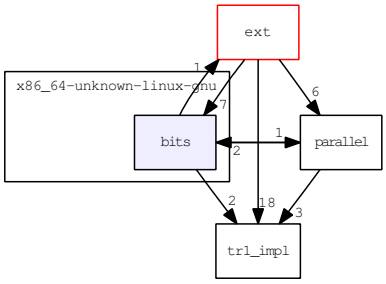


Files

- file auto_ptr.h

- file **backward_warning.h**
- file binders.h
- file hash_fun.h
- file hash_map
- file hash_set
- file backward/hashtable.h
- file **strstream**

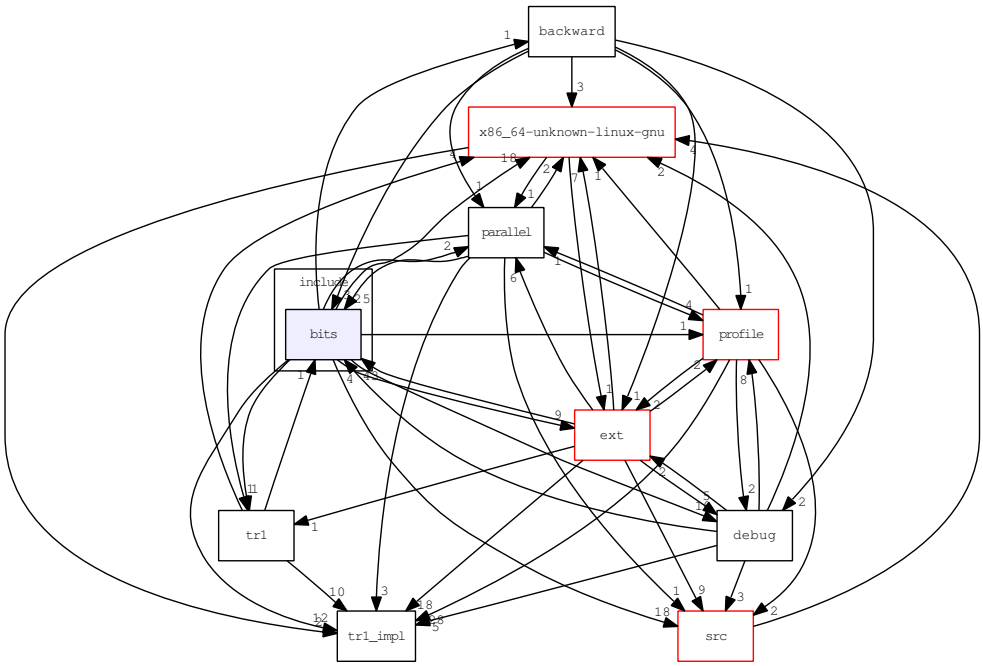
3.2 include/x86_64-unknown-linux-gnu/bits/ Directory Reference



Files

- file atomic_word.h
- file basic_file.h
- file c++allocator.h
- file c++config.h
- file c++io.h
- file c++locale.h
- file c++locale_internal.h
- file x86_64-unknown-linux-gnu/bits/compatibility.h
- file cpu_defines.h
- file ctype_base.h
- file ctype_inline.h
- file ctype_noninline.h
- file cxxabi_tweaks.h
- file error_constants.h
- file **gthr-default.h**
- file **gthr-posix.h**
- file **gthr-single.h**
- file **gthr-tpf.h**
- file **gthr.h**
- file messages_members.h
- file os_defines.h
- file time_members.h

3.3 include/bits/ Directory Reference



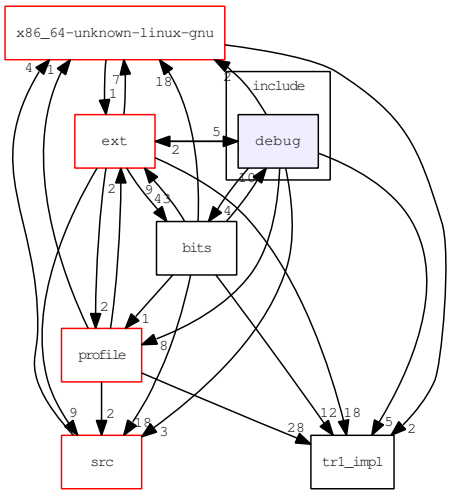
Files

- file bits/algorithmfwd.h
- file allocator.h
- file atomic_0.h
- file atomic_2.h
- file atomic_base.h
- file atomicfwd_c.h
- file atomicfwd_cxx.h
- file basic_ios.h
- file basic_ios.tcc
- file basic_string.h
- file basic_string.tcc
- file boost_concept_check.h
- file c++0x_warning.h
- file char_traits.h
- file cmath.tcc
- file codecvt.h

- file concept_check.h
- file cpp_type_traits.h
- file deque.tcc
- file forward_list.h
- file forward_list.tcc
- file fstream.tcc
- file functexcept.h
- file functional_hash.h
- file gslice.h
- file gslice_array.h
- file bits/hashtable.h
- file hashtable_policy.h
- file indirect_array.h
- file ios_base.h
- file istream.tcc
- file list.tcc
- file locale_classes.h
- file locale_classes.tcc
- file locale_facets.h
- file locale_facets.tcc
- file locale_facets_nonio.h
- file locale_facets_nonio.tcc
- file localefwd.h
- file mask_array.h
- file move.h
- file ostream.tcc
- file ostream_insert.h
- file postypes.h
- file random.h
- file random.tcc
- file shared_ptr.h
- file shared_ptr_base.h
- file slice_array.h
- file sstream.tcc
- file stl_algo.h
- file stl_algobase.h
- file stl_bvector.h
- file stl_construct.h
- file stl_deque.h
- file stl_function.h
- file stl_heap.h
- file stl_iterator.h
- file stl_iterator_base_funcs.h

- file stl_iterator_base_types.h
- file stl_list.h
- file stl_map.h
- file stl_multimap.h
- file stl_multiset.h
- file stl_numeric.h
- file stl_pair.h
- file stl_queue.h
- file stl_raw_storage_iter.h
- file stl_relops.h
- file stl_set.h
- file stl_stack.h
- file stl_tempbuf.h
- file stl_tree.h
- file stl_uninitialized.h
- file stl_vector.h
- file stream_iterator.h
- file streambuf.tcc
- file streambuf_iterator.h
- file stringfwd.h
- file unique_ptr.h
- file unordered_map.h
- file unordered_set.h
- file valarray_after.h
- file valarray_array.h
- file valarray_array.tcc
- file valarray_before.h
- file vector.tcc

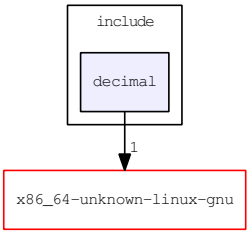
3.4 include/debug/ Directory Reference



Files

- file debug/bitset
- file debug.h
- file debug/deque
- file formatter.h
- file functions.h
- file debug/list
- file macros.h
- file debug/map
- file debug/map.h
- file debug/multimap.h
- file debug/multiset.h
- file safe_base.h
- file safe_iterator.h
- file safe_iterator.tcc
- file safe_sequence.h
- file debug/set
- file debug/set.h
- file debug/string
- file debug/unordered_map
- file debug/unordered_set
- file debug/vector

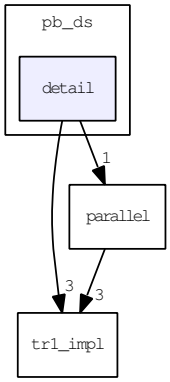
3.5 include/decimal/ Directory Reference



Files

- file decimal

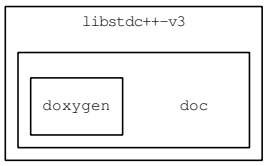
3.6 include/ext/pb_ds/detail/ Directory Reference



Files

- file basic_types.hpp
- file cond_dealtor.hpp
- file constructors_destructor_fn_imps.hpp
- file container_base_dispatch.hpp
- file debug_map_base.hpp
- file priority_queue_base_dispatch.hpp
- file standard_policies.hpp
- file tree_trace_base.hpp
- file type_utils.hpp
- file types_traits.hpp

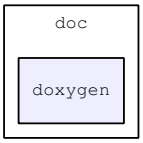
3.7 /mnt/share/src/gcc-trunk/libstdc++-v3/doc/ Directory Reference



Directories

- directory doxygen

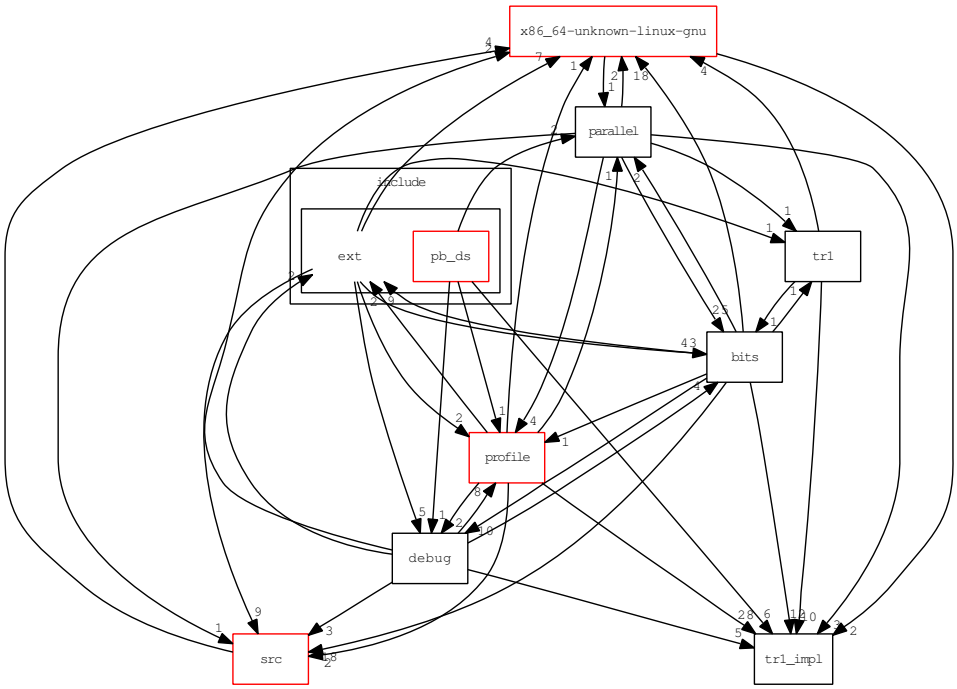
3.8 /mnt/share/src/gcc-trunk/libstdc++-v3/doc/doxygen/ Directory Reference



Files

- file **doxygroups.cc**

3.9 include/ext/ Directory Reference



Directories

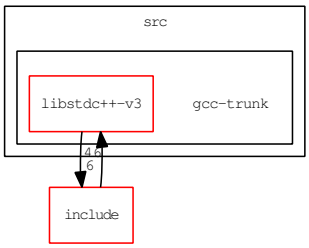
- directory pb_ds

Files

- file ext/algorithm
- file array_allocator.h
- file atomicity.h
- file bitmap_allocator.h
- file **cast.h**
- file codecvt_specializations.h
- file concurrence.h
- file debug_allocator.h
- file enc_filebuf.h
- file extptr_allocator.h
- file ext/functional

- file ext/iterator
- file malloc_allocator.h
- file ext/memory
- file mt_allocator.h
- file new_allocator.h
- file ext/numeric
- file numeric_traits.h
- file pod_char_traits.h
- file pointer.h
- file pool_allocator.h
- file rb_tree
- file rc_string_base.h
- file rope
- file ropeimpl.h
- file slist
- file sso_string_base.h
- file stdio_filebuf.h
- file stdio_sync_filebuf.h
- file **string_conversions.h**
- file throw_allocator.h
- file type_traits.h
- file typelist.h
- file vstring.h
- file vstring.tcc
- file vstring_fwd.h
- file vstring_util.h

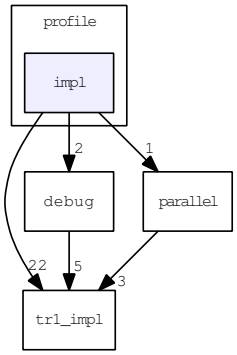
3.10 /mnt/share/src/gcc-trunk/ Directory Reference



Directories

- directory libstdc++-v3

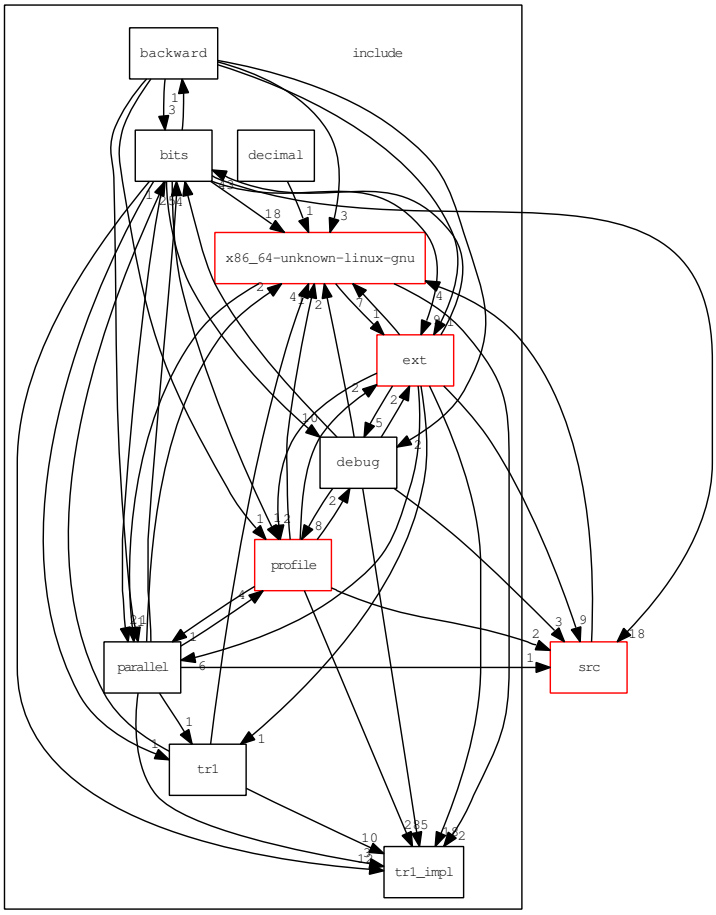
3.11 include/profile/impl/ Directory Reference



Files

- file profiler.h
- file **profiler_container_size.h**
- file **profiler_hash_func.h**
- file profiler_hashtable_size.h
- file profiler_list_to_slist.h
- file profiler_list_to_vector.h
- file profiler_map_to_unordered_map.h
- file profiler_node.h
- file profiler_state.h
- file profiler_trace.h
- file profiler_vector_size.h
- file profiler_vector_to_list.h

3.12 include/ Directory Reference



Directories

- directory backward
- directory bits
- directory debug
- directory decimal
- directory ext
- directory parallel
- directory profile
- directory tr1

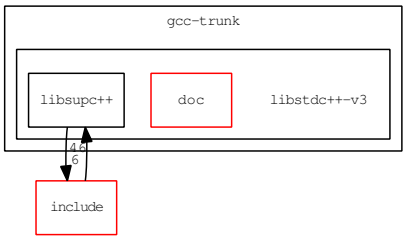
- directory tr1_impl
- directory x86_64-unknown-linux-gnu

Files

- file algorithm
- file array
- file atomic
- file bitset
- file cassert
- file ccomplex
- file cctype
- file cerrno
- file cfenv
- file cfloat
- file chrono
- file cinttypes
- file ciso646
- file climits
- file clocale
- file cmath
- file complex
- file complex.h
- file condition_variable
- file csetjmp
- file csignal
- file cstdarg
- file cstdbool
- file cstddef
- file cstdint
- file cstdio
- file cstdlib
- file cstring
- file ctgmath
- file ctime
- file cwchar
- file cwctype
- file deque
- file fenv.h
- file fstream
- file functional
- file future

- file **gstdint.h**
- file iomanip
- file ios
- file iosfwd
- file iostream
- file istream
- file iterator
- file limits
- file list
- file locale
- file map
- file memory
- file mutex
- file numeric
- file ostream
- file queue
- file random
- file ratio
- file regex
- file set
- file sstream
- file stack
- file stdatomic.h
- file stdexcept
- file streambuf
- file string
- file system_error
- file tgmath.h
- file thread
- file tuple
- file type_traits
- file unordered_map
- file unordered_set
- file utility
- file valarray
- file vector

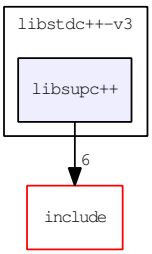
3.13 /mnt/share/src/gcc-trunk/libstdc++-v3/ Directory Reference



Directories

- directory doc
- directory libsupc++

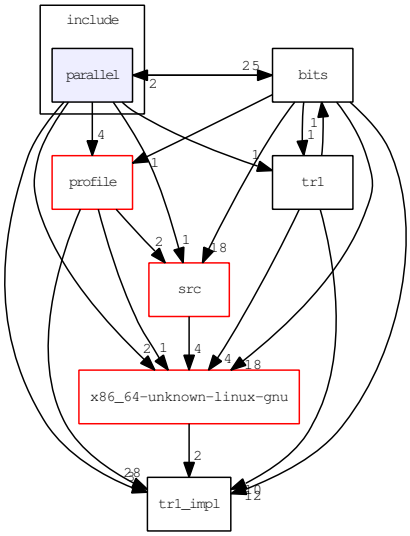
3.14 /mnt/share/src/gcc-trunk/libstdc++-v3/libsupc++/ Directory Reference



Files

- file cxxabi-forced.h
- file cxxabi.h
- file exception
- file exception_ptr.h
- file initializer_list
- file nested_exception.h
- file new
- file typeinfo

3.15 include/parallel/ Directory Reference

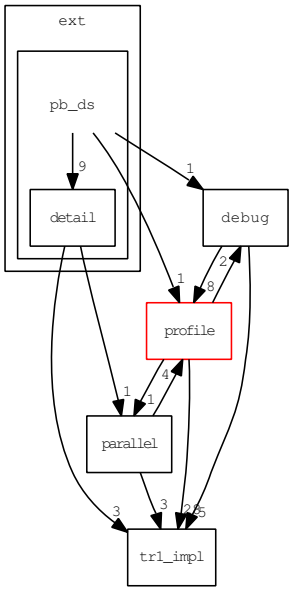


Files

- file algo.h
- file algobase.h
- file parallel/algorithm
- file parallel/algorithmfwd.h
- file balanced_quicksort.h
- file parallel/base.h
- file basic_iterator.h
- file checkers.h
- file parallel/compatibility.h
- file compiletime_settings.h
- file equally_split.h
- file features.h
- file find.h
- file find_selectors.h
- file for_each.h
- file for_each_selectors.h
- file iterator.h
- file list_partition.h
- file losertree.h

- file merge.h
- file multiseq_selection.h
- file multiway_merge.h
- file multiway_mergesort.h
- file parallel/numeric
- file numericfwd.h
- file omp_loop.h
- file omp_loop_static.h
- file par_loop.h
- file parallel.h
- file partial_sum.h
- file partition.h
- file queue.h
- file quicksort.h
- file random_number.h
- file random_shuffle.h
- file search.h
- file set_operations.h
- file settings.h
- file sort.h
- file tags.h
- file types.h
- file unique_copy.h
- file workstealing.h

3.16 include/ext/pb_ds/ Directory Reference



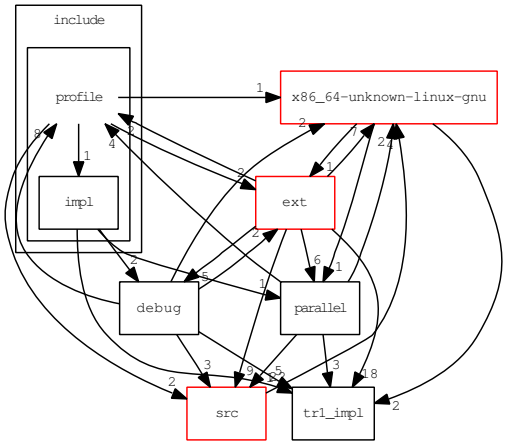
Directories

- directory detail

Files

- file assoc_container.hpp
- file exception.hpp
- file hash_policy.hpp
- file list_update_policy.hpp
- file priority_queue.hpp
- file tag_and_trait.hpp
- file tree_policy.hpp
- file trie_policy.hpp

3.17 include/profile/ Directory Reference



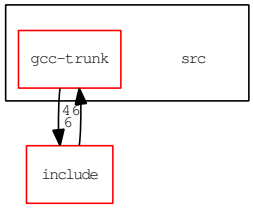
Directories

- directory impl

Files

- file profile/base.h
- file profile/bitset
- file profile/deque
- file iterator_tracker.h
- file profile/list
- file profile/map
- file profile/map.h
- file profile/multimap.h
- file profile/multiset.h
- file profile/set
- file profile/set.h
- file profile/unordered_map
- file profile/unordered_set
- file profile/vector

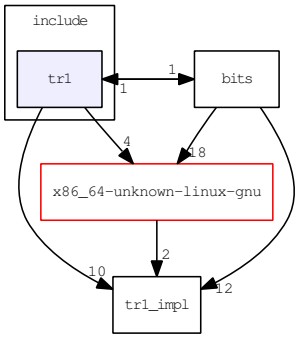
3.18 /mnt/share/src/ Directory Reference



Directories

- directory gcc-trunk

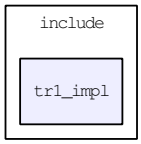
3.19 include/tr1/ Directory Reference



Files

- file tr1/ccomplex
- file tr1/cctype
- file tr1/cfenv
- file tr1/cfloat
- file tr1/cinttypes
- file tr1/climits
- file tr1/cmath
- file tr1/complex
- file tr1/cstdarg
- file tr1/cstdbool
- file tr1/cstdint
- file tr1/cstdio
- file tr1/cstdlib
- file tr1/ctgmath
- file tr1/ctime
- file tr1/cwchar
- file tr1/cwctype

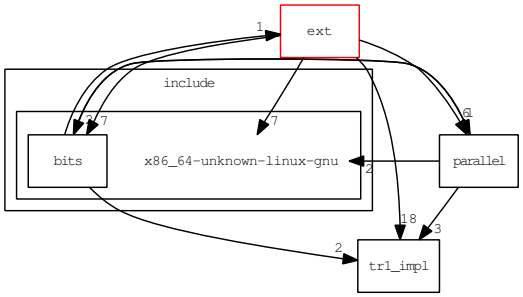
3.20 include/tr1_impl/ Directory Reference



Files

- file tr1_impl/array
- file boost_sp_counted_base.h
- file tr1_impl/cctype
- file tr1_impl/cfenv
- file tr1_impl/cinttypes
- file tr1_impl/cmath
- file tr1_impl/complex
- file tr1_impl/cstdint
- file tr1_impl/cstdio
- file tr1_impl/cstdlib
- file tr1_impl/cwchar
- file tr1_impl/cwctype
- file tr1_impl/regex
- file tr1_impl/type_traits
- file tr1_impl/utility

3.21 include/x86_64-unknown-linux-gnu/ Directory Reference



Directories

- directory bits

Chapter 4

Namespace Documentation

4.1 __gnu_cxx Namespace Reference

GNU extensions for public use.

Namespaces

- namespace __detail
- namespace typelist

Classes

- struct __common_pool_policy

  Policy for shared __pool objects.

- class __mt_alloc

  This is a fixed size (power of 2) allocator which - when compiled with thread support - will maintain one freelist per size per thread plus a global one. Steps are taken to limit the per thread freelist sizes (by returning excess back to the global list). Further details: http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt12ch32.html.

- class __mt_alloc_base

  Base class for _Tp dependent member functions.

- struct __per_type_pool_policy

  Policy for individual __pool objects.

- class __pool< false >

  Specialization for single thread.

- class __pool< true >

  Specialization for thread enabled, via gthreads.h.

- class __pool_alloc

  Allocator using a memory pool with a single lock.

- class __pool_alloc_base

  Base class for __pool_alloc.

- struct __pool_base

  Base class for pool object.

- class __rc_string_base
- class __scoped_lock

  Scoped lock idiom.

- class __versa_string

  Template class __versa_string.
  Data structure managing sequences of characters and character-like objects.

- struct _Caster
- struct _Char_types

  Mapping from character type to associated types.

- class _ExtPtr_allocator

  An example allocator which uses a non-standard pointer type.
  This allocator specifies that containers use a 'relative pointer' as it's pointer type. (See ext/pointer.h) Memory allocation in this example is still performed using std::allocator.

- struct _Invalid_type
- class _Pointer_adapter
- class _Relative_pointer_impl

  A storage policy for use with _Pointer_adapter<> which stores the pointer's address as an offset value which is relative to its own address.

- class _Relative_pointer_impl< const _Tp >
- class _Std_pointer_impl

  A storage policy for use with _Pointer_adapter<> which yields a standard pointer.

- struct _Unqualified_type
- struct annotate_base

  Base class for checking address and label information about allocations. Create a std::map between the allocated address (void) and a datum for annotations, which are a pair of numbers corresponding to label and allocated size.*

- class array_allocator

  An allocator that uses previously allocated memory. This memory can be externally, globally, or otherwise allocated.

- class array_allocator_base

  Base class.

- class binary_compose

  An SGI extension .

- class bitmap_allocator

  Bitmap Allocator, primary template.

- struct char_traits

  Base class used to implement std::char_traits.

- struct character

  A POD class that serves as a character abstraction class.

- struct condition_base

  Base struct for condition policy.

- struct constant_binary_fun

  An SGI extension .

- struct constant_unary_fun

  An SGI extension .

- struct constant_void_fun

  An SGI extension .

- class debug_allocator

  A meta-allocator with debugging bits, as per [20.4].
  This is precisely the allocator defined in the C++ Standard.
  - *all allocation calls operator new*
  - *all deallocation calls operator delete.*

- class enc_filebuf

  class enc_filebuf.

- struct encoding_char_traits

  encoding_char_traits

- class encoding_state

  Extension to use iconv for dealing with character encodings.

- struct forced_error

  Thown by exception safety machinery.

- class free_list

  The free list class for managing chunks of memory to be given to and returned by the bitmap_allocator.

- class hash_map
- class hash_multimap
- class hash_multiset
- class hash_set
- struct limit_condition

  Base class for incremental control and throw.

- class malloc_allocator

  An allocator that uses malloc.
  This is precisely the allocator defined in the C++ Standard.
  - *all allocation calls malloc*
  - *all deallocation calls free.*

- class new_allocator

  An allocator that uses global new, as per [20.4].
  This is precisely the allocator defined in the C++ Standard.
  - *all allocation calls operator new*
  - *all deallocation calls operator delete.*

- struct project1st

  An SGI extension .

- struct project2nd

  An SGI extension .

- struct random_condition

Base class for random probability control and throw.

- struct rb_tree
- class recursive_init_error

  Exception thrown by __cxa_guard_acquire.
  6.7[stmt.dcl]/4: If control re-enters the declaration (recursively) while the object is being initialized, the behavior is undefined.

- class rope
- struct select1st

  An SGI extension .

- struct select2nd

  An SGI extension .

- class slist
- class stdio_filebuf

  Provides a layer of compatibility for C/POSIX.
  This GNU extension provides extensions for working with standard C FILE∗'s and POSIX file descriptors. It must be instantiated by the user with the type of character used in the file stream, e.g., stdio_filebuf<char>.

- class stdio_sync_filebuf

  Provides a layer of compatibility for C.
  This GNU extension provides extensions for working with standard C FILE∗'s. It must be instantiated by the user with the type of character used in the file stream, e.g., stdio_filebuf<char>.

- class subtractive_rng
- struct temporary_buffer
- class throw_allocator_base

  Allocator class with logging and exception generation control. Intended to be used as an allocator_type in templatized code.
  Note: Deallocate not allowed to throw.

- struct throw_allocator_limit

  Allocator throwing via limit condition.

- struct throw_allocator_random

  Allocator throwing via random condition.

- struct throw_value_base

  Class with exception generation control. Intended to be used as a value_type in templatized code.

- struct throw_value_limit

  Type throwing via limit condition.

- struct throw_value_random

  Type throwing via random condition.

- class unary_compose

  An SGI extension .

Typedefs

- typedef void(∗ **__destroy_handler**)(void ∗)
- typedef __versa_string< char, std::char_traits< char >, std::allocator< char >, __rc_string_base > **__rc_string**
- typedef __vstring **__sso_string**
- typedef __versa_string< char16_t, std::char_traits< char16_t >, std::allocator< char16_t >, __rc_string_base > **__u16rc_string**
- typedef __u16vstring **__u16sso_string**
- typedef __versa_string< char16_t > **__u16vstring**
- typedef __versa_string< char32_t, std::char_traits< char32_t >, std::allocator< char32_t >, __rc_string_base > **__u32rc_string**
- typedef __u32vstring **__u32sso_string**
- typedef __versa_string< char32_t > **__u32vstring**
- typedef __versa_string< char > **__vstring**
- typedef __versa_string< wchar_t, std::char_traits< wchar_t >, std::allocator< wchar_t >, __rc_string_base > **__wrc_string**
- typedef __wvstring **__wsso_string**
- typedef __versa_string< wchar_t > **__wvstring**
- typedef rope< char > **crope**
- typedef rope< wchar_t > **wrope**

Enumerations

- enum { **_S_num_primes** }
- enum **_Lock_policy** { **_S_single**, **_S_mutex**, **_S_atomic** }

Functions

- static void **__atomic_add** (volatile _Atomic_word *__mem, int __val)
- static void **__atomic_add_single** (_Atomic_word *__mem, int __val)
- static _Atomic_word **__attribute__** ((__unused__)) __exchange_and_add_dispatch(_Atomic_word *__mem
- template<class _Tp >
  void **__aux_require_boolean_expr** (const _Tp &__t)
- template<typename _ToType , typename _FromType >
  _ToType **__const_pointer_cast** (_FromType *__arg)
- template<typename _ToType , typename _FromType >
  _ToType **__const_pointer_cast** (const _FromType &__arg)
- template<typename _RAIterator , typename _Size , typename _OutputIterator >
  pair< _RAIterator, _OutputIterator > **__copy_n** (_RAIterator __first, _Size __count, _OutputIterator __result, random_access_iterator_tag)
- template<typename _InputIterator , typename _Size , typename _OutputIterator >
  pair< _InputIterator, _OutputIterator > **__copy_n** (_InputIterator __first, _Size __count, _OutputIterator __result, input_iterator_tag)
- template<typename _RandomAccessIterator , typename _Distance >
  void **__distance** (_RandomAccessIterator __first, _RandomAccessIterator __last, _Distance &__n, std::random_access_iterator_tag)
- template<typename _InputIterator , typename _Distance >
  void **__distance** (_InputIterator __first, _InputIterator __last, _Distance &__n, std::input_iterator_tag)
- template<typename _ToType , typename _FromType >
  _ToType **__dynamic_pointer_cast** (_FromType *__arg)
- template<typename _ToType , typename _FromType >
  _ToType **__dynamic_pointer_cast** (const _FromType &__arg)
- void **__error_type_must_be_a_signed_integer_type** ()
- void **__error_type_must_be_an_integer_type** ()
- void **__error_type_must_be_an_unsigned_integer_type** ()
- static _Atomic_word **__exchange_and_add** (volatile _Atomic_word *__mem, int __val)
- else return **__exchange_and_add_single** (__mem, __val)
- static _Atomic_word **__exchange_and_add_single** (_Atomic_word *__mem, int __val)
- template<class _Concept >
  void **__function_requires** ()
- template<typename _Type >
  bool **__is_null_pointer** (_Type)
- template<typename _Type >
  bool **__is_null_pointer** (_Type *__ptr)
- int **__lexicographical_compare_3way** (const char *__first1, const char *__last1, const char *__first2, const char *__last2)

- int **__lexicographical_compare_3way** (const unsigned char *__first1, const unsigned char *__last1, const unsigned char *__first2, const unsigned char *__last2)
- template<typename _InputIterator1 , typename _InputIterator2 >
  int **__lexicographical_compare_3way** (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2)
- template<typename _Tp , typename _Compare >
  const _Tp & __median (const _Tp &__a, const _Tp &__b, const _Tp &__c, _Compare __comp)
- template<typename _Tp >
  const _Tp & __median (const _Tp &__a, const _Tp &__b, const _Tp &__c)
- crope::reference **__mutable_reference_at** (crope &__c, size_t __i)
- template<typename _Tp , typename _Integer >
  _Tp **__power** (_Tp __x, _Integer __n)
- template<typename _Tp , typename _Integer , typename _MonoidOperation >
  _Tp **__power** (_Tp __x, _Integer __n, _MonoidOperation __monoid_op)
- template<typename _InputIterator , typename _RandomAccessIterator , typename _RandomNumberGenerator , typename _Distance >
  _RandomAccessIterator **__random_sample** (_InputIterator __first, _InputIterator __last, _RandomAccessIterator __out, _RandomNumberGenerator &__rand, const _Distance __n)
- template<typename _InputIterator , typename _RandomAccessIterator , typename _Distance >
  _RandomAccessIterator **__random_sample** (_InputIterator __first, _InputIterator __last, _RandomAccessIterator __out, const _Distance __n)

- template<typename _ToType , typename _FromType >
  _ToType **__reinterpret_pointer_cast** (_FromType *__arg)
- template<typename _ToType , typename _FromType >
  _ToType **__reinterpret_pointer_cast** (const _FromType &__arg)
- _Slist_node_base * **__slist_make_link** (_Slist_node_base *__prev_node, _Slist_node_base *__new_node)
- const _Slist_node_base * **__slist_previous** (const _Slist_node_base *__head, const _Slist_node_base *__node)
- _Slist_node_base * **__slist_previous** (_Slist_node_base *__head, const _Slist_node_base *__node)
- _Slist_node_base * **__slist_reverse** (_Slist_node_base *__node)
- size_t **__slist_size** (_Slist_node_base *__node)
- void **__slist_splice_after** (_Slist_node_base *__pos, _Slist_node_base *__head)
- void **__slist_splice_after** (_Slist_node_base *__pos, _Slist_node_base *__before_first, _Slist_node_base *__before_last)
- template<typename _ToType , typename _FromType >
  _ToType __static_pointer_cast (_FromType *__arg)
- template<typename _ToType , typename _FromType >
  _ToType __static_pointer_cast (const _FromType &__arg)

- size_t **__stl_hash_string** (const char *__s)
- unsigned long **__stl_next_prime** (unsigned long __n)
- template<typename _TRet , typename _Ret = _TRet, typename _CharT , typename... _Base>
  _Ret **__stoa** (_TRet(*__convf)(const _CharT *, _CharT **, _Base...), const char *__name, const _CharT *__str, std::size_t *__idx, _Base...__base)
- void **__throw_concurrence_broadcast_error** ()
- void **__throw_concurrence_lock_error** ()
- void **__throw_concurrence_unlock_error** ()
- void **__throw_concurrence_wait_error** ()
- void **__throw_forced_error** ()
- template<typename _String , typename _CharT = typename _String::value_type>
  _String **__to_xstring** (int(*__convf)(_CharT *, std::size_t, const _CharT *, __builtin_va_list), std::size_t __n, const _CharT *__fmt,...)
- template<typename _InputIter , typename _Size , typename _ForwardIter >
  pair< _InputIter, _ForwardIter > **__uninitialized_copy_n** (_InputIter __first, _Size __count, _ForwardIter __result)
- template<typename _RandomAccessIter , typename _Size , typename _ForwardIter >
  pair< _RandomAccessIter, _ForwardIter > **__uninitialized_copy_n** (_RandomAccessIter __first, _Size __count, _ForwardIter __result, std::random_access_iterator_tag)
- template<typename _InputIter , typename _Size , typename _ForwardIter >
  pair< _InputIter, _ForwardIter > **__uninitialized_copy_n** (_InputIter __first, _Size __count, _ForwardIter __result, std::input_iterator_tag)
- template<typename _InputIter , typename _Size , typename _ForwardIter , typename _Tp >
  pair< _InputIter, _ForwardIter > **__uninitialized_copy_n_a** (_InputIter __first, _Size __count, _ForwardIter __result, std::allocator< _Tp >)
- template<typename _InputIter , typename _Size , typename _ForwardIter , typename _Allocator >
  pair< _InputIter, _ForwardIter > **__uninitialized_copy_n_a** (_InputIter __first, _Size __count, _ForwardIter __result, _Allocator __alloc)
- void __verbose_terminate_handler ()
- size_t _Bit_scan_forward (size_t __num)
- template<typename _ForwardIterator , typename _Tp >
  void **_Destroy_const** (_ForwardIterator __first, _ForwardIterator __last, allocator< _Tp >)
- template<typename _ForwardIterator , typename _Allocator >
  void **_Destroy_const** (_ForwardIterator __first, _ForwardIterator __last, _Allocator __alloc)
- template<class _CharT , class _Traits >
  void **_Rope_fill** (basic_ostream< _CharT, _Traits > &__o, size_t __n)
- bool **_Rope_is_simple** (wchar_t *)
- bool **_Rope_is_simple** (char *)
- template<class _CharT >
  bool **_Rope_is_simple** (_CharT *)

- template<class _Rope_iterator >
  void **_Rope_rotate** (_Rope_iterator __first, _Rope_iterator __middle, _Rope_-iterator __last)
- void **_S_cond_store_eos** (wchar_t &__c)
- void **_S_cond_store_eos** (char &__c)
- template<class _CharT >
  void **_S_cond_store_eos** (_CharT &)
- template<class _CharT >
  _CharT **_S_eos** (_CharT *)
- bool **_S_is_basic_char_type** (wchar_t *)
- bool **_S_is_basic_char_type** (char *)
- template<class _CharT >
  bool **_S_is_basic_char_type** (_CharT *)
- bool **_S_is_one_byte_char_type** (char *)
- template<class _CharT >
  bool **_S_is_one_byte_char_type** (_CharT *)
- template<class _Operation1 , class _Operation2 >
  unary_compose< _Operation1, _Operation2 > compose1 (const _Operation1 &__fn1, const _Operation2 &__fn2)
- template<class _Operation1 , class _Operation2 , class _Operation3 >
  binary_compose< _Operation1, _Operation2, _Operation3 > compose2 (const _Operation1 &__fn1, const _Operation2 &__fn2, const _Operation3 &__fn3)
- template<class _Result >
  constant_void_fun< _Result > constant0 (const _Result &__val)
- template<class _Result >
  constant_unary_fun< _Result, _Result > constant1 (const _Result &__val)
- template<class _Result >
  constant_binary_fun< _Result, _Result, _Result > constant2 (const _Result &_-_val)
- template<typename _InputIterator , typename _Size , typename _OutputIterator >
  pair< _InputIterator, _OutputIterator > copy_n (_InputIterator __first, _Size _-_count, _OutputIterator __result)
- template<typename _InputIterator , typename _Tp , typename _Size >
  void **count** (_InputIterator __first, _InputIterator __last, const _Tp &__value, _Size &__n)
- template<typename _InputIterator , typename _Predicate , typename _Size >
  void **count_if** (_InputIterator __first, _InputIterator __last, _Predicate __pred, _Size &__n)
- template<typename _InputIterator , typename _Distance >
  void distance (_InputIterator __first, _InputIterator __last, _Distance &__n)
- template<class _Tp >
  _Tp identity_element (std::multiplies< _Tp >)
- template<class _Tp >
  _Tp identity_element (std::plus< _Tp >)

- static _Atomic_word int __val **if** (__gthread_active_p()) return __exchange_-and_add(__mem
- template<typename _ForwardIter , typename _Tp >
  void iota (_ForwardIter __first, _ForwardIter __last, _Tp __value)
- template<typename _RandomAccessIterator , typename _StrictWeakOrdering >
  bool is_heap (_RandomAccessIterator __first, _RandomAccessIterator __last, _-StrictWeakOrdering __comp)
- template<typename _RandomAccessIterator >
  bool is_heap (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _ForwardIterator , typename _StrictWeakOrdering >
  bool is_sorted (_ForwardIterator __first, _ForwardIterator __last, _-StrictWeakOrdering __comp)
- template<typename _ForwardIterator >
  bool is_sorted (_ForwardIterator __first, _ForwardIterator __last)
- template<typename _InputIterator1 , typename _InputIterator2 >
  int lexicographical_compare_3way (_InputIterator1 __first1, _InputIterator1 __-last1, _InputIterator2 __first2, _InputIterator2 __last2)
- template<class _Ret , class _Tp , class _Arg >
  mem_fun1_t< _Ret, _Tp, _Arg > **mem_fun1** (_Ret(_Tp::*__f)(_Arg))
- template<class _Ret , class _Tp , class _Arg >
  mem_fun1_ref_t< _Ret, _Tp, _Arg > **mem_fun1_ref** (_Ret(_Tp::*__f)(_Arg))

- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool operator!= (const __versa_string< _CharT, _Traits, _Alloc, _Base > &__-lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool operator!= (const _CharT *__lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool operator!= (const __versa_string< _CharT, _Traits, _Alloc, _Base > &__-lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _Tp , typename _Cond >
  bool **operator!=** (const throw_allocator_base< _Tp, _Cond > &, const throw_-allocator_base< _Tp, _Cond > &)
- template<typename _Tp >
  bool **operator!=** (const __pool_alloc< _Tp > &, const __pool_alloc< _Tp > &)
- template<typename _Tp >
  bool **operator!=** (const _Pointer_adapter< _Tp > &__lhs, const _Pointer_-adapter< _Tp > &__rhs)
- template<typename _Tp >
  bool **operator!=** (int __lhs, const _Pointer_adapter< _Tp > &__rhs)

- template<typename _Tp >
  bool **operator!=** (const _Pointer_adapter< _Tp > &__lhs, int __rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **operator!=** (const _Pointer_adapter< _Tp1 > &__lhs, const _Pointer_adapter< _Tp2 > &__rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **operator!=** (_Tp1 __lhs, const _Pointer_adapter< _Tp2 > &__rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **operator!=** (const _Pointer_adapter< _Tp1 > &__lhs, _Tp2 __rhs)
- template<typename _Tp >
  bool **operator!=** (const new_allocator< _Tp > &, const new_allocator< _Tp > &)
- template<typename _Tp , typename _Poolp >
  bool **operator!=** (const __mt_alloc< _Tp, _Poolp > &, const __mt_alloc< _Tp, _Poolp > &)
- template<typename _Tp >
  bool **operator!=** (const malloc_allocator< _Tp > &, const malloc_allocator< _Tp > &)
- template<typename _Tp1 , typename _Tp2 >
  bool **operator!=** (const bitmap_allocator< _Tp1 > &, const bitmap_allocator< _Tp2 > &) throw ()
- template<typename _Tp , typename _Array >
  bool **operator!=** (const array_allocator< _Tp, _Array > &, const array_allocator< _Tp, _Array > &)
- template<typename _Iterator , typename _Container >
  bool **operator!=** (const __normal_iterator< _Iterator, _Container > &__lhs, const __normal_iterator< _Iterator, _Container > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Container >
  bool **operator!=** (const __normal_iterator< _IteratorL, _Container > &__lhs, const __normal_iterator< _IteratorR, _Container > &__rhs)
- template<class _Val , class _Key , class _HF , class _Ex , class _Eq , class _All >
  bool **operator!=** (const hashtable< _Val, _Key, _HF, _Ex, _Eq, _All > &__ht1, const hashtable< _Val, _Key, _HF, _Ex, _Eq, _All > &__ht2)
- template<class _Tp , class _Alloc >
  bool **operator!=** (const slist< _Tp, _Alloc > &_SL1, const slist< _Tp, _Alloc > &_SL2)
- template<class _CharT , class _Alloc >
  bool **operator!=** (const _Rope_char_ptr_proxy< _CharT, _Alloc > &__x, const _Rope_char_ptr_proxy< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  bool **operator!=** (const rope< _CharT, _Alloc > &__x, const rope< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  bool **operator!=** (const _Rope_iterator< _CharT, _Alloc > &__x, const _Rope_iterator< _CharT, _Alloc > &__y)

- template<class _CharT , class _Alloc >
  bool **operator!=** (const _Rope_const_iterator< _CharT, _Alloc > &__x, const _Rope_const_iterator< _CharT, _Alloc > &__y)
- template<class _Val , class _HashFcn , class _EqualKey , class _Alloc >
  bool **operator!=** (const hash_multiset< _Val, _HashFcn, _EqualKey, _Alloc > &__hs1, const hash_multiset< _Val, _HashFcn, _EqualKey, _Alloc > &__hs2)
- template<class _Value , class _HashFcn , class _EqualKey , class _Alloc >
  bool **operator!=** (const hash_set< _Value, _HashFcn, _EqualKey, _Alloc > &_-_hs1, const hash_set< _Value, _HashFcn, _EqualKey, _Alloc > &__hs2)
- template<class _Key , class _Tp , class _HF , class _EqKey , class _Alloc >
  bool **operator!=** (const hash_multimap< _Key, _Tp, _HF, _EqKey, _Alloc > &__hm1, const hash_multimap< _Key, _Tp, _HF, _EqKey, _Alloc > &__hm2)
- template<class _Key , class _Tp , class _HashFn , class _EqlKey , class _Alloc >
  bool **operator!=** (const hash_map< _Key, _Tp, _HashFn, _EqlKey, _Alloc > &__hm1, const hash_map< _Key, _Tp, _HashFn, _EqlKey, _Alloc > &__hm2)
- template<typename _Cond >
  throw_value_base< _Cond > **operator*** (const throw_value_base< _Cond > &__a, const throw_value_base< _Cond > &__b)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  __versa_string< _CharT, _Traits, _Alloc, _Base > operator+ (const __versa_-string< _CharT, _Traits, _Alloc, _Base > &__lhs, _CharT __rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  __versa_string< _CharT, _Traits, _Alloc, _Base > operator+ (const __versa_-string< _CharT, _Traits, _Alloc, _Base > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  __versa_string< _CharT, _Traits, _Alloc, _Base > operator+ (_CharT __lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  __versa_string< _CharT, _Traits, _Alloc, _Base > operator+ (const _CharT *_-_lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  __versa_string< _CharT, _Traits, _Alloc, _Base > operator+ (const __versa_-string< _CharT, _Traits, _Alloc, _Base > &__lhs, const __versa_string< _-CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _Cond >
  throw_value_base< _Cond > **operator+** (const throw_value_base< _Cond > &__a, const throw_value_base< _Cond > &__b)

- template<typename _Iterator , typename _Container >
  __normal_iterator< _Iterator, _Container > **operator+** (typename __normal_iterator< _Iterator, _Container >::difference_type __n, const __normal_iterator< _Iterator, _Container > &__i)
- template<class _CharT , class _Alloc >
  rope< _CharT, _Alloc > **operator+** (const rope< _CharT, _Alloc > &__left, _CharT __right)
- template<class _CharT , class _Alloc >
  rope< _CharT, _Alloc > **operator+** (const rope< _CharT, _Alloc > &__left, const _CharT *__right)
- template<class _CharT , class _Alloc >
  rope< _CharT, _Alloc > **operator+** (const rope< _CharT, _Alloc > &__left, const rope< _CharT, _Alloc > &__right)
- template<class _CharT , class _Alloc >
  _Rope_iterator< _CharT, _Alloc > **operator+** (ptrdiff_t __n, const _Rope_iterator< _CharT, _Alloc > &__x)
- template<class _CharT , class _Alloc >
  _Rope_iterator< _CharT, _Alloc > **operator+** (const _Rope_iterator< _CharT, _Alloc > &__x, ptrdiff_t __n)
- template<class _CharT , class _Alloc >
  _Rope_const_iterator< _CharT, _Alloc > **operator+** (ptrdiff_t __n, const _Rope_const_iterator< _CharT, _Alloc > &__x)
- template<class _CharT , class _Alloc >
  _Rope_const_iterator< _CharT, _Alloc > **operator+** (const _Rope_const_iterator< _CharT, _Alloc > &__x, ptrdiff_t __n)
- template<class _CharT , class _Alloc >
  rope< _CharT, _Alloc > & **operator+=** (rope< _CharT, _Alloc > &__left, _CharT __right)
- template<class _CharT , class _Alloc >
  rope< _CharT, _Alloc > & **operator+=** (rope< _CharT, _Alloc > &__left, const _CharT *__right)
- template<class _CharT , class _Alloc >
  rope< _CharT, _Alloc > & **operator+=** (rope< _CharT, _Alloc > &__left, const rope< _CharT, _Alloc > &__right)
- template<typename _Cond >
  throw_value_base< _Cond > **operator-** (const throw_value_base< _Cond > &__a, const throw_value_base< _Cond > &__b)
- template<typename _Iterator , typename _Container >
  __normal_iterator< _Iterator, _Container >::difference_type **operator-** (const __normal_iterator< _Iterator, _Container > &__lhs, const __normal_iterator< _Iterator, _Container > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Container >
  auto **operator-** (const __normal_iterator< _IteratorL, _Container > &__lhs, const __normal_iterator< _IteratorR, _Container > &__rhs)-> decltype(__lhs.base()-__rhs.base())

- template<class _CharT , class _Alloc >
  ptrdiff_t **operator-** (const _Rope_iterator< _CharT, _Alloc > &__x, const _Rope_iterator< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  _Rope_iterator< _CharT, _Alloc > **operator-** (const _Rope_iterator< _CharT, _Alloc > &__x, ptrdiff_t __n)
- template<class _CharT , class _Alloc >
  ptrdiff_t **operator-** (const _Rope_const_iterator< _CharT, _Alloc > &__x, const _Rope_const_iterator< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  _Rope_const_iterator< _CharT, _Alloc > **operator-** (const _Rope_const_iterator< _CharT, _Alloc > &__x, ptrdiff_t __n)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool operator< (const _CharT *__lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool operator< (const __versa_string< _CharT, _Traits, _Alloc, _Base > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool operator< (const __versa_string< _CharT, _Traits, _Alloc, _Base > &__lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _Cond >
  bool **operator**< (const throw_value_base< _Cond > &__a, const throw_value_base< _Cond > &__b)
- template<typename _Tp1 , typename _Tp2 >
  bool **operator**< (const _Pointer_adapter< _Tp1 > &__lhs, const _Pointer_adapter< _Tp2 > &__rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **operator**< (_Tp1 __lhs, const _Pointer_adapter< _Tp2 > &__rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **operator**< (const _Pointer_adapter< _Tp1 > &__lhs, _Tp2 __rhs)
- template<typename V , typename I , typename S >
  bool **operator**< (const character< V, I, S > &lhs, const character< V, I, S > &rhs)
- template<typename _Iterator , typename _Container >
  bool **operator**< (const __normal_iterator< _Iterator, _Container > &__lhs, const __normal_iterator< _Iterator, _Container > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Container >
  bool **operator**< (const __normal_iterator< _IteratorL, _Container > &__lhs, const __normal_iterator< _IteratorR, _Container > &__rhs)

- template<class _Tp , class _Alloc >
  bool **operator**< (const slist< _Tp, _Alloc > &_SL1, const slist< _Tp, _Alloc > &_SL2)
- template<class _CharT , class _Alloc >
  bool **operator**< (const rope< _CharT, _Alloc > &__left, const rope< _CharT, _Alloc > &__right)
- template<class _CharT , class _Alloc >
  bool **operator**< (const _Rope_iterator< _CharT, _Alloc > &__x, const _Rope_iterator< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  bool **operator**< (const _Rope_const_iterator< _CharT, _Alloc > &__x, const _Rope_const_iterator< _CharT, _Alloc > &__y)
- std::ostream & **operator**<< (std::ostream &os, const annotate_base &__b)
- template<typename _CharT , typename _Traits , typename _StoreT >
  std::basic_ostream< _CharT, _Traits > & **operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const _Pointer_adapter< _StoreT > &__p)
- template<class _CharT , class _Traits , class _Alloc >
  std::basic_ostream< _CharT, _Traits > & **operator**<< (std::basic_ostream< _CharT, _Traits > &__o, const rope< _CharT, _Alloc > &__r)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool operator<= (const _CharT *__lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool operator<= (const __versa_string< _CharT, _Traits, _Alloc, _Base > &_lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool operator<= (const __versa_string< _CharT, _Traits, _Alloc, _Base > &_lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _Tp >
  bool **operator**<= (const _Pointer_adapter< _Tp > &__lhs, const _Pointer_adapter< _Tp > &__rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **operator**<= (const _Pointer_adapter< _Tp1 > &__lhs, const _Pointer_adapter< _Tp2 > &__rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **operator**<= (_Tp1 __lhs, const _Pointer_adapter< _Tp2 > &__rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **operator**<= (const _Pointer_adapter< _Tp1 > &__lhs, _Tp2 __rhs)
- template<typename _Iterator , typename _Container >
  bool **operator**<= (const __normal_iterator< _Iterator, _Container > &__lhs, const __normal_iterator< _Iterator, _Container > &__rhs)

- template<typename _IteratorL , typename _IteratorR , typename _Container >
  bool **operator<=** (const __normal_iterator< _IteratorL, _Container > &__lhs, const __normal_iterator< _IteratorR, _Container > &__rhs)
- template<class _Tp , class _Alloc >
  bool **operator<=** (const slist< _Tp, _Alloc > &_SL1, const slist< _Tp, _Alloc > &_SL2)
- template<class _CharT , class _Alloc >
  bool **operator<=** (const rope< _CharT, _Alloc > &__x, const rope< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  bool **operator<=** (const _Rope_iterator< _CharT, _Alloc > &__x, const _Rope_iterator< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  bool **operator<=** (const _Rope_const_iterator< _CharT, _Alloc > &__x, const _Rope_const_iterator< _CharT, _Alloc > &__y)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool operator== (const __versa_string< _CharT, _Traits, _Alloc, _Base > &_lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool operator== (const _CharT *__lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _CharT , template< typename, typename, typename > class _Base>
  __enable_if< std::__is_char< _CharT >::__value, bool >::__type **operator==** (const __versa_string< _CharT, std::char_traits< _CharT >, std::allocator< _CharT >, _Base > &__lhs, const __versa_string< _CharT, std::char_traits< _CharT >, std::allocator< _CharT >, _Base > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool operator== (const __versa_string< _CharT, _Traits, _Alloc, _Base > &_lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _Tp , typename _Cond >
  bool **operator==** (const throw_allocator_base< _Tp, _Cond > &, const throw_allocator_base< _Tp, _Cond > &)
- template<typename _Cond >
  bool **operator==** (const throw_value_base< _Cond > &__a, const throw_value_base< _Cond > &__b)
- template<typename _Tp >
  bool **operator==** (const __pool_alloc< _Tp > &, const __pool_alloc< _Tp > &)
- template<typename _Tp >
  bool operator== (const _Pointer_adapter< _Tp > &__lhs, const _Pointer_adapter< _Tp > &__rhs)

- template<typename _Tp >
  bool **operator==** (int __lhs, const _Pointer_adapter< _Tp > &__rhs)
- template<typename _Tp >
  bool **operator==** (const _Pointer_adapter< _Tp > &__lhs, int __rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **operator==** (const _Pointer_adapter< _Tp1 > &__lhs, const _Pointer_adapter< _Tp2 > &__rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **operator==** (_Tp1 __lhs, const _Pointer_adapter< _Tp2 > &__rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **operator==** (const _Pointer_adapter< _Tp1 > &__lhs, _Tp2 __rhs)
- template<typename V , typename I , typename S >
  bool **operator==** (const character< V, I, S > &lhs, const character< V, I, S > &rhs)
- template<typename _Tp >
  bool **operator==** (const new_allocator< _Tp > &, const new_allocator< _Tp > &)
- template<typename _Tp , typename _Poolp >
  bool **operator==** (const __mt_alloc< _Tp, _Poolp > &, const __mt_alloc< _Tp, _Poolp > &)
- template<typename _Tp >
  bool **operator==** (const malloc_allocator< _Tp > &, const malloc_allocator< _Tp > &)
- template<typename _Tp1 , typename _Tp2 >
  bool **operator==** (const bitmap_allocator< _Tp1 > &, const bitmap_allocator< _Tp2 > &) throw ()
- template<typename _Tp , typename _Array >
  bool **operator==** (const array_allocator< _Tp, _Array > &, const array_allocator< _Tp, _Array > &)
- template<typename _Iterator , typename _Container >
  bool **operator==** (const __normal_iterator< _Iterator, _Container > &__lhs, const __normal_iterator< _Iterator, _Container > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Container >
  bool **operator==** (const __normal_iterator< _IteratorL, _Container > &__lhs, const __normal_iterator< _IteratorR, _Container > &__rhs)
- template<class _Val , class _Key , class _HF , class _Ex , class _Eq , class _All >
  bool **operator==** (const hashtable< _Val, _Key, _HF, _Ex, _Eq, _All > &__ht1, const hashtable< _Val, _Key, _HF, _Ex, _Eq, _All > &__ht2)
- template<class _Tp , class _Alloc >
  bool **operator==** (const slist< _Tp, _Alloc > &_SL1, const slist< _Tp, _Alloc > &_SL2)
- template<class _CharT , class _Alloc >
  bool **operator==** (const rope< _CharT, _Alloc > &__left, const rope< _CharT, _Alloc > &__right)

- template<class _CharT , class _Alloc >
  bool **operator==** (const _Rope_iterator< _CharT, _Alloc > &__x, const _Rope_iterator< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  bool **operator==** (const _Rope_const_iterator< _CharT, _Alloc > &__x, const _Rope_const_iterator< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  bool **operator==** (const _Rope_char_ptr_proxy< _CharT, _Alloc > &__x, const _Rope_char_ptr_proxy< _CharT, _Alloc > &__y)
- template<class _Val , class _HashFcn , class _EqualKey , class _Alloc >
  bool **operator==** (const hash_multiset< _Val, _HashFcn, _EqualKey, _Alloc > &__hs1, const hash_multiset< _Val, _HashFcn, _EqualKey, _Alloc > &__hs2)
- template<class _Value , class _HashFcn , class _EqualKey , class _Alloc >
  bool **operator==** (const hash_set< _Value, _HashFcn, _EqualKey, _Alloc > &__hs1, const hash_set< _Value, _HashFcn, _EqualKey, _Alloc > &__hs2)
- template<class _Key , class _Tp , class _HF , class _EqKey , class _Alloc >
  bool **operator==** (const hash_multimap< _Key, _Tp, _HF, _EqKey, _Alloc > &__hm1, const hash_multimap< _Key, _Tp, _HF, _EqKey, _Alloc > &__hm2)

- template<class _Key , class _Tp , class _HashFn , class _EqlKey , class _Alloc >
  bool **operator==** (const hash_map< _Key, _Tp, _HashFn, _EqlKey, _Alloc > &__hm1, const hash_map< _Key, _Tp, _HashFn, _EqlKey, _Alloc > &__hm2)

- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool operator> (const _CharT *__lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool operator> (const __versa_string< _CharT, _Traits, _Alloc, _Base > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool operator> (const __versa_string< _CharT, _Traits, _Alloc, _Base > &__lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _Tp >
  bool **operator**> (const _Pointer_adapter< _Tp > &__lhs, const _Pointer_adapter< _Tp > &__rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **operator**> (const _Pointer_adapter< _Tp1 > &__lhs, const _Pointer_adapter< _Tp2 > &__rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **operator**> (_Tp1 __lhs, const _Pointer_adapter< _Tp2 > &__rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **operator**> (const _Pointer_adapter< _Tp1 > &__lhs, _Tp2 __rhs)

- template<typename _Iterator , typename _Container >
  bool **operator**> (const __normal_iterator< _Iterator, _Container > &__lhs, const __normal_iterator< _Iterator, _Container > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Container >
  bool **operator**> (const __normal_iterator< _IteratorL, _Container > &__lhs, const __normal_iterator< _IteratorR, _Container > &__rhs)
- template<class _Tp , class _Alloc >
  bool **operator**> (const slist< _Tp, _Alloc > &_SL1, const slist< _Tp, _Alloc > &_SL2)
- template<class _CharT , class _Alloc >
  bool **operator**> (const rope< _CharT, _Alloc > &__x, const rope< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  bool **operator**> (const _Rope_iterator< _CharT, _Alloc > &__x, const _Rope_iterator< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  bool **operator**> (const _Rope_const_iterator< _CharT, _Alloc > &__x, const _Rope_const_iterator< _CharT, _Alloc > &__y)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool operator>= (const _CharT *__lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool operator>= (const __versa_string< _CharT, _Traits, _Alloc, _Base > &_lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool operator>= (const __versa_string< _CharT, _Traits, _Alloc, _Base > &_lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _Tp >
  bool **operator>=** (const _Pointer_adapter< _Tp > &__lhs, const _Pointer_adapter< _Tp > &__rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **operator>=** (const _Pointer_adapter< _Tp1 > &__lhs, const _Pointer_adapter< _Tp2 > &__rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **operator>=** (_Tp1 __lhs, const _Pointer_adapter< _Tp2 > &__rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **operator>=** (const _Pointer_adapter< _Tp1 > &__lhs, _Tp2 __rhs)
- template<typename _Iterator , typename _Container >
  bool **operator>=** (const __normal_iterator< _Iterator, _Container > &__lhs, const __normal_iterator< _Iterator, _Container > &__rhs)

- template<typename _IteratorL , typename _IteratorR , typename _Container >
  bool **operator>=** (const __normal_iterator< _IteratorL, _Container > &__lhs, const __normal_iterator< _IteratorR, _Container > &__rhs)
- template<class _Tp , class _Alloc >
  bool **operator>=** (const slist< _Tp, _Alloc > &_SL1, const slist< _Tp, _Alloc > &_SL2)
- template<class _CharT , class _Alloc >
  bool **operator>=** (const rope< _CharT, _Alloc > &__x, const rope< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  bool **operator>=** (const _Rope_iterator< _CharT, _Alloc > &__x, const _Rope_iterator< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  bool **operator>=** (const _Rope_const_iterator< _CharT, _Alloc > &__x, const _Rope_const_iterator< _CharT, _Alloc > &__y)
- template<typename _Tp , typename _Integer >
  _Tp power (_Tp __x, _Integer __n)
- template<typename _Tp , typename _Integer , typename _MonoidOperation >
  _Tp power (_Tp __x, _Integer __n, _MonoidOperation __monoid_op)
- template<typename _InputIterator , typename _RandomAccessIterator , typename _RandomNumberGenerator >
  _RandomAccessIterator random_sample (_InputIterator __first, _InputIterator __last, _RandomAccessIterator __out_first, _RandomAccessIterator __out_last, _RandomNumberGenerator &__rand)
- template<typename _InputIterator , typename _RandomAccessIterator >
  _RandomAccessIterator random_sample (_InputIterator __first, _InputIterator __last, _RandomAccessIterator __out_first, _RandomAccessIterator __out_last)
- template<typename _ForwardIterator , typename _OutputIterator , typename _Distance , typename _RandomNumberGenerator >
  _OutputIterator random_sample_n (_ForwardIterator __first, _ForwardIterator __last, _OutputIterator __out, const _Distance __n, _RandomNumberGenerator &__rand)
- template<typename _ForwardIterator , typename _OutputIterator , typename _Distance >
  _OutputIterator random_sample_n (_ForwardIterator __first, _ForwardIterator __last, _OutputIterator __out, const _Distance __n)
- void **rotate** (_Rope_iterator< char, __STL_DEFAULT_ALLOCATOR(char)> __first, _Rope_iterator< char, __STL_DEFAULT_ALLOCATOR(char)> __middle, _Rope_iterator< char, __STL_DEFAULT_ALLOCATOR(char)> __last)
- double **stod** (const __vstring &__str, std::size_t *__idx=0)
- float **stof** (const __vstring &__str, std::size_t *__idx=0)
- int **stoi** (const __vstring &__str, std::size_t *__idx=0, int __base=10)
- long **stol** (const __vstring &__str, std::size_t *__idx=0, int __base=10)
- long double **stold** (const __vstring &__str, std::size_t *__idx=0)

- long long **stoll** (const __vstring &__str, std::size_t *__idx=0, int __base=10)
- unsigned long **stoul** (const __vstring &__str, std::size_t *__idx=0, int __base=10)
- unsigned long long **stoull** (const __vstring &__str, std::size_t *__idx, int __base=10)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  void swap (__versa_string< _CharT, _Traits, _Alloc, _Base > &__lhs, __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _Cond >
  void **swap** (throw_value_base< _Cond > &__a, throw_value_base< _Cond > &__b)
- template<typename _Tp >
  void **swap** (_ExtPtr_allocator< _Tp > &__larg, _ExtPtr_allocator< _Tp > &__rarg)
- template<class _Val , class _Key , class _HF , class _Extract , class _EqKey , class _All >
  void **swap** (hashtable< _Val, _Key, _HF, _Extract, _EqKey, _All > &__ht1, hashtable< _Val, _Key, _HF, _Extract, _EqKey, _All > &__ht2)
- template<class _Tp , class _Alloc >
  void **swap** (slist< _Tp, _Alloc > &__x, slist< _Tp, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  void **swap** (rope< _CharT, _Alloc > &__x, rope< _CharT, _Alloc > &__y)
- template<class _CharT , class __Alloc >
  void **swap** (_Rope_char_ref_proxy< _CharT, __Alloc > __a, _Rope_char_ref_proxy< _CharT, __Alloc > __b)
- template<class _Val , class _HashFcn , class _EqualKey , class _Alloc >
  void **swap** (hash_multiset< _Val, _HashFcn, _EqualKey, _Alloc > &__hs1, hash_multiset< _Val, _HashFcn, _EqualKey, _Alloc > &__hs2)
- template<class _Val , class _HashFcn , class _EqualKey , class _Alloc >
  void **swap** (hash_set< _Val, _HashFcn, _EqualKey, _Alloc > &__hs1, hash_set< _Val, _HashFcn, _EqualKey, _Alloc > &__hs2)
- template<class _Key , class _Tp , class _HashFn , class _EqlKey , class _Alloc >
  void **swap** (hash_multimap< _Key, _Tp, _HashFn, _EqlKey, _Alloc > &__hm1, hash_multimap< _Key, _Tp, _HashFn, _EqlKey, _Alloc > &__hm2)
- template<class _Key , class _Tp , class _HashFn , class _EqlKey , class _Alloc >
  void **swap** (hash_map< _Key, _Tp, _HashFn, _EqlKey, _Alloc > &__hm1, hash_map< _Key, _Tp, _HashFn, _EqlKey, _Alloc > &__hm2)
- __vstring **to_string** (long double __val)
- __vstring **to_string** (double __val)
- __vstring **to_string** (float __val)
- __vstring **to_string** (unsigned long long __val)
- __vstring **to_string** (long long __val)
- __vstring **to_string** (unsigned long __val)
- __vstring **to_string** (long __val)

- __vstring **to_string** (unsigned __val)
- __vstring **to_string** (int __val)
- __wvstring **to_wstring** (long double __val)
- __wvstring **to_wstring** (double __val)
- __wvstring **to_wstring** (float __val)
- __wvstring **to_wstring** (unsigned long long __val)
- __wvstring **to_wstring** (long long __val)
- __wvstring **to_wstring** (unsigned long __val)
- __wvstring **to_wstring** (long __val)
- __wvstring **to_wstring** (unsigned __val)
- __wvstring **to_wstring** (int __val)
- template<typename _InputIter , typename _Size , typename _ForwardIter > pair< _InputIter, _ForwardIter > uninitialized_copy_n (_InputIter __first, _Size __count, _ForwardIter __result)

Variables

- static const _Lock_policy **__default_lock_policy**
- static const unsigned long **__stl_prime_list** [_S_num_primes]
- static _Atomic_word int __val **__val**
- rope< _CharT, _Alloc > **identity_element** (_Rope_Concat_fn< _CharT, _Alloc >)

4.1.1 Detailed Description

GNU extensions for public use.

4.1.2 Function Documentation

4.1.2.1 template<typename _ToType , typename _FromType > _ToType __gnu_cxx::__static_pointer_cast (_FromType * *__arg*) [inline]

Casting operations for cases where _FromType is a standard pointer. _ToType can be a standard or non-standard pointer.

Definition at line 89 of file cast.h.

References __static_pointer_cast().

4.1.2.2 template<typename _ToType , typename _FromType > _ToType __gnu_cxx::__static_pointer_cast (const _FromType & *__arg*) [inline]

Casting operations for cases where _FromType is not a standard pointer. _ToType can be a standard or non-standard pointer. Given that _FromType is not a pointer, it must have a get() method that returns the standard pointer equivalent of the address it points to, and must have an element_type typedef which names the type it points to.

Definition at line 61 of file cast.h.

References __static_pointer_cast().

Referenced by __static_pointer_cast().

4.1.2.3 size_t __gnu_cxx::_Bit_scan_forward (size_t *__num*) [inline]

Generic Version of the bsf instruction.

Definition at line 513 of file bitmap_allocator.h.

Referenced by __gnu_cxx::bitmap_allocator< _Tp >::_M_allocate_single_object().

4.1.2.4 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> bool __gnu_cxx::operator!= (const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__lhs*, const _CharT * *__rhs*) [inline]

Test difference of string and C string.

Parameters:

__lhs String.

__rhs C string.

Returns:

True if *__lhs.compare*(*__rhs*) != 0. False otherwise.

Definition at line 2189 of file vstring.h.

4.1.2.5 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> bool __gnu_cxx::operator!= (const _CharT * *__lhs*, const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__rhs*) [inline]

Test difference of C string and string.

Parameters:

__lhs C string.

__rhs String.

Returns:

True if *__rhs.compare*(*__lhs*) != 0. False otherwise.

Definition at line 2176 of file vstring.h.

4.1.2.6 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> bool __gnu_cxx::operator!= (const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__lhs*, const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__rhs*) [inline]

Test difference of two strings.

Parameters:

__lhs First string.

__rhs Second string.

Returns:

True if *__lhs.compare*(*__rhs*) != 0. False otherwise.

Definition at line 2163 of file vstring.h.

4.1.2.7 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> __versa_string< _CharT, _Traits, _Alloc, _Base > __gnu_cxx::operator+ (const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__lhs*, _CharT *__rhs*) [inline]

Concatenate string and character.

Parameters:

__lhs First string.

__rhs Last string.

Returns:

New string with *__lhs* followed by *__rhs*.

Definition at line 239 of file vstring.tcc.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::append(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::push_back(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::reserve(), and __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size().

4.1.2.8 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> __versa_string< _CharT, _Traits, _Alloc, _Base > __gnu_cxx::operator+ (const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__lhs*, const _CharT * *__rhs*) [inline]

Concatenate string and C string.

Parameters:

__lhs First string.

__rhs Last string.

Returns:

New string with *__lhs* followed by *__rhs*.

Definition at line 222 of file vstring.tcc.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size().

4.1.2.9 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> __versa_string< _CharT, _Traits, _Alloc, _Base > __gnu_cxx::operator+ (_CharT *__lhs*, const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__rhs*) [inline]

Concatenate character and string.

Parameters:

__lhs First string.

__rhs Last string.

Returns:

New string with *__lhs* followed by *__rhs*.

Definition at line 209 of file vstring.tcc.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::append(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::push_back(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::reserve(), and __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size().

4.1.2.10 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> __versa_string< _CharT, _Traits, _Alloc, _Base > __gnu_cxx::operator+ (const _CharT * *__lhs*, const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__rhs*) [inline]

Concatenate C string and string.

Parameters:

__lhs First string.

__rhs Last string.

Returns:

New string with value of *__lhs* followed by *__rhs*.

Definition at line 192 of file vstring.tcc.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size().

4.1.2.11 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> __versa_string< _CharT, _Traits, _Alloc, _Base > __gnu_cxx::operator+ (const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__lhs*, const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__rhs*) [inline]

Concatenate two strings.

Parameters:

__lhs First string.

__rhs Last string.

Returns:

New string with value of *__lhs* followed by *__rhs*.

Definition at line 179 of file vstring.tcc.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::append(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::reserve(), and __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size().

4.1.2.12 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> bool __gnu_cxx::operator< (const _CharT * *__lhs*, const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__rhs*) [inline]

Test if C string precedes string.

Parameters:

__lhs C string.

__rhs String.

Returns:

True if *__lhs* precedes *__rhs*. False otherwise.

Definition at line 2229 of file vstring.h.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::compare().

4.1.2.13 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> bool __gnu_cxx::operator< (const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__lhs*, const _CharT * *__rhs*) [inline]

Test if string precedes C string.

Parameters:

__lhs String.

__rhs C string.

Returns:

True if *__lhs* precedes *__rhs*. False otherwise.

Definition at line 2216 of file vstring.h.

4.1.2.14 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> bool __gnu_cxx::operator< (const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__lhs*, const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__rhs*) [inline]

Test if string precedes string.

Parameters:

__lhs First string.

__rhs Second string.

Returns:

True if *__lhs* precedes *__rhs*. False otherwise.

Definition at line 2203 of file vstring.h.

4.1.2.15 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> bool __gnu_cxx::operator<= (const _CharT * *__lhs*, const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__rhs*) [inline]

Test if C string doesn't follow string.

Parameters:

__lhs C string.

__rhs String.

Returns:

True if *__lhs* doesn't follow *__rhs*. False otherwise.

Definition at line 2309 of file vstring.h.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::compare().

4.1.2.16 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> bool __gnu_cxx::operator<= (const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__lhs*, const _CharT * *__rhs*) [inline]

Test if string doesn't follow C string.

Parameters:

__lhs String.

__rhs C string.

Returns:

True if *__lhs* doesn't follow *__rhs*. False otherwise.

Definition at line 2296 of file vstring.h.

4.1.2.17 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> bool __gnu_cxx::operator<= (const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__lhs*, const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__rhs*) [inline]

Test if string doesn't follow string.

Parameters:

__lhs First string.

__rhs Second string.

Returns:

True if *__lhs* doesn't follow *__rhs*. False otherwise.

Definition at line 2283 of file vstring.h.

4.1.2.18 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> bool __gnu_cxx::operator== (const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__lhs*, const _CharT * *__rhs*) [inline]

Test equivalence of string and C string.

Parameters:

__lhs String.

__rhs C string.

Returns:

True if *__lhs.compare*(*__rhs*) == 0. False otherwise.

Definition at line 2149 of file vstring.h.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::compare().

4.1.2.19 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> bool __gnu_cxx::operator== (const _CharT * *__lhs*, const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__rhs*) [inline]

Test equivalence of C string and string.

Parameters:

__lhs C string.

__rhs String.

Returns:

True if *__rhs.compare*(*__lhs*) == 0. False otherwise.

Definition at line 2136 of file vstring.h.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::compare().

4.1.2.20 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> bool __gnu_cxx::operator== (const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__lhs*, const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__rhs*) [inline]

Test equivalence of two strings.

Parameters:

__lhs First string.

__rhs Second string.

Returns:

True if *__lhs.compare*(*__rhs*) == 0. False otherwise.

Definition at line 2112 of file vstring.h.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::compare().

4.1.2.21 template<typename _Tp > bool __gnu_cxx::operator== (const _Pointer_adapter< _Tp > & *__lhs*, const _Pointer_adapter< _Tp > & *__rhs*) [inline]

Comparison operators for _Pointer_adapter defer to the base class'es comparison operators, when possible.

Definition at line 529 of file pointer.h.

4.1.2.22 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> bool __gnu_cxx::operator> (const _CharT * *__lhs*, const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__rhs*) [inline]

Test if C string follows string.

Parameters:

__lhs C string.

__rhs String.

Returns:

True if *__lhs* follows *__rhs*. False otherwise.

Definition at line 2269 of file vstring.h.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::compare().

4.1.2.23 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> bool __gnu_cxx::operator> (const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__lhs*, const _CharT * *__rhs*) [inline]

Test if string follows C string.

Parameters:

__lhs String.

__rhs C string.

Returns:

True if *__lhs* follows *__rhs*. False otherwise.

Definition at line 2256 of file vstring.h.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::compare().

4.1.2.24 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> bool __gnu_cxx::operator> (const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__lhs*, const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__rhs*) [inline]

Test if string follows string.

Parameters:

__lhs First string.

__rhs Second string.

Returns:

True if *__lhs* follows *__rhs*. False otherwise.

Definition at line 2243 of file vstring.h.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::compare().

4.1.2.25 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> bool __gnu_cxx::operator>= (const _CharT * *__lhs*, const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__rhs*) [inline]

Test if C string doesn't precede string.

Parameters:

__lhs C string.

__rhs String.

Returns:

True if *__lhs* doesn't precede *__rhs*. False otherwise.

Definition at line 2349 of file vstring.h.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::compare().

4.1.2.26 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> bool __gnu_cxx::operator>= (const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__lhs*, const _CharT * *__rhs*) [inline]

Test if string doesn't precede C string.

Parameters:

__lhs String.

__rhs C string.

Returns:

True if *__lhs* doesn't precede *__rhs*. False otherwise.

Definition at line 2336 of file vstring.h.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::compare().

4.1.2.27 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> bool __gnu_cxx::operator>= (const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__lhs*, const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__rhs*) [inline]

Test if string doesn't precede string.

Parameters:

__lhs First string.

__rhs Second string.

Returns:

True if *__lhs* doesn't precede *__rhs*. False otherwise.

Definition at line 2323 of file vstring.h.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::compare().

4.1.2.28 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> void __gnu_cxx::swap (__versa_string< _CharT, _Traits, _Alloc, _Base > & *__lhs*, __versa_string< _CharT, _Traits, _Alloc, _Base > & *__rhs*) [inline]

Swap contents of two strings.

Parameters:

__lhs First string.

__rhs Second string.

Exchanges the contents of *__lhs* and *__rhs* in constant time.

Definition at line 2363 of file vstring.h.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::swap().

4.2 __gnu_cxx::__detail Namespace Reference

Implementation details not part of the namespace __gnu_cxx interface.

Classes

- class __mini_vector

  __mini_vector<> is a stripped down version of the full-fledged std::vector<>.

- class _Bitmap_counter

  The bitmap counter which acts as the bitmap manipulator, and manages the bit-manipulation functions and the searching and identification functions on the bit-map.

- class _Ffit_finder

  The class which acts as a predicate for applying the first-fit memory allocation policy for the bitmap allocator.

Enumerations

- enum { **_S_max_rope_depth** }
- enum { **bits_per_byte**, **bits_per_block** }
- enum **_Tag** { **_S_leaf**, **_S_concat**, **_S_substringfn**, **_S_function** }

Functions

- void __bit_allocate (size_t *__pbmap, size_t __pos) throw ()
- void __bit_free (size_t *__pbmap, size_t __pos) throw ()
- template<typename _ForwardIterator , typename _Tp , typename _Compare >
  _ForwardIterator **__lower_bound** (_ForwardIterator __first, _ForwardIterator _-_last, const _Tp &__val, _Compare __comp)
- template<typename _AddrPair >
  size_t __num_bitmaps (_AddrPair __ap)
- template<typename _AddrPair >
  size_t __num_blocks (_AddrPair __ap)

4.2.1 Detailed Description

Implementation details not part of the namespace __gnu_cxx interface.

4.2.2 Function Documentation

4.2.2.1 void __gnu_cxx::__detail::__bit_allocate (size_t * *__pbmap*, size_t *__pos*) throw () [inline]

Mark a memory address as allocated by re-setting the corresponding bit in the bit-map.

Definition at line 492 of file bitmap_allocator.h.

Referenced by __gnu_cxx::bitmap_allocator< _Tp >::_M_allocate_single_object().

4.2.2.2 void __gnu_cxx::__detail::__bit_free (size_t * *__pbmap*, size_t *__pos*) throw () [inline]

Mark a memory address as free by setting the corresponding bit in the bit-map.

Definition at line 503 of file bitmap_allocator.h.

Referenced by __gnu_cxx::bitmap_allocator< _Tp >::_M_deallocate_single_object().

4.2.2.3 template<typename _AddrPair > size_t __gnu_cxx::__detail::__num_bitmaps (_AddrPair *__ap*) [inline]

The number of Bit-maps pointed to by the address pair passed to the function.

Definition at line 280 of file bitmap_allocator.h.

References __num_blocks().

Referenced by __gnu_cxx::bitmap_allocator< _Tp >::_M_allocate_single_object(), and __gnu_cxx::bitmap_allocator< _Tp >::_M_deallocate_single_object().

4.2.2.4 template<typename _AddrPair > size_t __gnu_cxx::__detail::__num_blocks (_AddrPair *__ap*) [inline]

The number of Blocks pointed to by the address pair passed to the function.

Definition at line 272 of file bitmap_allocator.h.

Referenced by __num_bitmaps().

4.3 __gnu_cxx::typelist Namespace Reference

GNU typelist extensions for public compile-time use.

Functions

- template<typename Fn , typename Typelist >
  void **apply** (Fn &, Typelist)
- template<typename Fn , typename TypelistT , typename TypelistV >
  void **apply_generator** (Fn &fn, TypelistT, TypelistV)
- template<typename Fn , typename Typelist >
  void **apply_generator** (Fn &fn, Typelist)
- template<typename Gn , typename TypelistT , typename TypelistV >
  void **apply_generator** (Gn &, TypelistT, TypelistV)
- template<typename Gn , typename Typelist >
  void apply_generator (Gn &, Typelist)

4.3.1 Detailed Description

GNU typelist extensions for public compile-time use.

4.3.2 Function Documentation

4.3.2.1 template<typename Gn , typename Typelist > void __gnu_cxx::typelist::apply_generator (Gn &, Typelist) [inline]

Apply all typelist types to generator functor.

4.4 __gnu_debug Namespace Reference

GNU debug classes for public use.

Classes

- struct __is_same
- class _After_nth_from
- class _Not_equal_to
- class _Safe_iterator

  Safe iterator wrapper.

- class _Safe_iterator_base

  Basic functionality for a safe iterator.

- class _Safe_sequence

  Base class for constructing a safe sequence type that tracks iterators that reference it.

- class _Safe_sequence_base

  Base class that supports tracking of iterators that reference a sequence.

- class basic_string

  Class std::basic_string with safety/checking/debug instrumentation.

Typedefs

- typedef basic_string< char > **string**
- typedef basic_string< wchar_t > **wstring**

Enumerations

- enum **_Debug_msg_id** {

  __msg_valid_range, **__msg_insert_singular**, **__msg_insert_different**, **__msg_erase_bad**,

  __msg_erase_different, **__msg_subscript_oob**, **__msg_empty**, **__msg_unpartitioned**,

  __msg_unpartitioned_pred, **__msg_unsorted**, **__msg_unsorted_pred**, **__msg_not_heap**,

  __msg_not_heap_pred, **__msg_bad_bitset_write**, **__msg_bad_bitset_read**, **__msg_bad_bitset_flip**,

__msg_self_splice, **__msg_splice_alloc**, **__msg_splice_bad**, **__msg_splice_other**,

__msg_splice_overlap, **__msg_init_singular**, **__msg_init_copy_singular**, **__msg_init_const_singular**,

__msg_copy_singular, **__msg_bad_deref**, **__msg_bad_inc**, **__msg_bad_dec**,

__msg_iter_subscript_oob, **__msg_advance_oob**, **__msg_retreat_oob**, **__msg_iter_compare_bad**,

__msg_compare_different, **__msg_iter_order_bad**, **__msg_order_different**, **__msg_distance_bad**,

__msg_distance_different, **__msg_deref_istream**, **__msg_inc_istream**, **__msg_output_ostream**,

__msg_deref_istreambuf, **__msg_inc_istreambuf** }

Functions

- template<typename _Iterator , typename _Sequence >
  bool __check_dereferenceable (const _Safe_iterator< _Iterator, _Sequence > &__x)
- template<typename _Tp >
  bool __check_dereferenceable (const _Tp *__ptr)
- template<typename _Iterator >
  bool __check_dereferenceable (_Iterator &)
- template<typename _ForwardIterator , typename _Tp , typename _Pred >
  bool **__check_partitioned_lower** (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__value, _Pred __pred)
- template<typename _ForwardIterator , typename _Tp >
  bool **__check_partitioned_lower** (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__value)
- template<typename _ForwardIterator , typename _Tp , typename _Pred >
  bool **__check_partitioned_upper** (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__value, _Pred __pred)
- template<typename _ForwardIterator , typename _Tp >
  bool **__check_partitioned_upper** (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__value)
- template<typename _Iterator , typename _Sequence >
  bool __check_singular (const _Safe_iterator< _Iterator, _Sequence > &__x)
- template<typename _Tp >
  bool __check_singular (const _Tp *__ptr)
- template<typename _Iterator >
  bool **__check_singular** (_Iterator &__x)
- bool __check_singular_aux (const _Safe_iterator_base *__x)
- bool **__check_singular_aux** (const void *)

- template<typename _InputIterator , typename _Predicate >
  bool **__check_sorted** (const _InputIterator &__first, const _InputIterator &__last, _Predicate __pred)
- template<typename _InputIterator >
  bool **__check_sorted** (const _InputIterator &__first, const _InputIterator &__last)
- template<typename _ForwardIterator , typename _Predicate >
  bool **__check_sorted_aux** (_ForwardIterator __first, _ForwardIterator __last, _Predicate __pred, std::forward_iterator_tag)
- template<typename _InputIterator , typename _Predicate >
  bool **__check_sorted_aux** (const _InputIterator &, const _InputIterator &, _Predicate, std::input_iterator_tag)
- template<typename _ForwardIterator >
  bool **__check_sorted_aux** (_ForwardIterator __first, _ForwardIterator __last, std::forward_iterator_tag)
- template<typename _InputIterator >
  bool **__check_sorted_aux** (const _InputIterator &, const _InputIterator &, std::input_iterator_tag)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _Predicate >
  bool **__check_sorted_set** (const _InputIterator1 &__first, const _InputIterator1 &__last, const _InputIterator2 &, _Predicate __pred)
- template<typename _InputIterator1 , typename _InputIterator2 >
  bool **__check_sorted_set** (const _InputIterator1 &__first, const _InputIterator1 &__last, const _InputIterator2 &)
- template<typename _InputIterator , typename _Predicate >
  bool **__check_sorted_set_aux** (const _InputIterator &, const _InputIterator &, _Predicate, std::__false_type)
- template<typename _InputIterator , typename _Predicate >
  bool **__check_sorted_set_aux** (const _InputIterator &__first, const _InputIterator &__last, _Predicate __pred, std::__true_type)
- template<typename _InputIterator >
  bool **__check_sorted_set_aux** (const _InputIterator &, const _InputIterator &, std::__false_type)
- template<typename _InputIterator >
  bool **__check_sorted_set_aux** (const _InputIterator &__first, const _InputIterator &__last, std::__true_type)
- template<typename _CharT >
  const _CharT * __check_string (const _CharT *__s)
- template<typename _CharT , typename _Integer >
  const _CharT * __check_string (const _CharT *__s, const _Integer &__n __attribute__((__unused__)))
- template<typename _InputIterator >
  _InputIterator **__check_valid_range** (const _InputIterator &__first, const _InputIterator &__last __attribute__((__unused__)))

- template<typename _Iterator , typename _Sequence >
  bool __valid_range (const _Safe_iterator< _Iterator, _Sequence > &__first, const _Safe_iterator< _Iterator, _Sequence > &__last)
- template<typename _InputIterator >
  bool __valid_range (const _InputIterator &__first, const _InputIterator &__last)
- template<typename _InputIterator >
  bool __valid_range_aux (const _InputIterator &__first, const _InputIterator &_-_last, std::__false_type)
- template<typename _Integral >
  bool __valid_range_aux (const _Integral &, const _Integral &, std::__true_type)
- template<typename _InputIterator >
  bool __valid_range_aux2 (const _InputIterator &, const _InputIterator &, std::input_iterator_tag)
- template<typename _RandomAccessIterator >
  bool __valid_range_aux2 (const _RandomAccessIterator &__first, const _-RandomAccessIterator &__last, std::random_access_iterator_tag)
- template<typename _CharT , typename _Traits , typename _Allocator >
  std::basic_istream< _CharT, _Traits > & **getline** (std::basic_istream< _CharT, _Traits > &__is, basic_string< _CharT, _Traits, _Allocator > &__str)
- template<typename _CharT , typename _Traits , typename _Allocator >
  std::basic_istream< _CharT, _Traits > & **getline** (std::basic_istream< _CharT, _Traits > &__is, basic_string< _CharT, _Traits, _Allocator > &__str, _CharT __delim)
- template<typename _Iterator , typename _Sequence >
  bool **operator!=** (const _Safe_iterator< _Iterator, _Sequence > &__lhs, const _Safe_iterator< _Iterator, _Sequence > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Sequence >
  bool **operator!=** (const _Safe_iterator< _IteratorL, _Sequence > &__lhs, const _Safe_iterator< _IteratorR, _Sequence > &__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
  bool **operator!=** (const basic_string< _CharT, _Traits, _Allocator > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
  bool **operator!=** (const _CharT *__lhs, const basic_string< _CharT, _Traits, _-Allocator > &__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
  bool **operator!=** (const basic_string< _CharT, _Traits, _Allocator > &__lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)
- template<typename _Iterator , typename _Sequence >
  _Safe_iterator< _Iterator, _Sequence > **operator+** (typename _Safe_iterator< _Iterator, _Sequence >::difference_type __n, const _Safe_iterator< _Iterator, _-Sequence > &__i)
- template<typename _CharT , typename _Traits , typename _Allocator >
  basic_string< _CharT, _Traits, _Allocator > **operator+** (const basic_string< _CharT, _Traits, _Allocator > &__lhs, _CharT __rhs)

- template<typename _CharT , typename _Traits , typename _Allocator >
  basic_string< _CharT, _Traits, _Allocator > **operator+** (const basic_string< _CharT, _Traits, _Allocator > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
  basic_string< _CharT, _Traits, _Allocator > **operator+** (_CharT __lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
  basic_string< _CharT, _Traits, _Allocator > **operator+** (const _CharT *__lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
  basic_string< _CharT, _Traits, _Allocator > **operator+** (const basic_string< _CharT, _Traits, _Allocator > &__lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)
- template<typename _Iterator , typename _Sequence >
  _Safe_iterator< _Iterator, _Sequence >::difference_type **operator-** (const _Safe_iterator< _Iterator, _Sequence > &__lhs, const _Safe_iterator< _Iterator, _Sequence > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Sequence >
  _Safe_iterator< _IteratorL, _Sequence >::difference_type **operator-** (const _Safe_iterator< _IteratorL, _Sequence > &__lhs, const _Safe_iterator< _IteratorR, _Sequence > &__rhs)
- template<typename _Iterator , typename _Sequence >
  bool **operator**< (const _Safe_iterator< _Iterator, _Sequence > &__lhs, const _Safe_iterator< _Iterator, _Sequence > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Sequence >
  bool **operator**< (const _Safe_iterator< _IteratorL, _Sequence > &__lhs, const _Safe_iterator< _IteratorR, _Sequence > &__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
  bool **operator**< (const basic_string< _CharT, _Traits, _Allocator > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
  bool **operator**< (const _CharT *__lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
  bool **operator**< (const basic_string< _CharT, _Traits, _Allocator > &__lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
  std::basic_ostream< _CharT, _Traits > & **operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const basic_string< _CharT, _Traits, _Allocator > &__str)
- template<typename _Iterator , typename _Sequence >
  bool **operator**<= (const _Safe_iterator< _Iterator, _Sequence > &__lhs, const _Safe_iterator< _Iterator, _Sequence > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Sequence >
  bool **operator**<= (const _Safe_iterator< _IteratorL, _Sequence > &__lhs, const _Safe_iterator< _IteratorR, _Sequence > &__rhs)

- template<typename _CharT , typename _Traits , typename _Allocator >
  bool **operator<=** (const basic_string< _CharT, _Traits, _Allocator > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
  bool **operator<=** (const _CharT *__lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
  bool **operator<=** (const basic_string< _CharT, _Traits, _Allocator > &__lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)
- template<typename _Iterator , typename _Sequence >
  bool **operator==** (const _Safe_iterator< _Iterator, _Sequence > &__lhs, const _Safe_iterator< _Iterator, _Sequence > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Sequence >
  bool **operator==** (const _Safe_iterator< _IteratorL, _Sequence > &__lhs, const _Safe_iterator< _IteratorR, _Sequence > &__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
  bool **operator==** (const basic_string< _CharT, _Traits, _Allocator > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
  bool **operator==** (const _CharT *__lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
  bool **operator==** (const basic_string< _CharT, _Traits, _Allocator > &__lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)
- template<typename _Iterator , typename _Sequence >
  bool **operator>** (const _Safe_iterator< _Iterator, _Sequence > &__lhs, const _Safe_iterator< _Iterator, _Sequence > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Sequence >
  bool **operator>** (const _Safe_iterator< _IteratorL, _Sequence > &__lhs, const _Safe_iterator< _IteratorR, _Sequence > &__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
  bool **operator>** (const basic_string< _CharT, _Traits, _Allocator > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
  bool **operator>** (const _CharT *__lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
  bool **operator>** (const basic_string< _CharT, _Traits, _Allocator > &__lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)
- template<typename _Iterator , typename _Sequence >
  bool **operator>=** (const _Safe_iterator< _Iterator, _Sequence > &__lhs, const _Safe_iterator< _Iterator, _Sequence > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Sequence >
  bool **operator>=** (const _Safe_iterator< _IteratorL, _Sequence > &__lhs, const _Safe_iterator< _IteratorR, _Sequence > &__rhs)

- template<typename _CharT , typename _Traits , typename _Allocator >
  bool **operator>=** (const basic_string< _CharT, _Traits, _Allocator > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
  bool **operator>=** (const _CharT *__lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
  bool **operator>=** (const basic_string< _CharT, _Traits, _Allocator > &__lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
  std::basic_istream< _CharT, _Traits > & **operator>>** (std::basic_istream< _CharT, _Traits > &__is, basic_string< _CharT, _Traits, _Allocator > &__str)
- template<typename _CharT , typename _Traits , typename _Allocator >
  void **swap** (basic_string< _CharT, _Traits, _Allocator > &__lhs, basic_string< _CharT, _Traits, _Allocator > &__rhs)

4.4.1 Detailed Description

GNU debug classes for public use.

4.4.2 Function Documentation

4.4.2.1 template<typename _Iterator , typename _Sequence > bool __gnu_debug::__check_dereferenceable (const _Safe_iterator< _Iterator, _Sequence > & *__x*) [inline]

Safe iterators know if they are singular.

Definition at line 82 of file functions.h.

References __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_dereferenceable().

4.4.2.2 template<typename _Tp > bool __gnu_debug::__check_dereferenceable (const _Tp * *__ptr*) [inline]

Non-NULL pointers are dereferenceable.

Definition at line 76 of file functions.h.

4.4.2.3 template<typename _Iterator > bool __gnu_debug::__check_dereferenceable (_Iterator &) [inline]

Assume that some arbitrary iterator is dereferenceable, because we can't prove that it isn't.

Definition at line 70 of file functions.h.

4.4.2.4 template<typename _Iterator , typename _Sequence > bool __gnu_debug::__check_singular (const _Safe_iterator< _Iterator, _Sequence > & *__x*) [inline]

Safe iterators know if they are singular.

Definition at line 63 of file functions.h.

4.4.2.5 template<typename _Tp > bool __gnu_debug::__check_singular (const _Tp * *__ptr*) [inline]

Non-NULL pointers are nonsingular.

Definition at line 57 of file functions.h.

4.4.2.6 bool __gnu_debug::__check_singular_aux (const _Safe_iterator_base * *__x*) [inline]

Iterators that derive from _Safe_iterator_base but that aren't _Safe_iterators can be determined singular or non-singular via _Safe_iterator_base.

Definition at line 48 of file safe_iterator.h.

4.4.2.7 template<typename _CharT > const _CharT* __gnu_debug::__check_string (const _CharT * *__s*) [inline]

Checks that __s is non-NULL and then returns __s.

Definition at line 176 of file functions.h.

4.4.2.8 template<typename _CharT , typename _Integer > const _CharT* __gnu_debug::__check_string (const _CharT * *__s*, const _Integer &__n *__attribute__*((__unused__)) [inline]

Checks that __s is non-NULL or __n == 0, and then returns __s.

Definition at line 164 of file functions.h.

4.4.2.9 template<typename _Iterator , typename _Sequence > bool __gnu_debug::__valid_range (const _Safe_iterator< _Iterator, _Sequence > & *__first*, const _Safe_iterator< _Iterator, _Sequence > & *__last*) [inline]

Safe iterators know how to check if they form a valid range.

Definition at line 143 of file functions.h.

4.4.2.10 template<typename _InputIterator > bool __gnu_debug::__valid_range (const _InputIterator & *__first*, const _InputIterator & *__last*) [inline]

Don't know what these iterators are, or if they are even iterators (we may get an integral type for InputIterator), so see if they are integral and pass them on to the next phase otherwise.

Definition at line 134 of file functions.h.

References __valid_range_aux().

4.4.2.11 template<typename _InputIterator > bool __gnu_debug::__valid_range_aux (const _InputIterator & *__first*, const _InputIterator & *__last*, std::__false_type) [inline]

We have iterators, so figure out what kind of iterators that are to see if we can check the range ahead of time.

Definition at line 119 of file functions.h.

References __valid_range_aux2().

4.4.2.12 template<typename _Integral > bool __gnu_debug::__valid_range_aux (const _Integral &, const _Integral &, std::__true_type) [inline]

We say that integral types for a valid range, and defer to other routines to realize what to do with integral types instead of iterators.

Definition at line 111 of file functions.h.

Referenced by __valid_range().

4.4.2.13 template<typename _InputIterator > bool __gnu_debug::__valid_range_aux2 (const _InputIterator &, const _InputIterator &, std::input_iterator_tag) [inline]

Can't test for a valid range with input iterators, because iteration may be destructive. So we just assume that the range is valid.

Definition at line 101 of file functions.h.

4.4.2.14 template<typename _RandomAccessIterator > bool __gnu_debug::__valid_range_aux2 (const _RandomAccessIterator & *__first*, const _RandomAccessIterator & *__last*, std::random_access_iterator_tag) [inline]

If the distance between two random access iterators is nonnegative, assume the range is valid.

Definition at line 90 of file functions.h.

Referenced by __valid_range_aux().

4.5 __gnu_internal Namespace Reference

GNU implemenation details, not for public use or export. Used only when anonymous namespaces cannot be substituted.

4.5.1 Detailed Description

GNU implemenation details, not for public use or export. Used only when anonymous namespaces cannot be substituted.

4.6 __gnu_parallel Namespace Reference

GNU parallel code for public use.

Classes

- struct __accumulate_binop_reduct

  General reduction, using a binary operator.

- struct __accumulate_selector

  std::accumulate() selector.

- struct __adjacent_difference_selector

  Selector that returns the difference between two adjacent __elements.

- struct __adjacent_find_selector

  Test predicate on two adjacent elements.

- class __binder1st

  Similar to std::binder1st, but giving the argument types explicitly.

- class __binder2nd

  Similar to std::binder2nd, but giving the argument types explicitly.

- struct __count_if_selector

  std::count_if () selector.

- struct __count_selector

  std::count() selector.

- struct __fill_selector

  std::fill() selector.

- struct __find_first_of_selector

  Test predicate on several elements.

- struct __find_if_selector

  Test predicate on a single element, used for std::find() and std::find_if ().

- struct __for_each_selector

  std::for_each() selector.

- struct __generate_selector
  std::generate() selector.
- struct __generic_find_selector
  Base class of all __gnu_parallel::__find_template selectors.
- struct __generic_for_each_selector
  Generic __selector for embarrassingly parallel functions.
- struct __identity_selector
  Selector that just returns the passed iterator.
- struct __inner_product_selector
  std::inner_product() selector.
- struct __max_element_reduct
  Reduction for finding the maximum element, using a comparator.
- struct __min_element_reduct
  Reduction for finding the maximum element, using a comparator.
- struct __mismatch_selector
  Test inverted predicate on a single element.
- struct __multiway_merge_3_variant_sentinel_switch
  Switch for 3-way merging with __sentinels turned off.
- struct __multiway_merge_3_variant_sentinel_switch< true, _RAIterIterator, _RAIter3, _DifferenceTp, _Compare >
  Switch for 3-way merging with __sentinels turned on.
- struct __multiway_merge_4_variant_sentinel_switch
  Switch for 4-way merging with __sentinels turned off.
- struct __multiway_merge_4_variant_sentinel_switch< true, _RAIterIterator, _RAIter3, _DifferenceTp, _Compare >
  Switch for 4-way merging with __sentinels turned on.
- struct __multiway_merge_k_variant_sentinel_switch
  Switch for k-way merging with __sentinels turned on.
- struct __multiway_merge_k_variant_sentinel_switch< false, __stable, _RAIterIterator, _RAIter3, _DifferenceTp, _Compare >

Switch for k-way merging with __sentinels turned off.

- struct __replace_if_selector

  std::replace() selector.

- struct __replace_selector

  std::replace() selector.

- struct __transform1_selector

  std::transform() __selector, one input sequence variant.

- struct __transform2_selector

  std::transform() __selector, two input sequences variant.

- class __unary_negate

  Similar to std::unary_negate, but giving the argument types explicitly.

- struct _DRandomShufflingGlobalData

  Data known to every thread participating in __gnu_parallel::__parallel_random_shuffle().

- struct _DRSSorterPU

  Local data for a thread participating in __gnu_parallel::__parallel_random_shuffle().

- struct _DummyReduct

  Reduction function doing nothing.

- class _EqualFromLess

  Constructs predicate for equality from strict weak ordering predicate.

- struct _EqualTo

  Similar to std::equal_to, but allows two different types.

- class _GuardedIterator

  _Iterator wrapper supporting an implicit supremum at the end of the sequence, dominating all comparisons.

- class _IteratorPair

  A pair of iterators. The usual iterator operations are applied to both child iterators.

- class _IteratorTriple

A triple of iterators. The usual iterator operations are applied to all three child iterators.

- struct _Job

  One __job for a certain thread.

- struct _Less

  Similar to std::less, but allows two different types.

- class _Lexicographic

  Compare __a pair of types lexicographically, ascending.

- class _LexicographicReverse

  Compare __a pair of types lexicographically, descending.

- class _LoserTree

  Stable _LoserTree variant.

- class _LoserTree< false, _Tp, _Compare >

  Unstable _LoserTree variant.

- class _LoserTreeBase

  Guarded loser/tournament tree.

- class _LoserTreePointer

  Stable _LoserTree implementation.

- class _LoserTreePointer< false, _Tp, _Compare >

  Unstable _LoserTree implementation.

- class _LoserTreePointerBase

  Base class of _Loser Tree implementation using pointers.

- class _LoserTreePointerUnguarded

  Stable unguarded _LoserTree variant storing pointers.

- class _LoserTreePointerUnguarded< false, _Tp, _Compare >

  Unstable unguarded _LoserTree variant storing pointers.

- class _LoserTreePointerUnguardedBase

  Unguarded loser tree, keeping only pointers to the elements in the tree structure.

- struct _LoserTreeTraits

Traits for determining whether the loser tree should use pointers or copies.

- class _LoserTreeUnguarded

  Stable implementation of unguarded _LoserTree.

- class _LoserTreeUnguarded< false, _Tp, _Compare >

  Non-Stable implementation of unguarded _LoserTree.

- class _LoserTreeUnguardedBase

  Base class for unguarded _LoserTree implementation.

- struct _Multiplies

  Similar to std::multiplies, but allows two different types.

- struct _Nothing

  Functor doing nothing.

- struct _Piece

  Subsequence description.

- struct _Plus

  Similar to std::plus, but allows two different types.

- struct _PMWMSSortingData

  Data accessed by all threads.

- class _PseudoSequence

  Sequence that conceptually consists of multiple copies of the same element. The copies are not stored explicitly, of course.

- class _PseudoSequenceIterator

  _Iterator associated with __gnu_parallel::_PseudoSequence. If features the usual random-access iterator functionality.

- struct _QSBThreadLocal

  Information local to one thread in the parallel quicksort run.

- class _RandomNumber

  Random number generator, based on the Mersenne twister.

- class _RestrictedBoundedConcurrentQueue

Double-ended queue of bounded size, allowing lock-free atomic access. push_front() and pop_front() must not be called concurrently to each other, while pop_back() can be called concurrently at all times. `empty()`, `size()`, and `top()` are intentionally not provided. Calling them would not make sense in a concurrent setting.

- struct _SamplingSorter

  Stable sorting functor.

- struct _SamplingSorter< false, _RAIter, _StrictWeakOrdering >

  Non-__stable sorting functor.

- struct _Settings

  class _Settings Run-time settings for the parallel mode including all tunable parameters.

- struct _SplitConsistently

  Split consistently.

- struct _SplitConsistently< false, _RAIter, _Compare, _SortingPlacesIterator >

  Split by sampling.

- struct _SplitConsistently< true, _RAIter, _Compare, _SortingPlacesIterator >

  Split by exact splitting.

- class _VoidFunctor

  Functor that does nothing.

- struct balanced_quicksort_tag

  Forces parallel sorting using balanced quicksort at compile time.

- struct balanced_tag

  Recommends parallel execution using dynamic load-balancing at compile time.

- struct constant_size_blocks_tag

  Selects the constant block size variant for std::find().

- struct default_parallel_tag

  Recommends parallel execution using the default parallel algorithm.

- struct equal_split_tag

  Selects the equal splitting variant for std::find().

- struct exact_tag

  Forces parallel merging with exact splitting, at compile time.

- struct find_tag

  Base class for for std::find() variants.

- struct growing_blocks_tag

  Selects the growing block size variant for std::find().

- struct multiway_mergesort_exact_tag

  Forces parallel sorting using multiway mergesort with exact splitting at compile time.

- struct multiway_mergesort_sampling_tag

  Forces parallel sorting using multiway mergesort with splitting by sampling at compile time.

- struct multiway_mergesort_tag

  Forces parallel sorting using multiway mergesort at compile time.

- struct omp_loop_static_tag

  Recommends parallel execution using OpenMP static load-balancing at compile time.

- struct omp_loop_tag

  Recommends parallel execution using OpenMP dynamic load-balancing at compile time.

- struct parallel_tag

  Recommends parallel execution at compile time, optionally using a user-specified number of threads.

- struct quicksort_tag

  Forces parallel sorting using unbalanced quicksort at compile time.

- struct sampling_tag

  Forces parallel merging with exact splitting, at compile time.

- struct sequential_tag

  Forces sequential execution at compile time.

- struct unbalanced_tag

  Recommends parallel execution using static load-balancing at compile time.

Typedefs

- typedef unsigned short _BinIndex
- typedef int64_t _CASable
- typedef uint64_t _SequenceIndex
- typedef uint16_t _ThreadIndex

Enumerations

- enum _AlgorithmStrategy { **heuristic**, **force_sequential**, **force_parallel** }
- enum _FindAlgorithm { **GROWING_BLOCKS**, **CONSTANT_SIZE_BLOCKS**, **EQUAL_SPLIT** }
- enum _MultiwayMergeAlgorithm { **LOSER_TREE** }
- enum _Parallelism {
  sequential, parallel_unbalanced, parallel_balanced, parallel_omp_loop,
  parallel_omp_loop_static, parallel_taskqueue }
- enum _PartialSumAlgorithm { **RECURSIVE**, **LINEAR** }
- enum _SortAlgorithm { **MWMS**, **QS**, **QS_BALANCED** }
- enum _SplittingAlgorithm { **SAMPLING**, **EXACT** }

Functions

- template<typename _RAIter , typename _DifferenceTp >
  void __calc_borders (_RAIter __elements, _DifferenceTp __length, _DifferenceTp *__off)
- template<typename _Tp >
  bool __compare_and_swap (volatile _Tp *__ptr, _Tp __comparand, _Tp __replacement)
- bool __compare_and_swap_32 (volatile int32_t *__ptr, int32_t __comparand, int32_t __replacement)
- bool __compare_and_swap_64 (volatile int64_t *__ptr, int64_t __comparand, int64_t __replacement)
- template<typename _IIter , typename _OutputIterator >
  _OutputIterator **__copy_tail** (std::pair< _IIter, _IIter > __b, std::pair< _IIter, _IIter > __e, _OutputIterator __r)
- void __decode2 (_CASable __x, int &__a, int &__b)
- template<typename _RAIter , typename _DifferenceTp >
  void __determine_samples (_PMWMSSortingData< _RAIter > *__sd, _DifferenceTp __num_samples)
- _CASable __encode2 (int __a, int __b)
- template<typename _Tp >
  _Tp __fetch_and_add (volatile _Tp *__ptr, _Tp __addend)

- int32_t __fetch_and_add_32 (volatile int32_t *__ptr, int32_t __addend)
- int64_t __fetch_and_add_64 (volatile int64_t *__ptr, int64_t __addend)
- template<typename _RAIter1 , typename _RAIter2 , typename _Pred , typename _Selector > std::pair< _RAIter1, _RAIter2 > __find_template (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _Pred __pred, _Selector __selector, constant_size_blocks_tag)
- template<typename _RAIter1 , typename _RAIter2 , typename _Pred , typename _Selector > std::pair< _RAIter1, _RAIter2 > __find_template (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _Pred __pred, _Selector __selector, growing_blocks_tag)
- template<typename _RAIter1 , typename _RAIter2 , typename _Pred , typename _Selector > std::pair< _RAIter1, _RAIter2 > __find_template (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _Pred __pred, _Selector __selector, equal_split_tag)
- template<typename _RAIter1 , typename _RAIter2 , typename _Pred , typename _Selector > std::pair< _RAIter1, _RAIter2 > __find_template (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _Pred __pred, _Selector __selector)
- template<typename _IIter , typename _UserOp , typename _Functionality , typename _Red , typename _Result > _UserOp __for_each_template_random_access (_IIter __begin, _IIter __end, _UserOp __user_op, _Functionality &__functionality, _Red __reduction, _Result __reduction_start, _Result &__output, typename std::iterator_traits< _IIter >::difference_type __bound, _Parallelism __parallelism_tag)
- template<typename _RAIter , typename _Op , typename _Fu , typename _Red , typename _Result > _Op __for_each_template_random_access_ed (_RAIter __begin, _RAIter __end, _Op __o, _Fu &__f, _Red __r, _Result __base, _Result &__output, typename std::iterator_traits< _RAIter >::difference_type __bound)
- template<typename _RAIter , typename _Op , typename _Fu , typename _Red , typename _Result > _Op __for_each_template_random_access_omp_loop (_RAIter __begin, _RAIter __end, _Op __o, _Fu &__f, _Red __r, _Result __base, _Result &__output, typename std::iterator_traits< _RAIter >::difference_type __bound)
- template<typename _RAIter , typename _Op , typename _Fu , typename _Red , typename _Result > _Op __for_each_template_random_access_omp_loop_static (_RAIter __begin, _RAIter __end, _Op __o, _Fu &__f, _Red __r, _Result __base, _Result &__output, typename std::iterator_traits< _RAIter >::difference_type __bound)
- template<typename _RAIter , typename _Op , typename _Fu , typename _Red , typename _Result > _Op __for_each_template_random_access_workstealing (_RAIter __begin, _RAIter __end, _Op __op, _Fu &__f, _Red __r, _Result __base, _Result &__output, typename std::iterator_traits< _RAIter >::difference_type __bound)
- _ThreadIndex **__get_max_threads** ()
- bool **__is_parallel** (const _Parallelism __p)

- template<typename _IIter , typename _Compare >
  bool __is_sorted (_IIter __begin, _IIter __end, _Compare __comp)
- template<typename _RAIter , typename _Compare >
  _RAIter __median_of_three_iterators (_RAIter __a, _RAIter __b, _RAIter __c, _Compare &__comp)
- template<typename _RAIter1 , typename _RAIter2 , typename _OutputIterator , typename _DifferenceTp , typename _Compare >
  _OutputIterator __merge_advance (_RAIter1 &__begin1, _RAIter1 __end1, _RAIter2 &__begin2, _RAIter2 __end2, _OutputIterator __target, _DifferenceTp __max_length, _Compare __comp)
- template<typename _RAIter1 , typename _RAIter2 , typename _OutputIterator , typename _DifferenceTp , typename _Compare >
  _OutputIterator __merge_advance_movc (_RAIter1 &__begin1, _RAIter1 __end1, _RAIter2 &__begin2, _RAIter2 __end2, _OutputIterator __target, _DifferenceTp __max_length, _Compare __comp)
- template<typename _RAIter1 , typename _RAIter2 , typename _OutputIterator , typename _DifferenceTp , typename _Compare >
  _OutputIterator __merge_advance_usual (_RAIter1 &__begin1, _RAIter1 __end1, _RAIter2 &__begin2, _RAIter2 __end2, _OutputIterator __target, _DifferenceTp __max_length, _Compare __comp)
- template<typename _RAIter1 , typename _RAIter3 , typename _Compare >
  _RAIter3 __parallel_merge_advance (_RAIter1 &__begin1, _RAIter1 __end1, _RAIter1 &__begin2, _RAIter1 __end2, _RAIter3 __target, typename std::iterator_traits< _RAIter1 >::difference_type __max_length, _Compare __comp)
- template<typename _RAIter1 , typename _RAIter2 , typename _RAIter3 , typename _Compare >
  _RAIter3 __parallel_merge_advance (_RAIter1 &__begin1, _RAIter1 __end1, _RAIter2 &__begin2, _RAIter2 __end2, _RAIter3 __target, typename std::iterator_traits< _RAIter1 >::difference_type __max_length, _Compare __comp)
- template<typename _RAIter , typename _Compare >
  void __parallel_nth_element (_RAIter __begin, _RAIter __nth, _RAIter __end, _Compare __comp)
- template<typename _RAIter , typename _Compare >
  void __parallel_partial_sort (_RAIter __begin, _RAIter __middle, _RAIter __end, _Compare __comp)
- template<typename _IIter , typename _OutputIterator , typename _BinaryOperation >
  _OutputIterator __parallel_partial_sum (_IIter __begin, _IIter __end, _OutputIterator __result, _BinaryOperation __bin_op)
- template<typename _IIter , typename _OutputIterator , typename _BinaryOperation >
  _OutputIterator __parallel_partial_sum_basecase (_IIter __begin, _IIter __end, _OutputIterator __result, _BinaryOperation __bin_op, typename std::iterator_traits< _IIter >::value_type __value)
- template<typename _IIter , typename _OutputIterator , typename _BinaryOperation >
  _OutputIterator __parallel_partial_sum_linear (_IIter __begin, _IIter __end, _-

OutputIterator __result, _BinaryOperation __bin_op, typename std::iterator_traits< _IIter >::difference_type __n)

- template<typename _RAIter , typename _Predicate >
  std::iterator_traits< _RAIter >::difference_type __parallel_partition (_RAIter __begin, _RAIter __end, _Predicate __pred, _ThreadIndex __num_threads)
- template<typename _RAIter , typename _RandomNumberGenerator >
  void __parallel_random_shuffle (_RAIter __begin, _RAIter __end, _RandomNumberGenerator __rng=_RandomNumber())
- template<typename _RAIter , typename _RandomNumberGenerator >
  void __parallel_random_shuffle_drs (_RAIter __begin, _RAIter __end, typename std::iterator_traits< _RAIter >::difference_type __n, _ThreadIndex __num_threads, _RandomNumberGenerator &__rng)
- template<typename _RAIter , typename _RandomNumberGenerator >
  void __parallel_random_shuffle_drs_pu (_DRSSorterPU< _RAIter, _RandomNumberGenerator > *__pus)
- template<typename _IIter , typename _OutputIterator , typename _Compare >
  _OutputIterator **__parallel_set_difference** (_IIter __begin1, _IIter __end1, _IIter __begin2, _IIter __end2, _OutputIterator __result, _Compare __comp)
- template<typename _IIter , typename _OutputIterator , typename _Compare >
  _OutputIterator **__parallel_set_intersection** (_IIter __begin1, _IIter __end1, _IIter __begin2, _IIter __end2, _OutputIterator __result, _Compare __comp)
- template<typename _IIter , typename _OutputIterator , typename Operation >
  _OutputIterator **__parallel_set_operation** (_IIter __begin1, _IIter __end1, _IIter __begin2, _IIter __end2, _OutputIterator __result, Operation __op)
- template<typename _IIter , typename _OutputIterator , typename _Compare >
  _OutputIterator **__parallel_set_symmetric_difference** (_IIter __begin1, _IIter __end1, _IIter __begin2, _IIter __end2, _OutputIterator __result, _Compare __comp)
- template<typename _IIter , typename _OutputIterator , typename _Compare >
  _OutputIterator **__parallel_set_union** (_IIter __begin1, _IIter __end1, _IIter __begin2, _IIter __end2, _OutputIterator __result, _Compare __comp)
- template<bool __stable, typename _RAIter , typename _Compare >
  void __parallel_sort (_RAIter __begin, _RAIter __end, _Compare __comp, parallel_tag __parallelism)
- template<bool __stable, typename _RAIter , typename _Compare >
  void __parallel_sort (_RAIter __begin, _RAIter __end, _Compare __comp, default_parallel_tag __parallelism)
- template<bool __stable, typename _RAIter , typename _Compare >
  void __parallel_sort (_RAIter __begin, _RAIter __end, _Compare __comp, balanced_quicksort_tag __parallelism)
- template<bool __stable, typename _RAIter , typename _Compare >
  void __parallel_sort (_RAIter __begin, _RAIter __end, _Compare __comp, quicksort_tag __parallelism)

- template<bool __stable, typename _RAIter , typename _Compare >
  void __parallel_sort (_RAIter __begin, _RAIter __end, _Compare __comp, multiway_mergesort_sampling_tag __parallelism)
- template<bool __stable, typename _RAIter , typename _Compare >
  void __parallel_sort (_RAIter __begin, _RAIter __end, _Compare __comp, multiway_mergesort_exact_tag __parallelism)
- template<bool __stable, typename _RAIter , typename _Compare >
  void __parallel_sort (_RAIter __begin, _RAIter __end, _Compare __comp, multiway_mergesort_tag __parallelism)
- template<bool __stable, typename _RAIter , typename _Compare , typename _Parallelism >
  void **__parallel_sort** (_RAIter __begin, _RAIter __end, _Compare __comp, _Parallelism __parallelism)
- template<typename _RAIter , typename _Compare >
  void __parallel_sort_qs (_RAIter __begin, _RAIter __end, _Compare __comp, _ThreadIndex __num_threads)
- template<typename _RAIter , typename _Compare >
  void __parallel_sort_qs_conquer (_RAIter __begin, _RAIter __end, _Compare __comp, _ThreadIndex __num_threads)
- template<typename _RAIter , typename _Compare >
  std::iterator_traits< _RAIter >::difference_type __parallel_sort_qs_divide (_RAIter __begin, _RAIter __end, _Compare __comp, typename std::iterator_traits< _RAIter >::difference_type __pivot_rank, typename std::iterator_traits< _RAIter >::difference_type __num_samples, _ThreadIndex __num_threads)
- template<typename _RAIter , typename _Compare >
  void __parallel_sort_qsb (_RAIter __begin, _RAIter __end, _Compare __comp, _ThreadIndex __num_threads)
- template<typename _IIter , class _OutputIterator >
  _OutputIterator __parallel_unique_copy (_IIter __first, _IIter __last, _OutputIterator __result)
- template<typename _IIter , class _OutputIterator , class _BinaryPredicate >
  _OutputIterator __parallel_unique_copy (_IIter __first, _IIter __last, _OutputIterator __result, _BinaryPredicate __binary_pred)
- template<typename _RAIter , typename _Compare >
  void __qsb_conquer (_QSBThreadLocal< _RAIter > **__tls, _RAIter __begin, _RAIter __end, _Compare __comp, _ThreadIndex __iam, _ThreadIndex __num_threads, bool __parent_wait)
- template<typename _RAIter , typename _Compare >
  std::iterator_traits< _RAIter >::difference_type __qsb_divide (_RAIter __begin, _RAIter __end, _Compare __comp, _ThreadIndex __num_threads)
- template<typename _RAIter , typename _Compare >
  void __qsb_local_sort_with_helping (_QSBThreadLocal< _RAIter > **__tls, _Compare &__comp, _ThreadIndex __iam, bool __wait)
- template<typename _RandomNumberGenerator >
  int __random_number_pow2 (int __logp, _RandomNumberGenerator &__rng)

- template<typename _Size >
  _Size __rd_log2 (_Size __n)
- template<typename _Tp >
  _Tp __round_up_to_pow2 (_Tp __x)
- template<typename __RAIter1 , typename __RAIter2 , typename _Pred >
  __RAIter1 __search_template (__RAIter1 __begin1, __RAIter1 __end1, __RAIter2 __begin2, __RAIter2 __end2, _Pred __pred)
- template<bool __stable, bool __sentinels, typename _RAIterIterator , typename _RAIter3 , typename _DifferenceTp , typename _Compare >
  _RAIter3 __sequential_multiway_merge (_RAIterIterator __seqs_begin, _RAIterIterator __seqs_end, _RAIter3 __target, const typename std::iterator_traits< typename std::iterator_traits< _RAIterIterator >::value_type::first_type >::value_type &__sentinel, _DifferenceTp __length, _Compare __comp)
- template<typename _RAIter , typename _RandomNumberGenerator >
  void __sequential_random_shuffle (_RAIter __begin, _RAIter __end, _RandomNumberGenerator &__rng)
- template<typename _IIter >
  void __shrink (std::vector< _IIter > &__os_starts, size_t &__count_to_two, size_t &__range_length)
- template<typename _IIter >
  void __shrink_and_double (std::vector< _IIter > &__os_starts, size_t &__count_to_two, size_t &__range_length, const bool __make_twice)
- void __yield ()
- template<typename _DifferenceType , typename _OutputIterator >
  _OutputIterator equally_split (_DifferenceType __n, _ThreadIndex __num_threads, _OutputIterator __s)
- template<typename _DifferenceType >
  _DifferenceType equally_split_point (_DifferenceType __n, _ThreadIndex __num_threads, _ThreadIndex __thread_no)
- template<typename _IIter , typename _FunctorType >
  size_t list_partition (const _IIter __begin, const _IIter __end, _IIter *__starts, size_t *__lengths, const int __num_parts, _FunctorType &__f, int __oversampling=0)
- template<typename _Tp >
  const _Tp & max (const _Tp &__a, const _Tp &__b)
- template<typename _Tp >
  const _Tp & min (const _Tp &__a, const _Tp &__b)
- template<typename _RanSeqs , typename _RankType , typename _RankIterator , typename _Compare >
  void multiseq_partition (_RanSeqs __begin_seqs, _RanSeqs __end_seqs, _RankType __rank, _RankIterator __begin_offsets, _Compare __comp=std::less< typename std::iterator_traits< typename std::iterator_traits< _RanSeqs >::value_type::first_type >::value_type >())

- template<typename _Tp , typename _RanSeqs , typename _RankType , typename _Compare >
  _Tp multiseq_selection (_RanSeqs __begin_seqs, _RanSeqs __end_seqs, _RankType __rank, _RankType &__offset, _Compare __comp=std::less< _Tp >())
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **multiway_merge** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, default_parallel_tag __tag)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **multiway_merge** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, parallel_tag __tag=parallel_tag(0))
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **multiway_merge** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, __gnu_parallel::sampling_tag __tag)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **multiway_merge** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, __gnu_parallel::exact_tag __tag)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut multiway_merge (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, __gnu_parallel::sequential_tag)
- template<template< typename RAI, typename C > class iterator, typename _RAIterIterator , typename _RAIter3 , typename _DifferenceTp , typename _Compare >
  _RAIter3 multiway_merge_3_variant (_RAIterIterator __seqs_begin, _RAIterIterator __seqs_end, _RAIter3 __target, _DifferenceTp __length, _Compare __comp)
- template<template< typename RAI, typename C > class iterator, typename _RAIterIterator , typename _RAIter3 , typename _DifferenceTp , typename _Compare >
  _RAIter3 multiway_merge_4_variant (_RAIterIterator __seqs_begin, _RAIterIterator __seqs_end, _RAIter3 __target, _DifferenceTp __length, _Compare __comp)
- template<bool __stable, typename _RAIterIterator , typename _Compare , typename _DifferenceType >
  void multiway_merge_exact_splitting (_RAIterIterator __seqs_begin, _RAIterIterator __seqs_end, _DifferenceType __length, _DifferenceType __total_length, _Compare __comp, std::vector< std::pair< _DifferenceType, _DifferenceType > > *__pieces)

- template<typename _LT , typename _RAIterIterator , typename _RAIter3 , typename _DifferenceTp , typename _Compare >
  _RAIter3 multiway_merge_loser_tree (_RAIterIterator __seqs_begin, _RAIterIterator __seqs_end, _RAIter3 __target, _DifferenceTp __length, _Compare __comp)
- template<typename UnguardedLoserTree , typename _RAIterIterator , typename _RAIter3 , typename _DifferenceTp , typename _Compare >
  _RAIter3 multiway_merge_loser_tree_sentinel (_RAIterIterator __seqs_begin, _RAIterIterator __seqs_end, _RAIter3 __target, const typename std::iterator_traits< typename std::iterator_traits< _RAIterIterator >::value_type::first_type >::value_type &__sentinel, _DifferenceTp __length, _Compare __comp)
- template<typename _LT , typename _RAIterIterator , typename _RAIter3 , typename _DifferenceTp , typename _Compare >
  _RAIter3 multiway_merge_loser_tree_unguarded (_RAIterIterator __seqs_begin, _RAIterIterator __seqs_end, _RAIter3 __target, const typename std::iterator_traits< typename std::iterator_traits< _RAIterIterator >::value_type::first_type >::value_type &__sentinel, _DifferenceTp __length, _Compare __comp)
- template<bool __stable, typename _RAIterIterator , typename _Compare , typename _DifferenceType >
  void multiway_merge_sampling_splitting (_RAIterIterator __seqs_begin, _RAIterIterator __seqs_end, _DifferenceType __length, _DifferenceType __total_length, _Compare __comp, std::vector< std::pair< _DifferenceType, _DifferenceType > > *__pieces)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **multiway_merge_sentinels** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, default_parallel_tag __tag)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **multiway_merge_sentinels** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, parallel_tag __tag=parallel_tag(0))
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **multiway_merge_sentinels** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, sampling_tag __tag)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **multiway_merge_sentinels** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, __gnu_parallel::exact_tag __tag)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >

_RAIterOut multiway_merge_sentinels (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, __gnu_parallel::sequential_tag)

- template<bool __stable, bool __sentinels, typename _RAIterIterator , typename _RAIter3 , typename _DifferenceTp , typename _Splitter , typename _Compare >
  _RAIter3 parallel_multiway_merge (_RAIterIterator __seqs_begin, _RAIterIterator __seqs_end, _RAIter3 __target, _Splitter __splitter, _DifferenceTp __length, _Compare __comp, _ThreadIndex __num_threads)
- template<bool __stable, bool __exact, typename _RAIter , typename _Compare >
  void parallel_sort_mwms (_RAIter __begin, _RAIter __end, _Compare __comp, _ThreadIndex __num_threads)
- template<bool __stable, bool __exact, typename _RAIter , typename _Compare >
  void parallel_sort_mwms_pu (_PMWMSSortingData< _RAIter > *__sd, _Compare &__comp)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **stable_multiway_merge** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, default_parallel_tag __tag)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **stable_multiway_merge** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, parallel_tag __tag=parallel_tag(0))
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **stable_multiway_merge** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, sampling_tag __tag)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **stable_multiway_merge** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, __gnu_parallel::exact_tag __tag)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **stable_multiway_merge** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, __gnu_parallel::sequential_tag)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **stable_multiway_merge_sentinels** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, default_parallel_tag __tag)

- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **stable_multiway_merge_sentinels** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, parallel_tag __tag=parallel_tag(0))
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **stable_multiway_merge_sentinels** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, sampling_tag __tag)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **stable_multiway_merge_sentinels** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, __gnu_parallel::exact_tag __tag)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **stable_multiway_merge_sentinels** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, __gnu_parallel::sequential_tag)

Variables

- static const int _CASable_bits
- static const _CASable _CASable_mask

4.6.1 Detailed Description

GNU parallel code for public use.

4.6.2 Typedef Documentation

4.6.2.1 typedef unsigned short __gnu_parallel::_BinIndex

Type to hold the index of a bin. Since many variables of this type are allocated, it should be chosen as small as possible.

Definition at line 47 of file random_shuffle.h.

4.6.2.2 typedef int64_t __gnu_parallel::_CASable

Longest compare-and-swappable integer type on this platform.

Definition at line 127 of file types.h.

4.6.2.3 typedef uint64_t __gnu_parallel::_SequenceIndex

Unsigned integer to index __elements. The total number of elements for each algorithm must fit into this type.

Definition at line 117 of file types.h.

4.6.2.4 typedef uint16_t __gnu_parallel::_ThreadIndex

Unsigned integer to index a thread number. The maximum thread number (for each processor) must fit into this type.

Definition at line 123 of file types.h.

4.6.3 Enumeration Type Documentation

4.6.3.1 enum __gnu_parallel::_AlgorithmStrategy

Strategies for run-time algorithm selection:.

Definition at line 67 of file types.h.

4.6.3.2 enum __gnu_parallel::_FindAlgorithm

Find algorithms:.

Definition at line 106 of file types.h.

4.6.3.3 enum __gnu_parallel::_MultiwayMergeAlgorithm

Merging algorithms:.

Definition at line 85 of file types.h.

4.6.3.4 enum __gnu_parallel::_Parallelism

Run-time equivalents for the compile-time tags.

Enumerator:

sequential Not parallel.

parallel_unbalanced Parallel unbalanced (equal-sized chunks).

parallel_balanced Parallel balanced (work-stealing).

parallel_omp_loop Parallel with OpenMP dynamic load-balancing.

parallel_omp_loop_static Parallel with OpenMP static load-balancing.

parallel_taskqueue Parallel with OpenMP taskqueue construct.

Definition at line 44 of file types.h.

4.6.3.5 enum __gnu_parallel::_PartialSumAlgorithm

Partial sum algorithms: recursive, linear.

Definition at line 91 of file types.h.

4.6.3.6 enum __gnu_parallel::_SortAlgorithm

Sorting algorithms:.

Definition at line 76 of file types.h.

4.6.3.7 enum __gnu_parallel::_SplittingAlgorithm

Sorting/merging algorithms: sampling, __exact.

Definition at line 98 of file types.h.

4.6.4 Function Documentation

4.6.4.1 template<typename _RAIter , typename _DifferenceTp > void __gnu_parallel::__calc_borders (_RAIter *__elements*, _DifferenceTp *__length*, _DifferenceTp * *__off*) [inline]

Precalculate __advances for Knuth-Morris-Pratt algorithm.

Parameters:

__elements Begin iterator of sequence to search for.

__length Length of sequence to search for.

__advances Returned __offsets.

Definition at line 51 of file search.h.

Referenced by __search_template().

4.6.4.2 template<typename _Tp > bool __gnu_parallel::__compare_and_swap (volatile _Tp * *__ptr*, _Tp *__comparand*, _Tp *__replacement*) [inline]

Compare *__ptr and __comparand. If equal, let *__ptr=__replacement and return true, return false otherwise. Implementation is heavily platform-dependent.

Parameters:

__ptr Pointer to signed integer.

__comparand Compare value.

__replacement Replacement value.

Definition at line 335 of file parallel/compatibility.h.

References __compare_and_swap_32(), and __compare_and_swap_64().

Referenced by __gnu_parallel::_RestrictedBoundedConcurrentQueue< _Piece >::pop_back(), and __gnu_parallel::_RestrictedBoundedConcurrentQueue< _Piece >::pop_front().

4.6.4.3 bool __gnu_parallel::__compare_and_swap_32 (volatile int32_t * *__ptr*, int32_t *__comparand*, int32_t *__replacement*) [inline]

Compare *__ptr and __comparand. If equal, let *__ptr=__replacement and return true, return false otherwise. Implementation is heavily platform-dependent.

Parameters:

__ptr Pointer to 32-bit signed integer.

__comparand Compare value.

__replacement Replacement value.

Definition at line 239 of file parallel/compatibility.h.

Referenced by __compare_and_swap().

4.6.4.4 bool __gnu_parallel::__compare_and_swap_64 (volatile int64_t * *__ptr*, int64_t *__comparand*, int64_t *__replacement*) [inline]

Compare *__ptr and __comparand. If equal, let *__ptr=__replacement and return true, return false otherwise. Implementation is heavily platform-dependent.

Parameters:

__ptr Pointer to 64-bit signed integer.

__comparand Compare value.

__replacement Replacement value.

Definition at line 282 of file parallel/compatibility.h.

Referenced by __compare_and_swap().

4.6.4.5 void __gnu_parallel::__decode2 (_CASable __x, int & __a, int & __b) [inline]

Decode two integers from one gnu_parallel::_CASable.

Parameters:

__x __gnu_parallel::_CASable to decode integers from.

__a First integer, to be decoded from the most-significant `_CASable_bits/2` bits of `__x`.

__b Second integer, to be encoded in the least-significant `_CASable_bits/2` bits of `__x`.

See also:

__encode2

Definition at line 133 of file parallel/base.h.

References _CASable_bits, and _CASable_mask.

Referenced by __gnu_parallel::_RestrictedBoundedConcurrentQueue< _Piece >::pop_back(), __gnu_parallel::_RestrictedBoundedConcurrentQueue< _Piece >::pop_front(), and __gnu_parallel::_RestrictedBoundedConcurrentQueue< _Piece >::push_front().

4.6.4.6 template<typename _RAIter , typename _DifferenceTp > void __gnu_parallel::__determine_samples (_PMWMSSortingData< _RAIter > * __sd, _DifferenceTp __num_samples) [inline]

Select _M_samples from a sequence.

Parameters:

__sd Pointer to algorithm data. _Result will be placed in `__sd->_M_samples`.

__num_samples Number of _M_samples to select.

Definition at line 97 of file multiway_mergesort.h.

References __gnu_parallel::_PMWMSSortingData< _RAIter >::_M_samples, __gnu_parallel::_PMWMSSortingData< _RAIter >::_M_source, __gnu_parallel::_PMWMSSortingData< _RAIter >::_M_starts, and equally_split().

4.6.4.7 _CASable __gnu_parallel::__encode2 (int __a, int __b) [inline]

Encode two integers into one gnu_parallel::_CASable.

Parameters:

__a First integer, to be encoded in the most-significant `_CASable_bits/2` bits.

__b Second integer, to be encoded in the least-significant `_CASable_bits/2` bits.

Returns:

value encoding `__a` and `__b`.

See also:

__decode2

Definition at line 119 of file parallel/base.h.

References _CASable_bits.

Referenced by __gnu_parallel::_RestrictedBoundedConcurrentQueue< _Piece >::_RestrictedBoundedConcurrentQueue(), __gnu_parallel::_RestrictedBoundedConcurrentQueue< _Piece >::pop_back(), __gnu_parallel::_RestrictedBoundedConcurrentQueue< _Piece >::pop_front(), and __gnu_parallel::_RestrictedBoundedConcurrentQueue< _Piece >::push_front().

4.6.4.8 template<typename _Tp > _Tp __gnu_parallel::__fetch_and_add (volatile _Tp * __ptr, _Tp __addend) [inline]

Add a value to a variable, atomically. Implementation is heavily platform-dependent.

Parameters:

__ptr Pointer to a signed integer.

__addend Value to add.

Definition at line 185 of file parallel/compatibility.h.

References __fetch_and_add_32(), and __fetch_and_add_64().

Referenced by __gnu_parallel::_RestrictedBoundedConcurrentQueue< _Piece >::push_front().

4.6.4.9 int32_t __gnu_parallel::__fetch_and_add_32 (volatile int32_t * *__ptr*, int32_t *__addend*) [inline]

Add a value to a variable, atomically. Implementation is heavily platform-dependent.

Parameters:

__ptr Pointer to a 32-bit signed integer.

__addend Value to add.

Definition at line 95 of file parallel/compatibility.h.

Referenced by __fetch_and_add().

4.6.4.10 int64_t __gnu_parallel::__fetch_and_add_64 (volatile int64_t * *__ptr*, int64_t *__addend*) [inline]

Add a value to a variable, atomically. Implementation is heavily platform-dependent.

Parameters:

__ptr Pointer to a 64-bit signed integer.

__addend Value to add.

Definition at line 134 of file parallel/compatibility.h.

Referenced by __fetch_and_add().

4.6.4.11 template<typename _RAIter1 , typename _RAIter2 , typename _Pred , typename _Selector > std::pair<_RAIter1, _RAIter2> __gnu_parallel::__find_template (_RAIter1 *__begin1*, _RAIter1 *__end1*, _RAIter2 *__begin2*, _Pred *__pred*, _Selector *__selector*, constant_size_blocks_tag) [inline]

Parallel std::find, constant block size variant.

Parameters:

__begin1 Begin iterator of first sequence.

__end1 End iterator of first sequence.

__begin2 Begin iterator of second sequence. Second __sequence must have same length as first sequence.

__pred Find predicate.

__selector _Functionality (e. g. std::find_if(), std::equal(),...)

Returns:

Place of finding in both sequences.

See also:

__gnu_parallel::_Settings::find_sequential_search_size
__gnu_parallel::_Settings::find_block_size There are two main differences between the growing blocks and the constant-size blocks variants. 1. For GB, the block size grows; for CSB, the block size is fixed. 2. For GB, the blocks are allocated dynamically; for CSB, the blocks are allocated in a predetermined manner, namely spacial round-robin.

Definition at line 315 of file find.h.

References _GLIBCXX_CALL, __gnu_parallel::_Settings::find_initial_block_size, and __gnu_parallel::_Settings::find_sequential_search_size.

4.6.4.12 template<typename _RAIter1 , typename _RAIter2 , typename _Pred , typename _Selector > std::pair<_RAIter1, _RAIter2> __gnu_parallel::__find_template (_RAIter1 *__begin1*, _RAIter1 *__end1*, _RAIter2 *__begin2*, _Pred *__pred*, _Selector *__selector*, growing_blocks_tag) `[inline]`

Parallel std::find, growing block size variant.

Parameters:

__begin1 Begin iterator of first sequence.

__end1 End iterator of first sequence.

__begin2 Begin iterator of second sequence. Second __sequence must have same length as first sequence.

__pred Find predicate.

__selector _Functionality (e. g. std::find_if(), std::equal(),...)

Returns:

Place of finding in both sequences.

See also:

__gnu_parallel::_Settings::find_sequential_search_size
__gnu_parallel::_Settings::find_initial_block_size
__gnu_parallel::_Settings::find_maximum_block_size
__gnu_parallel::_Settings::find_increasing_factor

There are two main differences between the growing blocks and the constant-size blocks variants. 1. For GB, the block size grows; for CSB, the block size is fixed. 2. For GB, the blocks are allocated dynamically; for CSB, the blocks are allocated in a predetermined manner, namely spacial round-robin.

Definition at line 187 of file find.h.

References _GLIBCXX_CALL, __gnu_parallel::_Settings::find_increasing_factor, __gnu_parallel::_Settings::find_initial_block_size, __gnu_parallel::_Settings::find_-maximum_block_size, and __gnu_parallel::_Settings::find_sequential_search_size.

4.6.4.13 template<typename _RAIter1 , typename _RAIter2 , typename _Pred , typename _Selector > std::pair<_RAIter1, _RAIter2> __gnu_parallel::__find_template (_RAIter1 *__begin1*, _RAIter1 *__end1*, _RAIter2 *__begin2*, _Pred *__pred*, _Selector *__selector*, equal_split_tag) [inline]

Parallel std::find, equal splitting variant.

Parameters:

__begin1 Begin iterator of first sequence.

__end1 End iterator of first sequence.

__begin2 Begin iterator of second sequence. Second __sequence must have same length as first sequence.

__pred Find predicate.

__selector _Functionality (e. g. std::find_if(), std::equal(),...)

Returns:

Place of finding in both sequences.

Definition at line 97 of file find.h.

References _GLIBCXX_CALL, and equally_split().

4.6.4.14 template<typename _RAIter1 , typename _RAIter2 , typename _Pred , typename _Selector > std::pair<_RAIter1, _RAIter2> __gnu_parallel::__find_template (_RAIter1 *__begin1*, _RAIter1 *__end1*, _RAIter2 *__begin2*, _Pred *__pred*, _Selector *__selector*) [inline]

Parallel std::find, switch for different algorithms.

Parameters:

__begin1 Begin iterator of first sequence.

__end1 End iterator of first sequence.

__begin2 Begin iterator of second sequence. Must have same length as first sequence.

__pred Find predicate.

__selector _Functionality (e. g. std::find_if(), std::equal(),...)

Returns:

Place of finding in both sequences.

Definition at line 60 of file find.h.

4.6.4.15 template<typename _IIter , typename _UserOp , typename _Functionality , typename _Red , typename _Result > _UserOp __gnu_parallel::__for_each_template_random_access (_IIter *__begin*, _IIter *__end*, _UserOp *__user_op*, _Functionality & *__functionality*, _Red *__reduction*, _Result *__reduction_start*, _Result & *__output*, typename std::iterator_traits< _IIter >::difference_type *__bound*, _Parallelism *__parallelism_tag*) [inline]

Chose the desired algorithm by evaluating `__parallelism_tag`.

Parameters:

__begin Begin iterator of input sequence.

__end End iterator of input sequence.

__user_op A user-specified functor (comparator, predicate, associative operator,...)

__functionality functor to *process* an element with __user_op (depends on desired functionality, e. g. accumulate, for_each,...

__reduction Reduction functor.

__reduction_start Initial value for reduction.

__output Output iterator.

__bound Maximum number of elements processed.

__parallelism_tag Parallelization method

Definition at line 61 of file for_each.h.

References __for_each_template_random_access_ed(), __for_each_template_random_access_omp_loop(), __for_each_template_random_access_workstealing(), parallel_omp_loop, parallel_omp_loop_static, and parallel_unbalanced.

4.6.4.16 template<typename _RAIter , typename _Op , typename _Fu , typename _Red , typename _Result > _Op __gnu_parallel::__for_each_template_random_access_ed (_RAIter __begin, _RAIter __end, _Op __o, _Fu & __f, _Red __r, _Result __base, _Result & __output, typename std::iterator_traits< _RAIter >::difference_type __bound) [inline]

Embarrassingly parallel algorithm for random access iterators, using hand-crafted parallelization by equal splitting the work.

Parameters:

__begin Begin iterator of element sequence.

__end End iterator of element sequence.

__o User-supplied functor (comparator, predicate, adding functor, ...)

__f Functor to "process" an element with __op (depends on desired functionality, e. g. for std::for_each(), ...).

__r Functor to "add" a single __result to the already processed elements (depends on functionality).

__base Base value for reduction.

__output Pointer to position where final result is written to

__bound Maximum number of elements processed (e. g. for std::count_n()).

Returns:

User-supplied functor (that may contain a part of the result).

Definition at line 67 of file par_loop.h.

References equally_split_point().

Referenced by __for_each_template_random_access().

4.6.4.17 template<typename _RAIter , typename _Op , typename _Fu , typename _Red , typename _Result > _Op __gnu_parallel::__for_each_template_random_access_omp_loop (_RAIter __begin, _RAIter __end, _Op __o, _Fu & __f, _Red __r, _Result __base, _Result & __output, typename std::iterator_traits< _RAIter >::difference_type __bound) [inline]

Embarrassingly parallel algorithm for random access iterators, using an OpenMP for loop.

Parameters:

__begin Begin iterator of element sequence.

__end End iterator of element sequence.

__o User-supplied functor (comparator, predicate, adding functor, etc.).

__f Functor to *process* an element with __op (depends on desired functionality, e. g. for std::for_each(), ...).

__r Functor to *add* a single __result to the already processed elements (depends on functionality).

__base Base value for reduction.

__output Pointer to position where final result is written to

__bound Maximum number of elements processed (e. g. for std::count_n()).

Returns:

User-supplied functor (that may contain a part of the result).

Definition at line 67 of file omp_loop.h.

Referenced by __for_each_template_random_access().

4.6.4.18 template<typename _RAIter , typename _Op , typename _Fu , typename _Red , typename _Result > _Op __gnu_parallel::__for_each_template_random_access_omp_loop_static (_RAIter *__begin*, _RAIter *__end*, _Op *__o*, _Fu & *__f*, _Red *__r*, _Result *__base*, _Result & *__output*, typename std::iterator_traits< _RAIter >::difference_type *__bound*) [inline]

Embarrassingly parallel algorithm for random access iterators, using an OpenMP for loop with static scheduling.

Parameters:

__begin Begin iterator of element sequence.

__end End iterator of element sequence.

__o User-supplied functor (comparator, predicate, adding functor, ...).

__f Functor to *process* an element with __op (depends on desired functionality, e. g. for std::for_each(), ...).

__r Functor to *add* a single __result to the already processed __elements (depends on functionality).

__base Base value for reduction.

__output Pointer to position where final result is written to

__bound Maximum number of elements processed (e. g. for std::count_n()).

Returns:

User-supplied functor (that may contain a part of the result).

Definition at line 66 of file omp_loop_static.h.

4.6.4.19 template<typename _RAIter , typename _Op , typename _Fu , typename _Red , typename _Result > _Op __gnu_parallel::__for_each_template_random_access_workstealing (_RAIter *__begin*, _RAIter *__end*, _Op *__op*, _Fu & *__f*, _Red *__r*, _Result *__base*, _Result & *__output*, typename std::iterator_traits< _RAIter >::difference_type *__bound*) [inline]

Work stealing algorithm for random access iterators. Uses O(1) additional memory. Synchronization at job lists is done with atomic operations.

Parameters:

__begin Begin iterator of element sequence.

__end End iterator of element sequence.

__op User-supplied functor (comparator, predicate, adding functor, ...).

__f Functor to *process* an element with __op (depends on desired functionality, e. g. for std::for_each(), ...).

__r Functor to *add* a single __result to the already processed elements (depends on functionality).

__base Base value for reduction.

__output Pointer to position where final result is written to

__bound Maximum number of elements processed (e. g. for std::count_n()).

Returns:

User-supplied functor (that may contain a part of the result).

Definition at line 99 of file workstealing.h.

References __yield(), _GLIBCXX_CALL, __gnu_parallel::_Job< _DifferenceTp >::_M_first, __gnu_parallel::_Job< _DifferenceTp >::_M_last, __gnu_parallel::_Job< _DifferenceTp >::_M_load, __gnu_parallel::_Settings::cache_line_size, and min().

Referenced by __for_each_template_random_access().

4.6.4.20 template<typename _IIter , typename _Compare > bool __gnu_parallel::__is_sorted (_IIter *__begin*, _IIter *__end*, _Compare *__comp*) [inline]

Check whether [__begin, __end) is sorted according to __comp.

Parameters:

__begin Begin iterator of sequence.

__end End iterator of sequence.

__comp Comparator.

Returns:

`true` if sorted, `false` otherwise.

Definition at line 51 of file checkers.h.

Referenced by __sequential_multiway_merge(), multiway_merge_loser_tree_sentinel(), and parallel_multiway_merge().

4.6.4.21 template<typename _RAIter , typename _Compare > _RAIter __gnu_parallel::__median_of_three_iterators (_RAIter *__a*, _RAIter *__b*, _RAIter *__c*, _Compare & *__comp*) [inline]

Compute the median of three referenced elements, according to `__comp`.

Parameters:

__a First iterator.

__b Second iterator.

__c Third iterator.

__comp Comparator.

Definition at line 433 of file parallel/base.h.

Referenced by __qsb_divide().

4.6.4.22 template<typename _RAIter1 , typename _RAIter2 , typename _OutputIterator , typename _DifferenceTp , typename _Compare > _OutputIterator __gnu_parallel::__merge_advance (_RAIter1 & *__begin1*, _RAIter1 *__end1*, _RAIter2 & *__begin2*, _RAIter2 *__end2*, _OutputIterator *__target*, _DifferenceTp *__max_length*, _Compare *__comp*) [inline]

Merge routine being able to merge only the `__max_length` smallest elements. The `__begin` iterators are advanced accordingly, they might not reach `__end`, in contrast to the usual variant. Static switch on whether to use the conditional-move variant.

Parameters:

__begin1 Begin iterator of first sequence.

__end1 End iterator of first sequence.

__begin2 Begin iterator of second sequence.

__end2 End iterator of second sequence.

__target Target begin iterator.

__max_length Maximum number of elements to merge.

__comp Comparator.

Returns:

Output end iterator.

Definition at line 171 of file merge.h.

References __merge_advance_movc(), and _GLIBCXX_CALL.

Referenced by __parallel_merge_advance(), and __sequential_multiway_merge().

4.6.4.23 template<typename _RAIter1 , typename _RAIter2 , typename _OutputIterator , typename _DifferenceTp , typename _Compare > _OutputIterator __gnu_parallel::__merge_advance_movc (_RAIter1 & *__begin1*, _RAIter1 *__end1*, _RAIter2 & *__begin2*, _RAIter2 *__end2*, _OutputIterator *__target*, _DifferenceTp *__max_length*, _Compare *__comp*) [inline]

Merge routine being able to merge only the `__max_length` smallest elements. The `__begin` iterators are advanced accordingly, they might not reach `__end`, in contrast to the usual variant. Specially designed code should allow the compiler to generate conditional moves instead of branches.

Parameters:

__begin1 Begin iterator of first sequence.

__end1 End iterator of first sequence.

__begin2 Begin iterator of second sequence.

__end2 End iterator of second sequence.

__target Target begin iterator.

__max_length Maximum number of elements to merge.

__comp Comparator.

Returns:

Output end iterator.

Definition at line 105 of file merge.h.

Referenced by __merge_advance().

4.6.4.24 template<typename _RAIter1 , typename _RAIter2 , typename _OutputIterator , typename _DifferenceTp , typename _Compare > _OutputIterator __gnu_parallel::__merge_advance_usual (_RAIter1 & *__begin1*, _RAIter1 *__end1*, _RAIter2 & *__begin2*, _RAIter2 *__end2*, _OutputIterator *__target*, _DifferenceTp *__max_length*, _Compare *__comp*) [inline]

Merge routine being able to merge only the __max_length smallest elements. The __begin iterators are advanced accordingly, they might not reach __end, in contrast to the usual variant.

Parameters:

__begin1 Begin iterator of first sequence.

__end1 End iterator of first sequence.

__begin2 Begin iterator of second sequence.

__end2 End iterator of second sequence.

__target Target begin iterator.

__max_length Maximum number of elements to merge.

__comp Comparator.

Returns:

Output end iterator.

Definition at line 57 of file merge.h.

4.6.4.25 template<typename _RAIter1 , typename _RAIter3 , typename _Compare > _RAIter3 __gnu_parallel::__parallel_merge_advance (_RAIter1 & *__begin1*, _RAIter1 *__end1*, _RAIter1 & *__begin2*, _RAIter1 *__end2*, _RAIter3 *__target*, typename std::iterator_traits< _RAIter1 >::difference_type *__max_length*, _Compare *__comp*) [inline]

Parallel merge routine being able to merge only the __max_length smallest elements. The __begin iterators are advanced accordingly, they might not reach __end, in contrast to the usual variant. The functionality is projected onto parallel_multiway_merge.

Parameters:

__begin1 Begin iterator of first sequence.

__end1 End iterator of first sequence.

__begin2 Begin iterator of second sequence.

__end2 End iterator of second sequence.

__target Target begin iterator.

__max_length Maximum number of elements to merge.

__comp Comparator.

Returns:

Output end iterator.

Definition at line 223 of file merge.h.

References multiway_merge_exact_splitting(), and parallel_multiway_merge().

4.6.4.26 template<typename _RAIter1 , typename _RAIter2 , typename _RAIter3 , typename _Compare > _RAIter3 __gnu_parallel::__parallel_merge_advance (_RAIter1 & *__begin1*, _RAIter1 *__end1*, _RAIter2 & *__begin2*, _RAIter2 *__end2*, _RAIter3 *__target*, typename std::iterator_traits< _RAIter1 >::difference_type *__max_length*, _Compare *__comp*) [inline]

Merge routine fallback to sequential in case the iterators of the two input sequences are of different type.

Parameters:

__begin1 Begin iterator of first sequence.

__end1 End iterator of first sequence.

__begin2 Begin iterator of second sequence.

__end2 End iterator of second sequence.

__target Target begin iterator.

__max_length Maximum number of elements to merge.

__comp Comparator.

Returns:

Output end iterator.

Definition at line 195 of file merge.h.

References __merge_advance().

4.6.4.27 template<typename _RAIter , typename _Compare > void __gnu_parallel::__parallel_nth_element (_RAIter *__begin*, _RAIter *__nth*, _RAIter *__end*, _Compare *__comp*) [inline]

Parallel implementation of std::nth_element().

Parameters:

__begin Begin iterator of input sequence.

__nth _Iterator of element that must be in position afterwards.

__end End iterator of input sequence.

__comp Comparator.

Definition at line 336 of file partition.h.

References __parallel_partition(), _GLIBCXX_CALL, max(), __gnu_parallel::_Settings::nth_element_minimal_n, __gnu_parallel::_Settings::partition_minimal_n, and std::swap().

Referenced by __parallel_partial_sort().

4.6.4.28 template<typename _RAIter , typename _Compare > void __gnu_parallel::__parallel_partial_sort (_RAIter *__begin*, _RAIter *__middle*, _RAIter *__end*, _Compare *__comp*) [inline]

Parallel implementation of std::partial_sort().

Parameters:

__begin Begin iterator of input sequence.

__middle Sort until this position.

__end End iterator of input sequence.

__comp Comparator.

Definition at line 426 of file partition.h.

References __parallel_nth_element().

4.6.4.29 template<typename _IIter , typename _OutputIterator , typename _BinaryOperation > _OutputIterator __gnu_parallel::__parallel_partial_sum (_IIter *__begin*, _IIter *__end*, _OutputIterator *__result*, _BinaryOperation *__bin_op*) [inline]

Parallel partial sum front-__end.

Parameters:

__begin Begin iterator of input sequence.

__end End iterator of input sequence.

__result Begin iterator of output sequence.

__bin_op Associative binary function.

Returns:

End iterator of output sequence.

Definition at line 199 of file partial_sum.h.

References __parallel_partial_sum_linear(), and _GLIBCXX_CALL.

4.6.4.30 template<typename _IIter , typename _OutputIterator , typename _BinaryOperation > _OutputIterator __gnu_parallel::__parallel_partial_sum_basecase (_IIter *__begin*, _IIter *__end*, _OutputIterator *__result*, _BinaryOperation *__bin_op*, typename std::iterator_traits< _IIter >::value_type *__value*) [inline]

Base case prefix sum routine.

Parameters:

__begin Begin iterator of input sequence.

__end End iterator of input sequence.

__result Begin iterator of output sequence.

__bin_op Associative binary function.

__value Start value. Must be passed since the neutral element is unknown in general.

Returns:

End iterator of output sequence.

Definition at line 58 of file partial_sum.h.

Referenced by __parallel_partial_sum_linear().

4.6.4.31 template<typename _IIter , typename _OutputIterator , typename _BinaryOperation > _OutputIterator __gnu_parallel::__parallel_partial_sum_linear (_IIter *__begin*, _IIter *__end*, _OutputIterator *__result*, _BinaryOperation *__bin_op*, typename std::iterator_traits< _IIter >::difference_type *__n*) [inline]

Parallel partial sum implementation, two-phase approach, no recursion.

Parameters:

__begin Begin iterator of input sequence.

__end End iterator of input sequence.

__result Begin iterator of output sequence.

__bin_op Associative binary function.

__n Length of sequence.

__num_threads Number of threads to use.

Returns:

End iterator of output sequence.

Definition at line 90 of file partial_sum.h.

References __parallel_partial_sum_basecase(), std::accumulate(), equally_split(), and __gnu_parallel::_Settings::partial_sum_dilation.

Referenced by __parallel_partial_sum().

4.6.4.32 template<typename _RAIter , typename _Predicate > std::iterator_traits<_RAIter>::difference_type __gnu_parallel::__parallel_partition (_RAIter *__begin*, _RAIter *__end*, _Predicate *__pred*, _ThreadIndex *__num_threads*) [inline]

Parallel implementation of std::partition.

Parameters:

__begin Begin iterator of input sequence to split.

__end End iterator of input sequence to split.

__pred Partition predicate, possibly including some kind of pivot.

__num_threads Maximum number of threads to use for this task.

Returns:

Number of elements not fulfilling the predicate.

Definition at line 56 of file partition.h.

References _GLIBCXX_CALL, _GLIBCXX_VOLATILE, __gnu_parallel::_-Settings::partition_chunk_share, __gnu_parallel::_Settings::partition_chunk_size, and std::swap().

Referenced by __parallel_nth_element(), __parallel_sort_qs_divide(), and __qsb_-divide().

4.6.4.33 template<typename _RAIter , typename _RandomNumberGenerator > void __gnu_parallel::__parallel_random_shuffle (_RAIter *__begin*, _RAIter *__end*, _RandomNumberGenerator *__rng* = _RandomNumber()) [inline]

Parallel random public call.

Parameters:

__begin Begin iterator of sequence.

__end End iterator of sequence.

__rng Random number generator to use.

Definition at line 511 of file random_shuffle.h.

References __parallel_random_shuffle_drs().

4.6.4.34 template<typename _RAIter , typename _RandomNumberGenerator > void __gnu_parallel::__parallel_random_shuffle_drs (_RAIter *__begin*, _RAIter *__end*, typename std::iterator_traits< _RAIter >::difference_type *__n*, _ThreadIndex *__num_threads*, _RandomNumberGenerator & *__rng*) [inline]

Main parallel random shuffle step.

Parameters:

__begin Begin iterator of sequence.

__end End iterator of sequence.

__n Length of sequence.

__num_threads Number of threads to use.

__rng Random number generator to use.

Definition at line 263 of file random_shuffle.h.

References __gnu_parallel::_DRSSorterPU< _RAIter, _RandomNumberGenerator >::__bins_end, __parallel_random_shuffle_drs_pu(), __rd_log2(), __round_up_to_pow2(), __sequential_random_shuffle(), _GLIBCXX_CALL, __gnu_parallel::_DRandomShufflingGlobalData< _RAIter >::_M_bin_proc, __gnu_parallel::_DRSSorterPU< _RAIter, _RandomNumberGenerator >::_M_bins_begin, __gnu_parallel::_DRandomShufflingGlobalData< _RAIter >::_M_dist, __gnu_parallel::_DRandomShufflingGlobalData< _RAIter >::_M_num_bins, __gnu_parallel::_DRandomShufflingGlobalData< _RAIter >::_M_num_bits, __gnu_parallel::_DRSSorterPU< _RAIter, _RandomNumberGenerator >::_M_num_threads, __gnu_parallel::_DRSSorterPU< _RAIter, _RandomNumberGenerator >::_M_sd, __gnu_parallel::_DRSSorterPU< _RAIter, _RandomNumberGenerator >::_M_seed, __gnu_parallel::_DRandomShufflingGlobalData< _RAIter >::_M_starts, __gnu_parallel::_DRandomShufflingGlobalData< _RAIter >::_M_temporaries, __gnu_parallel::_Settings::L2_cache_size, std::min(), and __gnu_parallel::_Settings::TLB_size.

Referenced by __parallel_random_shuffle().

4.6.4.35 template<typename _RAIter , typename _RandomNumberGenerator > void __gnu_parallel::__parallel_random_shuffle_drs_pu (_DRSSorterPU< _RAIter, _RandomNumberGenerator > * *__pus*) [inline]

Random shuffle code executed by each thread.

Parameters:

__pus Array of thread-local data records.

Definition at line 122 of file random_shuffle.h.

References __random_number_pow2(), __gnu_parallel::_DRandomShufflingGlobalData< _RAIter >::_M_dist, __gnu_parallel::_DRandomShufflingGlobalData< _RAIter >::_M_num_bins, __gnu_parallel::_DRandomShufflingGlobalData< _RAIter >::_M_num_bits, __gnu_parallel::_DRSSorterPU< _RAIter, _RandomNumberGenerator >::_M_num_threads, __gnu_parallel::_DRSSorterPU< _RAIter, _RandomNumberGenerator >::_M_sd, __gnu_parallel::_DRSSorterPU< _RAIter, _RandomNumberGenerator >::_M_seed, and __gnu_parallel::_DRandomShufflingGlobalData< _RAIter >::_M_starts.

Referenced by __parallel_random_shuffle_drs().

4.6.4.36 template<bool __stable, typename _RAIter , typename _Compare > void __gnu_parallel::__parallel_sort (_RAIter *__begin*, _RAIter *__end*, _Compare *__comp*, parallel_tag *__parallelism*) [inline]

Choose a parallel sorting algorithm.

Parameters:

__begin Begin iterator of input sequence.

__end End iterator of input sequence.

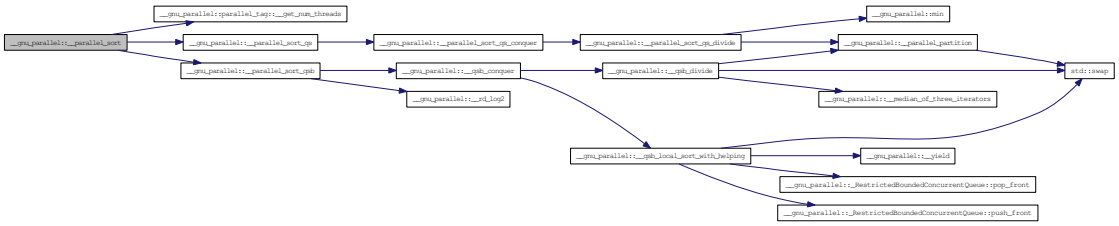
__comp Comparator.

__stable Sort __stable.

Definition at line 198 of file sort.h.

References __gnu_parallel::parallel_tag::__get_num_threads(), __parallel_sort_qs(), __parallel_sort_qsb(), and _GLIBCXX_CALL.

Here is the call graph for this function:



4.6.4.37 template<bool __stable, typename _RAIter , typename _Compare > void __gnu_parallel::__parallel_sort (_RAIter *__begin*, _RAIter *__end*, _Compare *__comp*, default_parallel_tag *__parallelism*) [inline]

Choose multiway mergesort with exact splitting, for parallel sorting.

Parameters:

__begin Begin iterator of input sequence.

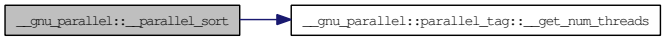
__end End iterator of input sequence.

__comp Comparator.

Definition at line 178 of file sort.h.

References __gnu_parallel::parallel_tag::__get_num_threads(), and _GLIBCXX_-CALL.

Here is the call graph for this function:



4.6.4.38 template<bool __stable, typename _RAIter , typename _Compare > void __gnu_parallel::__parallel_sort (_RAIter *__begin*, _RAIter *__end*, _Compare *__comp*, balanced_quicksort_tag *__parallelism*) [inline]

Choose balanced quicksort for parallel sorting.

Parameters:

__begin Begin iterator of input sequence.

__end End iterator of input sequence.

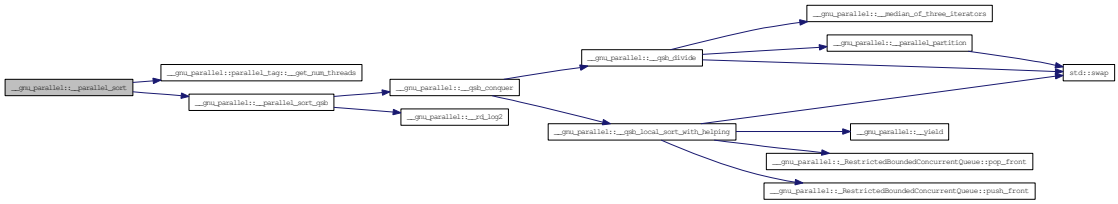
__comp Comparator.

__stable Sort __stable.

Definition at line 157 of file sort.h.

References __gnu_parallel::parallel_tag::__get_num_threads(), __parallel_sort_qsb(), and _GLIBCXX_CALL.

Here is the call graph for this function:



4.6.4.39 template<bool __stable, typename _RAIter , typename _Compare > void __gnu_parallel::__parallel_sort (_RAIter *__begin*, _RAIter *__end*, _Compare *__comp*, quicksort_tag *__parallelism*) [inline]

Choose quicksort for parallel sorting.

Parameters:

__begin Begin iterator of input sequence.

__end End iterator of input sequence.

__comp Comparator.

Definition at line 136 of file sort.h.

References __gnu_parallel::parallel_tag::__get_num_threads(), __parallel_sort_qs(), and _GLIBCXX_CALL.

Here is the call graph for this function:

4.6.4.40 template<bool __stable, typename _RAIter , typename _Compare > void __gnu_parallel::__parallel_sort (_RAIter *__begin*, _RAIter *__end*, _Compare *__comp*, multiway_mergesort_sampling_tag *__parallelism*) [inline]

Choose multiway mergesort with splitting by sampling, for parallel sorting.

Parameters:

__begin Begin iterator of input sequence.

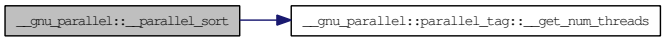
__end End iterator of input sequence.

__comp Comparator.

Definition at line 117 of file sort.h.

References __gnu_parallel::parallel_tag::__get_num_threads(), and _GLIBCXX_-CALL.

Here is the call graph for this function:



4.6.4.41 template<bool __stable, typename _RAIter , typename _Compare > void __gnu_parallel::__parallel_sort (_RAIter *__begin*, _RAIter *__end*, _Compare *__comp*, multiway_mergesort_exact_tag *__parallelism*) [inline]

Choose multiway mergesort with exact splitting, for parallel sorting.

Parameters:

__begin Begin iterator of input sequence.

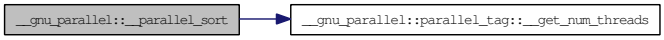
__end End iterator of input sequence.

__comp Comparator.

Definition at line 97 of file sort.h.

References __gnu_parallel::parallel_tag::__get_num_threads(), and _GLIBCXX_-CALL.

Here is the call graph for this function:



4.6.4.42 template<bool __stable, typename _RAIter , typename _Compare > void __gnu_parallel::__parallel_sort (_RAIter *__begin*, _RAIter *__end*, _Compare *__comp*, multiway_mergesort_tag *__parallelism*) [inline]

Choose multiway mergesort, splitting variant at run-time, for parallel sorting.

Parameters:

__begin Begin iterator of input sequence.

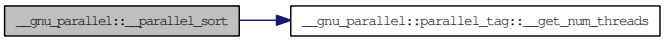
__end End iterator of input sequence.

__comp Comparator.

Definition at line 74 of file sort.h.

References __gnu_parallel::parallel_tag::__get_num_threads(), and _GLIBCXX_-CALL.

Here is the call graph for this function:



4.6.4.43 template<typename _RAIter , typename _Compare > void __gnu_parallel::__parallel_sort_qs (_RAIter *__begin*, _RAIter *__end*, _Compare *__comp*, _ThreadIndex *__num_threads*) [inline]

Unbalanced quicksort main call.

Parameters:

__begin Begin iterator of input sequence.

__end End iterator input sequence, ignored.

__comp Comparator.

__num_threads Number of threads that are allowed to work on this part.

Definition at line 152 of file quicksort.h.

References __parallel_sort_qs_conquer(), and _GLIBCXX_CALL.

Referenced by __parallel_sort().

4.6.4.44 template<typename _RAIter , typename _Compare > void __gnu_parallel::__parallel_sort_qs_conquer (_RAIter *__begin*, _RAIter *__end*, _Compare *__comp*, _ThreadIndex *__num_threads*) [inline]

Unbalanced quicksort conquer step.

Parameters:

__begin Begin iterator of subsequence.

__end End iterator of subsequence.

__comp Comparator.

__num_threads Number of threads that are allowed to work on this part.

Definition at line 99 of file quicksort.h.

References __parallel_sort_qs_divide().

Referenced by __parallel_sort_qs().

4.6.4.45 template<typename _RAIter , typename _Compare > std::iterator_traits<_RAIter>::difference_type __gnu_parallel::__parallel_sort_qs_divide (_RAIter *__begin*, _RAIter *__end*, _Compare *__comp*, typename std::iterator_traits< _RAIter >::difference_type *__pivot_rank*, typename std::iterator_traits< _RAIter >::difference_type *__num_samples*, _ThreadIndex *__num_threads*) [inline]

Unbalanced quicksort divide step.

Parameters:

__begin Begin iterator of subsequence.

__end End iterator of subsequence.

__comp Comparator.

__pivot_rank Desired __rank of the pivot.

__num_samples Choose pivot from that many samples.

__num_threads Number of threads that are allowed to work on this part.

Definition at line 51 of file quicksort.h.

References __parallel_partition(), and min().

Referenced by __parallel_sort_qs_conquer().

4.6.4.46 template<typename _RAIter , typename _Compare > void __gnu_parallel::__parallel_sort_qsb (_RAIter *__begin*, _RAIter *__end*, _Compare *__comp*, _ThreadIndex *__num_threads*) [inline]

Top-level quicksort routine.

Parameters:

__begin Begin iterator of sequence.

__end End iterator of sequence.

__comp Comparator.

__num_threads Number of threads that are allowed to work on this part.

Definition at line 430 of file balanced_quicksort.h.

References __qsb_conquer(), __rd_log2(), and _GLIBCXX_CALL.

Referenced by __parallel_sort().

4.6.4.47 template<typename _IIter , class _OutputIterator > _OutputIterator __gnu_parallel::__parallel_unique_copy (_IIter *__first*, _IIter *__last*, _OutputIterator *__result*) [inline]

Parallel std::unique_copy(), without explicit equality predicate.

Parameters:

__first Begin iterator of input sequence.

__last End iterator of input sequence.

__result Begin iterator of result __sequence.

Returns:

End iterator of result __sequence.

Definition at line 186 of file unique_copy.h.

References __parallel_unique_copy().

4.6.4.48 template<typename _IIter , class _OutputIterator , class _BinaryPredicate > _OutputIterator __gnu_parallel::__parallel_unique_copy (_IIter *__first*, _IIter *__last*, _OutputIterator *__result*, _BinaryPredicate *__binary_pred*) [inline]

Parallel std::unique_copy(), w/__o explicit equality predicate.

Parameters:

__first Begin iterator of input sequence.

__last End iterator of input sequence.

__result Begin iterator of result __sequence.

__binary_pred Equality predicate.

Returns:

End iterator of result __sequence.

Definition at line 50 of file unique_copy.h.

References _GLIBCXX_CALL, and equally_split().

Referenced by __parallel_unique_copy().

4.6.4.49 template<typename _RAIter , typename _Compare > void __gnu_parallel::__qsb_conquer (_QSBThreadLocal< _RAIter > ** *__tls*, _RAIter *__begin*, _RAIter *__end*, _Compare *__comp*, _ThreadIndex *__iam*, _ThreadIndex *__num_threads*, bool *__parent_wait*) [inline]

Quicksort conquer step.

Parameters:

__tls Array of thread-local storages.

__begin Begin iterator of subsequence.

__end End iterator of subsequence.

__comp Comparator.

__iam Number of the thread processing this function.

__num_threads Number of threads that are allowed to work on this part.

Definition at line 171 of file balanced_quicksort.h.

References __qsb_divide(), __qsb_local_sort_with_helping(), __gnu_parallel::_QSBThreadLocal< _RAIter >::_M_elements_leftover, and __gnu_parallel::_QSBThreadLocal< _RAIter >::_M_initial.

Referenced by __parallel_sort_qsb().

4.6.4.50 template<typename _RAIter , typename _Compare > std::iterator_traits<_RAIter>::difference_type __gnu_parallel::__qsb_divide (_RAIter __begin, _RAIter __end, _Compare __comp, _ThreadIndex __num_threads) [inline]

Balanced quicksort divide step.

Parameters:

__begin Begin iterator of subsequence.

__end End iterator of subsequence.

__comp Comparator.

__num_threads Number of threads that are allowed to work on this part.

Precondition:

(__end-__begin)>=1

Definition at line 100 of file balanced_quicksort.h.

References __median_of_three_iterators(), __parallel_partition(), and std::swap().

Referenced by __qsb_conquer().

4.6.4.51 template<typename _RAIter , typename _Compare > void __gnu_parallel::__qsb_local_sort_with_helping (_QSBThreadLocal< _RAIter > ** __tls, _Compare & __comp, _ThreadIndex __iam, bool __wait) [inline]

Quicksort step doing load-balanced local sort.

Parameters:

__tls Array of thread-local storages.

__comp Comparator.

__iam Number of the thread processing this function.

Definition at line 247 of file balanced_quicksort.h.

References __yield(), _GLIBCXX_ASSERTIONS, __gnu_parallel::_QSBThreadLocal< _RAIter >::_M_elements_leftover, __gnu_parallel::_QSBThreadLocal< _RAIter >::_M_initial, __gnu_parallel::_QSBThreadLocal< _RAIter >::_M_leftover_parts, __gnu_parallel::_QSBThreadLocal< _RAIter >::_M_num_threads, __gnu_parallel::_RestrictedBoundedConcurrentQueue< _Tp >::pop_front(), __gnu_parallel::_RestrictedBoundedConcurrentQueue< _Tp >::push_front(), and std::swap().

Referenced by __qsb_conquer().

4.6.4.52 template<typename _RandomNumberGenerator > int __gnu_parallel::__random_number_pow2 (int *__logp*, _RandomNumberGenerator & *__rng*) [inline]

Generate a random number in [0,2^__logp).

Parameters:

__logp Logarithm (basis 2) of the upper range __bound.

__rng Random number generator to use.

Definition at line 115 of file random_shuffle.h.

Referenced by __parallel_random_shuffle_drs_pu(), and __sequential_random_shuffle().

4.6.4.53 template<typename _Size > _Size __gnu_parallel::__rd_log2 (_Size *__n*) [inline]

Calculates the rounded-down logarithm of __n for base 2.

Parameters:

__n Argument.

Returns:

Returns 0 for any argument <1.

Definition at line 102 of file parallel/base.h.

Referenced by __parallel_random_shuffle_drs(), __parallel_sort_qsb(), __round_up_to_pow2(), __sequential_random_shuffle(), __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_LoserTreeBase(), multiseq_partition(), and multiseq_selection().

4.6.4.54 template<typename _Tp > _Tp __gnu_parallel::__round_up_to_pow2 (_Tp *__x*) [inline]

Round up to the next greater power of 2.

Parameters:

__x _Integer to round up

Definition at line 246 of file random_shuffle.h.

References __rd_log2().

Referenced by __parallel_random_shuffle_drs(), __sequential_random_shuffle(), and multiseq_selection().

4.6.4.55 template<typename __RAIter1 , typename __RAIter2 , typename _Pred > __RAIter1 __gnu_parallel::__search_template (__RAIter1 *__begin1*, __RAIter1 *__end1*, __RAIter2 *__begin2*, __RAIter2 *__end2*, _Pred *__pred*) [inline]

Parallel std::search.

Parameters:

__begin1 Begin iterator of first sequence.

__end1 End iterator of first sequence.

__begin2 Begin iterator of second sequence.

__end2 End iterator of second sequence.

__pred Find predicate.

Returns:

Place of finding in first sequences.

Definition at line 81 of file search.h.

References __calc_borders(), _GLIBCXX_CALL, equally_split(), and min().

4.6.4.56 template<bool __stable, bool __sentinels, typename _RAIterIterator , typename _RAIter3 , typename _DifferenceTp , typename _Compare > _RAIter3 __gnu_parallel::__sequential_multiway_merge (_RAIterIterator *__seqs_begin*, _RAIterIterator *__seqs_end*, _RAIter3 *__target*, const typename std::iterator_traits< typename std::iterator_traits< _RAIterIterator >::value_type::first_type >::value_type & *__sentinel*, _DifferenceTp *__length*, _Compare *__comp*) [inline]

Sequential multi-way merging switch. The _GLIBCXX_PARALLEL_DECISION is based on the branching factor and runtime settings.

Parameters:

__seqs_begin Begin iterator of iterator pair input sequence.

__seqs_end End iterator of iterator pair input sequence.

__target Begin iterator of output sequence.

__comp Comparator.

__length Maximum length to merge, possibly larger than the number of elements available.

__stable Stable merging incurs a performance penalty.

__sentinel The sequences have __a __sentinel element.

Returns:

End iterator of output sequence.

Definition at line 917 of file multiway_merge.h.

References __is_sorted(), __merge_advance(), _GLIBCXX_CALL, and _GLIBCXX_PARALLEL_LENGTH.

Referenced by multiway_merge(), and multiway_merge_sentinels().

4.6.4.57 template<typename _RAIter , typename _RandomNumberGenerator > void __gnu_parallel::__sequential_random_shuffle (_RAIter *__begin*, _RAIter *__end*, _RandomNumberGenerator & *__rng*) [inline]

Sequential cache-efficient random shuffle.

Parameters:

__begin Begin iterator of sequence.

__end End iterator of sequence.

__rng Random number generator to use.

Definition at line 402 of file random_shuffle.h.

References __random_number_pow2(), __rd_log2(), __round_up_to_pow2(), __gnu_parallel::_Settings::L2_cache_size, std::min(), and __gnu_parallel::_Settings::TLB_size.

Referenced by __parallel_random_shuffle_drs().

4.6.4.58 template<typename _IIter > void __gnu_parallel::__shrink (std::vector< _IIter > & *__os_starts*, size_t & *__count_to_two*, size_t & *__range_length*) [inline]

Combines two ranges into one and thus halves the number of ranges.

Parameters:

__os_starts Start positions worked on (oversampled).

__count_to_two Counts up to 2.

__range_length Current length of a chunk.

Definition at line 70 of file list_partition.h.

References std::vector< _Tp, _Alloc >::size().

Referenced by __shrink_and_double().

4.6.4.59 template<typename _IIter > void __gnu_parallel::__shrink_and_double (std::vector< _IIter > & *__os_starts*, size_t & *__count_to_two*, size_t & *__range_length*, const bool *__make_twice*) [inline]

Shrinks and doubles the ranges.

Parameters:

__os_starts Start positions worked on (oversampled).

__count_to_two Counts up to 2.

__range_length Current length of a chunk.

__make_twice Whether the `__os_starts` is allowed to be grown or not

Definition at line 50 of file list_partition.h.

References __shrink(), std::vector< _Tp, _Alloc >::resize(), and std::vector< _Tp, _Alloc >::size().

Referenced by list_partition().

4.6.4.60 void __gnu_parallel::__yield () [inline]

Yield the control to another thread, without waiting for the end to the time slice.

Definition at line 352 of file parallel/compatibility.h.

Referenced by __for_each_template_random_access_workstealing(), and __qsb_local_sort_with_helping().

4.6.4.61 template<typename _DifferenceType , typename _OutputIterator > _OutputIterator __gnu_parallel::equally_split (_DifferenceType *__n*, _ThreadIndex *__num_threads*, _OutputIterator *__s*) [inline]

function to split a sequence into parts of almost equal size. The resulting sequence __s of length __num_threads+1 contains the splitting positions when splitting the range [0,__n) into parts of almost equal size (plus minus 1). The first entry is 0, the last one n. There may result empty parts.

Parameters:

__n Number of elements

__num_threads Number of parts

__s Splitters

Returns:

End of __splitter sequence, i.e. `__s+__num_threads+1`

Definition at line 48 of file equally_split.h.

Referenced by __determine_samples(), __find_template(), __parallel_partial_sum_linear(), __parallel_unique_copy(), __search_template(), and multiway_merge_exact_splitting().

4.6.4.62 template<typename _DifferenceType > _DifferenceType __gnu_parallel::equally_split_point (_DifferenceType *__n*, _ThreadIndex *__num_threads*, _ThreadIndex *__thread_no*) [inline]

function to split a sequence into parts of almost equal size. Returns the position of the splitting point between thread number __thread_no (included) and thread number __thread_no+1 (excluded).

Parameters:

__n Number of elements

__num_threads Number of parts

Returns:

splitting point

Definition at line 74 of file equally_split.h.

Referenced by __for_each_template_random_access_ed().

4.6.4.63 template<typename _IIter , typename _FunctorType > size_t __gnu_parallel::list_partition (const _IIter *__begin*, const _IIter *__end*, _IIter * *__starts*, size_t * *__lengths*, const int *__num_parts*, _FunctorType & *__f*, int *__oversampling* = 0) [inline]

Splits a sequence given by input iterators into parts of almost equal size. The function needs only one pass over the sequence.

Parameters:

__begin Begin iterator of input sequence.

__end End iterator of input sequence.

__starts Start iterators for the resulting parts, dimension __num_parts+1. For convenience, __starts [__num_parts] contains the end iterator of the sequence.

__lengths Length of the resulting parts.

__num_parts Number of parts to split the sequence into.

__f Functor to be applied to each element by traversing __it

__oversampling Oversampling factor. If 0, then the partitions will differ in at most {{__end} - {__begin}} __elements. Otherwise, the ratio between the longest and the shortest part is bounded by 1/({__oversampling} {num})

Returns:

Length of the whole sequence.

Definition at line 101 of file list_partition.h.

References __shrink_and_double(), and std::vector< _Tp, _Alloc >::size().

4.6.4.64 template<typename _Tp > const _Tp& __gnu_parallel::max (const _Tp & __a, const _Tp & __b) [inline]

Equivalent to std::max.

Definition at line 150 of file parallel/base.h.

Referenced by __parallel_nth_element(), multiseq_partition(), and multiseq_selection().

4.6.4.65 template<typename _Tp > const _Tp& __gnu_parallel::min (const _Tp & __a, const _Tp & __b) [inline]

Equivalent to std::min.

Definition at line 144 of file parallel/base.h.

Referenced by __for_each_template_random_access_workstealing(), __parallel_sort_qs_divide(), __search_template(), multiseq_partition(), and multiseq_selection().

4.6.4.66 template<typename _RanSeqs , typename _RankType , typename _RankIterator , typename _Compare > void __gnu_parallel::multiseq_partition (_RanSeqs *__begin_seqs*, _RanSeqs *__end_seqs*, _RankType *__rank*, _RankIterator *__begin_offsets*, _Compare *__comp* = std::less< typename std::iterator_traits<typename std::iterator_traits<_RanSeqs>::value_type::first_type>::value_type>()) [inline]

Splits several sorted sequences at a certain global __rank, resulting in a splitting point for each sequence. The sequences are passed via a sequence of random-access iterator pairs, none of the sequences may be empty. If there are several equal elements across the split, the ones on the __left side will be chosen from sequences with smaller number.

Parameters:

__begin_seqs Begin of the sequence of iterator pairs.

__end_seqs End of the sequence of iterator pairs.

__rank The global rank to partition at.

__begin_offsets A random-access __sequence __begin where the __result will be stored in. Each element of the sequence is an iterator that points to the first element on the greater part of the respective __sequence.

__comp The ordering functor, defaults to std::less<_Tp>.

Definition at line 124 of file multiseq_selection.h.

References __rd_log2(), _GLIBCXX_CALL, std::vector< _Tp, _Alloc >::begin(), std::distance(), __gnu_cxx::distance(), std::priority_queue< _Tp, _Sequence, _Compare >::empty(), std::vector< _Tp, _Alloc >::end(), max(), min(), std::priority_queue< _Tp, _Sequence, _Compare >::pop(), std::priority_queue< _Tp, _Sequence, _Compare >::push(), std::vector< _Tp, _Alloc >::push_back(), and std::priority_queue< _Tp, _Sequence, _Compare >::top().

Referenced by multiway_merge_exact_splitting().

4.6.4.67 template<typename _Tp , typename _RanSeqs , typename _RankType , typename _Compare > _Tp __gnu_parallel::multiseq_selection (_RanSeqs *__begin_seqs*, _RanSeqs *__end_seqs*, _RankType *__rank*, _RankType & *__offset*, _Compare *__comp* = std::less<_Tp>()) [inline]

Selects the element at a certain global __rank from several sorted sequences. The sequences are passed via a sequence of random-access iterator pairs, none of the sequences may be empty.

Parameters:

__begin_seqs Begin of the sequence of iterator pairs.

__end_seqs End of the sequence of iterator pairs.

__rank The global rank to partition at.

__offset The rank of the selected element in the global subsequence of elements equal to the selected element. If the selected element is unique, this number is 0.

__comp The ordering functor, defaults to std::less.

Definition at line 390 of file multiseq_selection.h.

References __rd_log2(), __round_up_to_pow2(), _GLIBCXX_CALL, std::vector< _Tp, _Alloc >::begin(), std::distance(), __gnu_cxx::distance(), std::priority_queue< _Tp, _Sequence, _Compare >::empty(), std::vector< _Tp, _Alloc >::end(), max(), min(), std::priority_queue< _Tp, _Sequence, _Compare >::pop(), std::priority_queue< _Tp, _Sequence, _Compare >::push(), std::vector< _Tp, _Alloc >::push_back(), and std::priority_queue< _Tp, _Sequence, _Compare >::top().

4.6.4.68 template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare > _RAIterOut __gnu_parallel::multiway_merge (_RAIterPairIterator *__seqs_begin*, _RAIterPairIterator *__seqs_end*, _RAIterOut *__target*, _DifferenceTp *__length*, _Compare *__comp*, __gnu_parallel::sequential_tag) [inline]

Multiway Merge Frontend. Merge the sequences specified by seqs_begin and __seqs_end into __target. __seqs_begin and __seqs_end must point to a sequence of pairs. These pairs must contain an iterator to the beginning of a sequence in their first entry and an iterator the _M_end of the same sequence in their second entry.

Ties are broken arbitrarily. See stable_multiway_merge for a variant that breaks ties by sequence number but is slower.

The first entries of the pairs (i.e. the begin iterators) will be moved forward.

The output sequence has to provide enough space for all elements that are written to it.

This function will merge the input sequences:

- not stable
- parallel, depending on the input size and Settings
- using sampling for splitting
- not using sentinels

Example:

```
int sequences[10][10];
for (int __i = 0; __i < 10; ++__i)
  for (int __j = 0; __i < 10; ++__j)
    sequences[__i][__j] = __j;

int __out[33];
std::vector<std::pair<int*> > seqs;
for (int __i = 0; __i < 10; ++__i)
  { seqs.push(std::make_pair<int*>(sequences[__i],
                                   sequences[__i] + 10)) }

multiway_merge(seqs.begin(), seqs.end(), __target, std::less<int>(), 33);
```

See also:

stable_multiway_merge

Precondition:

All input sequences must be sorted.
Target must provide enough space to merge out length elements or the number of elements in all sequences, whichever is smaller.

Postcondition:

[__target, return __value) contains merged __elements from the input sequences.
return __value - __target = min(__length, number of elements in all sequences).

Parameters:

_RAIterPairIterator iterator over sequence of pairs of iterators

_RAIterOut iterator over target sequence

_DifferenceTp difference type for the sequence

_Compare strict weak ordering type to compare elements in sequences

__seqs_begin __begin of sequence __sequence

__seqs_end _M_end of sequence __sequence

__target target sequence to merge to.

__comp strict weak ordering to use for element comparison.

__length Maximum length to merge, possibly larger than the number of elements available.

Returns:

_M_end iterator of output sequence

Definition at line 1410 of file multiway_merge.h.

References __sequential_multiway_merge(), and _GLIBCXX_CALL.

4.6.4.69 template<template< typename RAI, typename C > class iterator, typename _RAIterIterator , typename _RAIter3 , typename _DifferenceTp , typename _Compare > _RAIter3 __gnu_parallel::multiway_merge_3_variant (_RAIterIterator *__seqs_begin*, _RAIterIterator *__seqs_end*, _RAIter3 *__target*, _DifferenceTp *__length*, _Compare *__comp*) [inline]

Highly efficient 3-way merging procedure. Merging is done with the algorithm implementation described by Peter Sanders. Basically, the idea is to minimize the number of necessary comparison after merging an element. The implementation trick that makes this fast is that the order of the sequences is stored in the instruction pointer (translated into labels in C++).

This works well for merging up to 4 sequences.

Note that making the merging stable does *not* come at a performance hit.

Whether the merging is done guarded or unguarded is selected by the used iterator class.

Parameters:

__seqs_begin Begin iterator of iterator pair input sequence.

__seqs_end End iterator of iterator pair input sequence.

__target Begin iterator of output sequence.

__comp Comparator.

__length Maximum length to merge, less equal than the total number of elements available.

Returns:

End iterator of output sequence.

Definition at line 234 of file multiway_merge.h.

References _GLIBCXX_CALL.

4.6.4.70 template<template< typename RAI, typename C > class iterator, typename _RAIterIterator , typename _RAIter3 , typename _DifferenceTp , typename _Compare > _RAIter3 __gnu_parallel::multiway_merge_4_variant (_RAIterIterator *__seqs_begin*, _RAIterIterator *__seqs_end*, _RAIter3 *__target*, _DifferenceTp *__length*, _Compare *__comp*) [inline]

Highly efficient 4-way merging procedure. Merging is done with the algorithm implementation described by Peter Sanders. Basically, the idea is to minimize the number of necessary comparison after merging an element. The implementation trick that makes this fast is that the order of the sequences is stored in the instruction pointer (translated into goto labels in C++).

This works well for merging up to 4 sequences.

Note that making the merging stable does *not* come at a performance hit.

Whether the merging is done guarded or unguarded is selected by the used iterator class.

Parameters:

__seqs_begin Begin iterator of iterator pair input sequence.

__seqs_end End iterator of iterator pair input sequence.

__target Begin iterator of output sequence.

__comp Comparator.

__length Maximum length to merge, less equal than the total number of elements available.

Returns:

End iterator of output sequence.

Definition at line 353 of file multiway_merge.h.

References _GLIBCXX_CALL.

4.6.4.71 template<bool __stable, typename _RAIterIterator , typename _Compare , typename _DifferenceType > void __gnu_parallel::multiway_merge_exact_splitting (_RAIterIterator *__seqs_begin*, _RAIterIterator *__seqs_end*, _DifferenceType *__length*, _DifferenceType *__total_length*, _Compare *__comp*, std::vector< std::pair< _DifferenceType, _DifferenceType > > * *__pieces*) [inline]

Exact splitting for parallel multiway-merge routine. None of the passed sequences may be empty.

Definition at line 1112 of file multiway_merge.h.

References _GLIBCXX_PARALLEL_LENGTH, std::vector< _Tp, _Alloc >::begin(), std::vector< _Tp, _Alloc >::end(), equally_split(), multiseq_partition(), and std::vector< _Tp, _Alloc >::resize().

Referenced by __parallel_merge_advance().

4.6.4.72 template<typename _LT , typename _RAIterIterator , typename _RAIter3 , typename _DifferenceTp , typename _Compare > _RAIter3 __gnu_parallel::multiway_merge_loser_tree (_RAIterIterator *__seqs_begin*, _RAIterIterator *__seqs_end*, _RAIter3 *__target*, _DifferenceTp *__length*, _Compare *__comp*) [inline]

Multi-way merging procedure for a high branching factor, guarded case. This merging variant uses a LoserTree class as selected by _LT.

Stability is selected through the used LoserTree class _LT.

At least one non-empty sequence is required.

Parameters:

__seqs_begin Begin iterator of iterator pair input sequence.

__seqs_end End iterator of iterator pair input sequence.

__target Begin iterator of output sequence.

__comp Comparator.

__length Maximum length to merge, less equal than the total number of elements available.

Returns:

End iterator of output sequence.

Definition at line 484 of file multiway_merge.h.

References _GLIBCXX_CALL, and _GLIBCXX_PARALLEL_LENGTH.

4.6.4.73 template<typename UnguardedLoserTree , typename _RAIterIterator , typename _RAIter3 , typename _DifferenceTp , typename _Compare > _RAIter3 __gnu_parallel::multiway_merge_loser_tree_sentinel (_RAIterIterator *__seqs_begin*, _RAIterIterator *__seqs_end*, _RAIter3 *__target*, const typename std::iterator_traits< typename std::iterator_traits< _RAIterIterator >::value_type::first_type >::value_type & *__sentinel*, _DifferenceTp *__length*, _Compare *__comp*) [inline]

Multi-way merging procedure for a high branching factor, requiring sentinels to exist.

Parameters:

__stable The value must the same as for the used LoserTrees.

UnguardedLoserTree _Loser Tree variant to use for the unguarded merging.

GuardedLoserTree _Loser Tree variant to use for the guarded merging.

__seqs_begin Begin iterator of iterator pair input sequence.

__seqs_end End iterator of iterator pair input sequence.

__target Begin iterator of output sequence.

__comp Comparator.

__length Maximum length to merge, less equal than the total number of elements available.

Returns:

End iterator of output sequence.

Definition at line 658 of file multiway_merge.h.

References __is_sorted(), and _GLIBCXX_CALL.

4.6.4.74 template<typename _LT , typename _RAIterIterator , typename _RAIter3 , typename _DifferenceTp , typename _Compare > _RAIter3 __gnu_parallel::multiway_merge_loser_tree_unguarded (_RAIterIterator *__seqs_begin*, _RAIterIterator *__seqs_end*, _RAIter3 *__target*, const typename std::iterator_traits< typename std::iterator_traits< _RAIterIterator >::value_type::first_type >::value_type & *__sentinel*, _DifferenceTp *__length*, _Compare *__comp*) [inline]

Multi-way merging procedure for a high branching factor, unguarded case. Merging is done using the LoserTree class `_LT`.

Stability is selected by the used LoserTrees.

Precondition:

No input will run out of elements during the merge.

Parameters:

__seqs_begin Begin iterator of iterator pair input sequence.

__seqs_end End iterator of iterator pair input sequence.

__target Begin iterator of output sequence.

__comp Comparator.

__length Maximum length to merge, less equal than the total number of elements available.

Returns:

End iterator of output sequence.

Definition at line 567 of file multiway_merge.h.

References _GLIBCXX_CALL.

4.6.4.75 template<bool __stable, typename _RAIterIterator , typename _Compare , typename _DifferenceType > void __gnu_parallel::multiway_merge_sampling_splitting (_RAIterIterator *__seqs_begin*, _RAIterIterator *__seqs_end*, _DifferenceType *__length*, _DifferenceType *__total_length*, _Compare *__comp*, std::vector< std::pair< _DifferenceType, _DifferenceType > > * *__pieces*) [inline]

Sampling based splitting for parallel multiway-merge routine.

Definition at line 1032 of file multiway_merge.h.

References _GLIBCXX_PARALLEL_LENGTH.

4.6.4.76 template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare > _RAIterOut __gnu_parallel::multiway_merge_sentinels (_RAIterPairIterator *__seqs_begin*, _RAIterPairIterator *__seqs_end*, _RAIterOut *__target*, _DifferenceTp *__length*, _Compare *__comp*, __gnu_parallel::sequential_tag) [inline]

Multiway Merge Frontend. Merge the sequences specified by seqs_begin and __seqs_end into __target. __seqs_begin and __seqs_end must point to a sequence of pairs. These pairs must contain an iterator to the beginning of a sequence in their first entry and an iterator the _M_end of the same sequence in their second entry.

Ties are broken arbitrarily. See stable_multiway_merge for a variant that breaks ties by sequence number but is slower.

The first entries of the pairs (i.e. the begin iterators) will be moved forward accordingly.

The output sequence has to provide enough space for all elements that are written to it.

This function will merge the input sequences:

- not stable
- parallel, depending on the input size and Settings

- using sampling for splitting
- using sentinels

You have to take care that the element the _M_end iterator points to is readable and contains a value that is greater than any other non-sentinel value in all sequences.

Example:

```
int sequences[10][11];
for (int __i = 0; __i < 10; ++__i)
  for (int __j = 0; __i < 11; ++__j)
    sequences[__i][__j] = __j; // __last one is sentinel!

int __out[33];
std::vector<std::pair<int*> > seqs;
for (int __i = 0; __i < 10; ++__i)
  { seqs.push(std::make_pair<int*>(sequences[__i],
                                   sequences[__i] + 10)) }

multiway_merge(seqs.begin(), seqs.end(), __target, std::less<int>(), 33);
```

Precondition:

All input sequences must be sorted.
Target must provide enough space to merge out length elements or the number of elements in all sequences, whichever is smaller.
For each __i, __seqs_begin[__i].second must be the end marker of the sequence, but also reference the one more __sentinel element.

Postcondition:

[__target, return __value) contains merged __elements from the input sequences.
return __value - __target = min(__length, number of elements in all sequences).

See also:

stable_multiway_merge_sentinels

Parameters:

_RAIterPairIterator iterator over sequence of pairs of iterators

_RAIterOut iterator over target sequence

_DifferenceTp difference type for the sequence

_Compare strict weak ordering type to compare elements in sequences

__seqs_begin __begin of sequence __sequence

__seqs_end _M_end of sequence __sequence

__target target sequence to merge to.

__comp strict weak ordering to use for element comparison.

__length Maximum length to merge, possibly larger than the number of elements available.

Returns:

_M_end iterator of output sequence

Definition at line 1774 of file multiway_merge.h.

References __sequential_multiway_merge(), and _GLIBCXX_CALL.

4.6.4.77 template<bool __stable, bool __sentinels, typename _RAIterIterator , typename _RAIter3 , typename _DifferenceTp , typename _Splitter , typename _Compare > _RAIter3 __gnu_parallel::parallel_multiway_merge (_RAIterIterator *__seqs_begin*, _RAIterIterator *__seqs_end*, _RAIter3 *__target*, _Splitter *__splitter*, _DifferenceTp *__length*, _Compare *__comp*, _ThreadIndex *__num_threads*) `[inline]`

Parallel multi-way merge routine. The _GLIBCXX_PARALLEL_DECISION is based on the branching factor and runtime settings.

Must not be called if the number of sequences is 1.

Parameters:

_Splitter functor to split input (either __exact or sampling based)

__seqs_begin Begin iterator of iterator pair input sequence.

__seqs_end End iterator of iterator pair input sequence.

__target Begin iterator of output sequence.

__comp Comparator.

__length Maximum length to merge, possibly larger than the number of elements available.

__stable Stable merging incurs a performance penalty.

__sentinel Ignored.

Returns:

End iterator of output sequence.

Definition at line 1217 of file multiway_merge.h.

References __is_sorted(), _GLIBCXX_CALL, and _GLIBCXX_PARALLEL_-LENGTH.

Referenced by __parallel_merge_advance().

4.6.4.78 template<bool __stable, bool __exact, typename _RAIter , typename _Compare > void __gnu_parallel::parallel_sort_mwms (_RAIter *__begin*, _RAIter *__end*, _Compare *__comp*, _ThreadIndex *__num_threads*) [inline]

PMWMS main call.

Parameters:

__begin Begin iterator of sequence.

__end End iterator of sequence.

__comp Comparator.

__n Length of sequence.

__num_threads Number of threads to use.

Definition at line 394 of file multiway_mergesort.h.

References _GLIBCXX_CALL, __gnu_parallel::_PMWMSSortingData< _-RAIter >::_M_num_threads, __gnu_parallel::_PMWMSSortingData< _RAIter >::_M_offsets, __gnu_parallel::_PMWMSSortingData< _RAIter >::_M_-pieces, __gnu_parallel::_PMWMSSortingData< _RAIter >::_M_samples, __gnu_parallel::_PMWMSSortingData< _RAIter >::_M_source, __gnu_-parallel::_PMWMSSortingData< _RAIter >::_M_starts, __gnu_parallel::_-PMWMSSortingData< _RAIter >::_M_temporary, and std::vector< _Tp, _Alloc >::resize().

4.6.4.79 template<bool __stable, bool __exact, typename _RAIter , typename _Compare > void __gnu_parallel::parallel_sort_mwms_pu (_PMWMSSortingData< _RAIter > * *__sd*, _Compare & *__comp*) [inline]

PMWMS code executed by each thread.

Parameters:

__sd Pointer to algorithm data.

__comp Comparator.

Definition at line 308 of file multiway_mergesort.h.

References __gnu_parallel::_PMWMSSortingData< _RAIter >::_M_num_threads, __gnu_parallel::_PMWMSSortingData< _RAIter >::_M_pieces, __gnu_parallel::_PMWMSSortingData< _RAIter >::_M_source, __gnu_parallel::_PMWMSSortingData< _RAIter >::_M_starts, __gnu_parallel::_PMWMSSortingData< _RAIter >::_M_temporary, and std::uninitialized_copy().

4.6.5 Variable Documentation

4.6.5.1 const int __gnu_parallel::_CASable_bits [static]

Number of bits of _CASable.

Definition at line 130 of file types.h.

Referenced by __decode2(), and __encode2().

4.6.5.2 const _CASable __gnu_parallel::_CASable_mask [static]

_CASable with the right half of bits set to 1.

Definition at line 133 of file types.h.

Referenced by __decode2().

4.7 __gnu_pbds Namespace Reference

GNU extensions for policy-based data structures for public use.

Classes

- struct associative_container_tag
  Basic associative-container.
- class basic_hash_table
  An abstract basic hash-based associative container.
- struct basic_hash_tag
  Basic hash.
- class basic_tree
  An abstract basic tree-like (tree, trie) associative container.
- struct basic_tree_tag
  Basic tree.
- struct binary_heap_tag
  Binary-heap (array-based).
- struct binomial_heap_tag
  Binomial-heap.
- class cc_hash_table
  A concrete collision-chaining hash-based associative container.
- struct cc_hash_tag
  Collision-chaining hash.
- class container_base
  An abstract basic associative container.
- struct container_tag
  Base data structure tag.
- struct container_traits
  container_traits

- class gp_hash_table

  A concrete general-probing hash-based associative container.

- struct gp_hash_tag

  General-probing hash.

- class list_update

  A list-update based associative container.

- struct list_update_tag

  List-update.

- struct null_mapped_type

  A mapped-policy indicating that an associative container is a set.

- struct ov_tree_tag

  Ordered-vector tree.

- struct pairing_heap_tag

  Pairing-heap.

- struct pat_trie_tag

  PATRICIA trie.

- struct priority_queue_tag

  Basic priority-queue.

- struct rb_tree_tag

  Red-black tree.

- struct rc_binomial_heap_tag

  Redundant-counter binomial-heap.

- struct sequence_tag

  Basic sequence.

- struct splay_tree_tag

  Splay tree.

- struct string_tag

  Basic string container, inclusive of strings, ropes, etc.

- struct thin_heap_tag

  Thin heap.

- class tree

  A concrete basic tree-based associative container.

- struct tree_tag

  tree.

- class trie

  A concrete basic trie-based associative container.

- struct trie_tag

  trie.

Typedefs

- typedef void **trivial_iterator_difference_type**

Functions

- void **__throw_container_error** (void)
- void **__throw_insert_error** (void)
- void **__throw_join_error** (void)
- void **__throw_resize_error** (void)

4.7.1 Detailed Description

GNU extensions for policy-based data structures for public use.

4.8 __gnu_profile Namespace Reference

GNU profile code for public use.

Classes

- class __container_size_info

  A container size instrumentation line in the object table.

- class __container_size_stack_info

  A container size instrumentation line in the stack table.

- class __hashfunc_info

  A hash performance instrumentation line in the object table.

- class __hashfunc_stack_info

  A hash performance instrumentation line in the stack table.

- class __list2vector_info

  A list-to-vector instrumentation line in the object table.

- class __map2umap_info

  A map-to-unordered_map instrumentation line in the object table.

- class __map2umap_stack_info

  A map-to-unordered_map instrumentation line in the stack table.

- class __object_info_base

  Base class for a line in the object table.

- struct __reentrance_guard

  Reentrance guard.

- class __stack_hash

  Hash function for summary trace using call stack as index.

- class __stack_info_base

  Base class for a line in the stack table.

- class __trace_base

  Base class for all trace producers.

- class __trace_container_size

  Container size instrumentation trace producer.

- class __trace_hash_func

  Hash performance instrumentation producer.

- class __trace_hashtable_size

  Hashtable size instrumentation trace producer.

- class __trace_map2umap

  Map-to-unordered_map instrumentation producer.

- class __trace_vector_size

  Hashtable size instrumentation trace producer.

- class __trace_vector_to_list

  Vector-to-list instrumentation producer.

- class __vector2list_info

  A vector-to-list instrumentation line in the object table.

- class __vector2list_stack_info

  A vector-to-list instrumentation line in the stack table.

- struct __warning_data

  Representation of a warning.

Typedefs

- typedef std::std::vector< __cost_factor * > **__cost_factor_vector**
- typedef void * **__instruction_address_t**
- typedef pthread_mutex_t **__mutex_t**
- typedef const void * **__object_t**
- typedef std::std::vector< __instruction_address_t > **__stack_npt**
- typedef __stack_npt * **__stack_t**
- typedef std::std::vector< __warning_data > **__warning_vector_t**

Enumerations

- enum **__state_type** { **__ON**, **__OFF**, **__INVALID** }

Functions

- size_t **__env_to_size_t** (const char *__env_var, size_t __default_value)
- __cost_factor_vector *& **__get___cost_factors** ()
- __mutex_t & __get___global_lock ()
- __cost_factor & **__get___list_iterate_cost_factor** ()
- __cost_factor & **__get___list_resize_cost_factor** ()
- __cost_factor & **__get___list_shift_cost_factor** ()
- __cost_factor & **__get___map_erase_cost_factor** ()
- __cost_factor & **__get___map_find_cost_factor** ()
- __cost_factor & **__get___map_insert_cost_factor** ()
- __cost_factor & **__get___map_iterate_cost_factor** ()
- __state_type & **__get___state** ()
- __cost_factor & **__get___umap_erase_cost_factor** ()
- __cost_factor & **__get___umap_find_cost_factor** ()
- __cost_factor & **__get___umap_insert_cost_factor** ()
- __cost_factor & **__get___umap_iterate_cost_factor** ()
- __cost_factor & **__get___vector_iterate_cost_factor** ()
- __cost_factor & **__get___vector_resize_cost_factor** ()
- __cost_factor & **__get___vector_shift_cost_factor** ()
- __trace_hash_func *& **__get__S_hash_func** ()
- __trace_hashtable_size *& **__get__S_hashtable_size** ()
- __trace_list_to_slist *& **__get__S_list_to_slist** ()
- __trace_list_to_vector *& **__get__S_list_to_vector** ()
- __trace_map2umap *& **__get__S_map2umap** ()
- size_t & **__get__S_max_mem** ()
- size_t & **__get__S_max_stack_depth** ()
- size_t & **__get__S_max_warn_count** ()
- const char *& **__get__S_trace_file_name** ()
- __trace_vector_size *& **__get__S_vector_size** ()
- __trace_vector_to_list *& **__get__S_vector_to_list** ()
- __stack_t **__get_stack** ()
- bool **__is_invalid** ()
- bool **__is_off** ()
- bool **__is_on** ()
- void **__lock** (__mutex_t &__m)
- int **__log2** (size_t __size)
- int **__log_magnitude** (float f)
- float **__map_erase_cost** (size_t __size)
- float **__map_find_cost** (size_t __size)
- float **__map_insert_cost** (size_t __size)
- size_t **__max** (size_t __a, size_t __b)
- size_t **__max_mem** ()

- size_t **__min** (size_t __a, size_t __b)
- FILE * **__open_output_file** (const char *extension)
- bool __profcxx_init (void)
- void **__profcxx_init_unconditional** ()
- void **__read_cost_factors** ()
- void __report (void)
- void **__set_cost_factors** ()
- void **__set_max_mem** ()
- void **__set_max_stack_trace_depth** ()
- void **__set_max_warn_count** ()
- void **__set_trace_path** ()
- **__size** (const __stack_t &__stack)
- size_t **__stack_max_depth** ()
- void **__trace_hash_func_construct** (const void *)
- void **__trace_hash_func_destruct** (const void *, size_t, size_t, size_t)
- void **__trace_hash_func_init** ()
- void **__trace_hash_func_report** (FILE *__f, __warning_vector_t &__warnings)
- void **__trace_hashtable_size_construct** (const void *, size_t)
- void **__trace_hashtable_size_destruct** (const void *, size_t, size_t)
- void **__trace_hashtable_size_init** ()
- void **__trace_hashtable_size_report** (FILE *__f, __warning_vector_t &__warnings)
- void **__trace_hashtable_size_resize** (const void *, size_t, size_t)
- void **__trace_list_to_set_construct** (const void *)
- void **__trace_list_to_set_destruct** (const void *)
- void **__trace_list_to_set_find** (const void *, size_t)
- void **__trace_list_to_set_insert** (const void *, size_t, size_t)
- void **__trace_list_to_set_invalid_operator** (const void *)
- void **__trace_list_to_set_iterate** (const void *, size_t)
- void **__trace_list_to_slist_construct** (const void *)
- void **__trace_list_to_slist_destruct** (const void *)
- void **__trace_list_to_slist_init** ()
- void **__trace_list_to_slist_operation** (const void *)
- void **__trace_list_to_slist_report** (FILE *__f, __warning_vector_t &__warnings)
- void **__trace_list_to_slist_rewind** (const void *)
- void **__trace_list_to_vector_construct** (const void *)
- void **__trace_list_to_vector_destruct** (const void *)
- void **__trace_list_to_vector_init** ()
- void **__trace_list_to_vector_insert** (const void *, size_t, size_t)
- void **__trace_list_to_vector_invalid_operator** (const void *)
- void **__trace_list_to_vector_iterate** (const void *, size_t)

- void **__trace_list_to_vector_report** (FILE *__f, __warning_vector_t &__warnings)
- void **__trace_list_to_vector_resize** (const void *, size_t, size_t)
- void **__trace_map_to_unordered_map_construct** (const void *)
- void **__trace_map_to_unordered_map_destruct** (const void *)
- void **__trace_map_to_unordered_map_erase** (const void *, size_t, size_t)
- void **__trace_map_to_unordered_map_find** (const void *, size_t)
- void **__trace_map_to_unordered_map_init** ()
- void **__trace_map_to_unordered_map_insert** (const void *, size_t, size_t)
- void **__trace_map_to_unordered_map_invalidate** (const void *)
- void **__trace_map_to_unordered_map_iterate** (const void *, size_t)
- void **__trace_map_to_unordered_map_report** (FILE *__f, __warning_vector_t &__warnings)
- void **__trace_vector_size_construct** (const void *, size_t)
- void **__trace_vector_size_destruct** (const void *, size_t, size_t)
- void **__trace_vector_size_init** ()
- void **__trace_vector_size_report** (FILE *, __warning_vector_t &)
- void **__trace_vector_size_resize** (const void *, size_t, size_t)
- void **__trace_vector_to_list_construct** (const void *)
- void **__trace_vector_to_list_destruct** (const void *)
- void **__trace_vector_to_list_find** (const void *, size_t)
- void **__trace_vector_to_list_init** ()
- void **__trace_vector_to_list_insert** (const void *, size_t, size_t)
- void **__trace_vector_to_list_invalid_operator** (const void *)
- void **__trace_vector_to_list_iterate** (const void *, size_t)
- void **__trace_vector_to_list_report** (FILE *, __warning_vector_t &)
- void **__trace_vector_to_list_resize** (const void *, size_t, size_t)
- bool **__turn** (__state_type __s)
- bool **__turn_off** ()
- bool **__turn_on** ()
- void **__unlock** (__mutex_t &__m)
- void **__write** (FILE *__f, const __stack_t __stack)
- void **__write_cost_factors** ()

4.8.1 Detailed Description

GNU profile code for public use.

4.8.2 Function Documentation

4.8.2.1 __mutex_t& __gnu_profile::__get___global_lock () [inline]

Pthread mutex wrapper.

Definition at line 82 of file profiler_trace.h.

4.8.2.2 bool __gnu_profile::__profcxx_init (void) [inline]

This function must be called by each instrumentation point. The common path is inlined fully.

Definition at line 672 of file profiler_trace.h.

4.8.2.3 void __gnu_profile::__report (void) [inline]

Final report method, registered with **atexit**. This can also be called directly by user code, including signal handlers. It is protected against deadlocks by the reentrance guard in profiler.h. However, when called from a signal handler that triggers while within __gnu_profile (under the guarded zone), no output will be produced.

Definition at line 478 of file profiler_trace.h.

4.9 __gnu_sequential Namespace Reference

GNU sequential classes for public use.

4.9.1 Detailed Description

GNU sequential classes for public use.

4.10 abi Namespace Reference

The cross-vendor C++ Application Binary Interface. A namespace alias to __cxxabiv1, but user programs should use the alias 'abi'.

4.10.1 Detailed Description

The cross-vendor C++ Application Binary Interface. A namespace alias to __cxxabiv1, but user programs should use the alias 'abi'. A brief overview of an ABI is given in the libstdc++ FAQ, question 5.8 (you may have a copy of the FAQ locally, or you can view the online version at http://gcc.gnu.org/onlinedocs/libstdc++/faq/index.html#5_-8).

GCC subscribes to a cross-vendor ABI for C++, sometimes called the IA64 ABI because it happens to be the native ABI for that platform. It is summarized at http://www.codesourcery.com/cxx-abi/ along with the current specification.

For users of GCC greater than or equal to 3.x, entry points are available in <cxxabi.h>, which notes, *'It is not normally necessary for user programs to include this header, or use the entry points directly. However, this header is available should that be needed.'*

4.11 std Namespace Reference

ISO C++ entities toplevel namespace is std.

Namespaces

- namespace __debug
- namespace __detail
- namespace __parallel
- namespace __profile
- namespace chrono
- namespace decimal
- namespace placeholders
- namespace regex_constants
- namespace rel_ops
- namespace this_thread
- namespace tr1

Classes

- class __basic_future

  Common implementation for future and shared_future.

- class __codecvt_abstract_base

  Common base for codecvt functions.

- class __ctype_abstract_base

  Common base for ctype facet.

- struct __declval_protector

  declval

- struct __future_base

  Base class and enclosing scope.

- struct __is_location_invariant
- struct __is_member_pointer_helper

  is_member_pointer

- struct __numeric_limits_base

  Part of std::numeric_limits.

- struct _Base_bitset
- struct _Base_bitset< 0 >
- struct _Base_bitset< 1 >
- struct _Build_index_tuple

  Builds an _Index_tuple<0, 1, 2, ..., _Num-1>.

- class _Deque_base
- struct _Deque_iterator

  A deque::iterator.

- struct _Derives_from_binary_function

  Determines if the type _Tp derives from binary_function.

- struct _Derives_from_unary_function

  Determines if the type _Tp derives from unary_function.

- class _Function_base

  Base class of all polymorphic function object wrappers.

- struct _Function_to_function_pointer

  Turns a function type into a function pointer type.

- struct _Fwd_list_base

  Base class for forward_list.

- struct _Fwd_list_const_iterator

  A forward_list::const_iterator.

- struct _Fwd_list_iterator

  A forward_list::iterator.

- struct _Fwd_list_node

  A helper node class for forward_list. This is just a linked list with a data value in each node. There is a sorting utility method.

- struct _Fwd_list_node_base

  A helper basic node class for forward_list. This is just a linked list with nothing inside it. There are purely list shuffling utility methods here.

- class _Has_result_type_helper
- struct _Index_tuple
- class _List_base

See bits/stl_deque.h's _Deque_base for an explanation.

- struct _List_const_iterator

  A list::const_iterator.

- struct _List_iterator

  A list::iterator.

- struct _List_node

  An actual node in the list.

- struct _List_node_base

  Common part of a node in the list.

- struct _Maybe_get_result_type

  If we have found a result_type, extract it.

- struct _Maybe_unary_or_binary_function
- struct _Maybe_unary_or_binary_function< _Res, _T1 >

  Derives from `unary_function`, as appropriate.

- struct _Maybe_unary_or_binary_function< _Res, _T1, _T2 >

  Derives from `binary_function`, as appropriate.

- struct _Maybe_wrap_member_pointer
- struct _Maybe_wrap_member_pointer< _Tp _Class::* >
- class _Mem_fn< _Res(_Class::*)(_ArgTypes...) const >

  Implementation of `mem_fn` for const member function pointers.

- class _Mem_fn< _Res(_Class::*)(_ArgTypes...) const volatile >

  Implementation of `mem_fn` for const volatile member function pointers.

- class _Mem_fn< _Res(_Class::*)(_ArgTypes...) volatile >

  Implementation of `mem_fn` for volatile member function pointers.

- class _Mem_fn< _Res(_Class::*)(_ArgTypes...)>

  Implementation of `mem_fn` for member function pointers.

- class _Mu< _Arg, false, false >
- class _Mu< _Arg, false, true >
- class _Mu< _Arg, true, false >
- class _Mu< reference_wrapper< _Tp >, false, false >
- struct _Placeholder

The type of placeholder objects defined by libstdc++.

- struct _Reference_wrapper_base
- struct _Safe_tuple_element
- struct _Safe_tuple_element_impl
- struct _Safe_tuple_element_impl< __i, _Tuple, false >
- class _Temporary_buffer
- struct _Tuple_impl< _Idx >
- struct _Tuple_impl< _Idx, _Head, _Tail...>
- struct _Vector_base

  See bits/stl_deque.h's _Deque_base for an explanation.

- struct _Weak_result_type
- struct _Weak_result_type_impl
- struct _Weak_result_type_impl< _Res(&)(_ArgTypes...)>

  Retrieve the result type for a function reference.

- struct _Weak_result_type_impl< _Res(∗)(_ArgTypes...)>

  Retrieve the result type for a function pointer.

- struct _Weak_result_type_impl< _Res(_ArgTypes...)>

  Retrieve the result type for a function type.

- struct _Weak_result_type_impl< _Res(_Class::∗)(_ArgTypes...) const >

  Retrieve result type for a const member function pointer.

- struct _Weak_result_type_impl< _Res(_Class::∗)(_ArgTypes...) const volatile >

  Retrieve result type for a const volatile member function pointer.

- struct _Weak_result_type_impl< _Res(_Class::∗)(_ArgTypes...) volatile >

  Retrieve result type for a volatile member function pointer.

- struct _Weak_result_type_impl< _Res(_Class::∗)(_ArgTypes...)>

  Retrieve result type for a member function pointer.

- struct add_const

  add_const

- struct add_cv

  add_cv

- struct add_lvalue_reference

add_lvalue_reference

- struct add_pointer

  add_pointer

- struct add_rvalue_reference

  add_rvalue_reference

- struct add_volatile

  add_volatile

- struct adopt_lock_t

  Assume the calling thread has already obtained mutex ownership and manage it.

- struct aligned_storage

  Alignment type.

- struct alignment_of

  alignment_of

- class allocator

  The standard allocator, as per [20.4].
  Further details: http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt04ch11.html.

- class allocator< void >

  allocator<void> specialization.

- struct array

  A standard container for storing a fixed size sequence of elements.

- struct atomic

  atomic 29.4.3, Generic atomic type, primary class template.

- struct atomic< _Tp * >

  Partial specialization for pointer types.

- struct atomic< bool >

  Explicit specialization for bool.

- struct atomic< char >

  Explicit specialization for char.

- struct atomic< char16_t >

Explicit specialization for char16_t.

- struct atomic< char32_t >

  Explicit specialization for char32_t.

- struct atomic< int >

  Explicit specialization for int.

- struct atomic< long >

  Explicit specialization for long.

- struct atomic< long long >

  Explicit specialization for long long.

- struct atomic< short >

  Explicit specialization for short.

- struct atomic< signed char >

  Explicit specialization for signed char.

- struct atomic< unsigned char >

  Explicit specialization for unsigned char.

- struct atomic< unsigned int >

  Explicit specialization for unsigned int.

- struct atomic< unsigned long >

  Explicit specialization for unsigned long.

- struct atomic< unsigned long long >

  Explicit specialization for unsigned long long.

- struct atomic< unsigned short >

  Explicit specialization for unsigned short.

- struct atomic< void * >

  Explicit specialization for void.*

- struct atomic< wchar_t >

  Explicit specialization for wchar_t.

- class auto_ptr

A simple smart pointer providing strict ownership semantics.

- struct auto_ptr_ref
- class back_insert_iterator

  Turns assignment into insertion.

- class bad_alloc

  Exception possibly thrown by `new`.
  `bad_alloc` *(or classes derived from it) is used to report allocation errors from the throwing forms of* `new`.

- class bad_cast

  Thrown during incorrect typecasting.
  If you attempt an invalid `dynamic_cast` *expression, an instance of this class (or something derived from this class) is thrown.*

- class bad_exception
- class bad_function_call

  Exception class thrown when class template function's operator() is called with an empty target.

- class bad_typeid

  Thrown when a NULL pointer in a `typeid` *expression is used.*

- class bad_weak_ptr

  Exception possibly thrown by `shared_ptr`.

- class basic_filebuf

  The actual work of input and output (for files).
  This class associates both its input and output sequence with an external disk file, and maintains a joint file position for both sequences. Many of its semantics are described in terms of similar behavior in the Standard C Library's `FILE` *streams.*

- class basic_fstream

  Controlling input and output for files.
  This class supports reading from and writing to named files, using the inherited functions from std::basic_iostream. To control the associated sequence, an instance of std::basic_filebuf is used, which this page refers to as `sb`.

- class basic_ifstream

  Controlling input for files.
  This class supports reading from named files, using the inherited functions from std::basic_istream. To control the associated sequence, an instance of std::basic_filebuf is used, which this page refers to as `sb`.

- class basic_ios

  Virtual base class for all stream classes.
  Most of the member functions called dispatched on stream objects (e.g., `std::cout.foo(bar);`) are consolidated in this class.

- class basic_iostream

  Merging istream and ostream capabilities.
  This class multiply inherits from the input and output stream classes simply to provide a single interface.

- class basic_istream

  Controlling input.
  This is the base class for all input streams. It provides text formatting of all builtin types, and communicates with any class derived from basic_streambuf to do the actual input.

- class basic_istringstream

  Controlling input for std::string.
  This class supports reading from objects of type std::basic_string, using the inherited functions from std::basic_istream. To control the associated sequence, an instance of std::basic_stringbuf is used, which this page refers to as `sb`.

- class basic_ofstream

  Controlling output for files.
  This class supports reading from named files, using the inherited functions from std::basic_ostream. To control the associated sequence, an instance of std::basic_filebuf is used, which this page refers to as `sb`.

- class basic_ostream

  Controlling output.
  This is the base class for all output streams. It provides text formatting of all builtin types, and communicates with any class derived from basic_streambuf to do the actual output.

- class basic_ostringstream

  Controlling output for std::string.
  This class supports writing to objects of type std::basic_string, using the inherited functions from std::basic_ostream. To control the associated sequence, an instance of std::basic_stringbuf is used, which this page refers to as `sb`.

- class basic_regex
- class basic_streambuf

  The actual work of input and output (interface).
  This is a base class. Derived stream buffers each control a pair of character sequences: one for input, and one for output.

- class basic_string

  Managing sequences of characters and character-like objects.

- class basic_stringbuf

  The actual work of input and output (for std::string).
  This class associates either or both of its input and output sequences with a sequence of characters, which can be initialized from, or made available as, a `std::basic_string`*. (Paraphrased from [27.7.1]/1.).*

- class basic_stringstream

  Controlling input and output for std::string.
  This class supports reading from and writing to objects of type std::basic_string, using the inherited functions from std::basic_iostream. To control the associated sequence, an instance of std::basic_stringbuf is used, which this page refers to as `sb`*.*

- class bernoulli_distribution

  A Bernoulli random number distribution.

- struct bidirectional_iterator_tag

  Bidirectional iterators support a superset of forward iterator operations.

- struct binary_function
- class binary_negate

  One of the negation functors.

- class binder1st

  One of the binder functors.

- class binder2nd

  One of the binder functors.

- class binomial_distribution

  A discrete binomial random number distribution.

- class bitset

  The bitset class represents a fixed-size sequence of bits.

- class cauchy_distribution

  A cauchy_distribution random number distribution.

- struct char_traits

  Basis for explicit traits specializations.

- struct char_traits< __gnu_cxx::character< V, I, S > >

  char_traits<__gnu_cxx::character> specialization.

- struct char_traits< char >

  21.1.3.1 char_traits specializations

- struct char_traits< wchar_t >

  21.1.3.2 char_traits specializations

- class chi_squared_distribution

  A chi_squared_distribution random number distribution.

- class codecvt

  Primary class template codecvt.
  NB: Generic, mostly useless implementation.

- class codecvt< _InternT, _ExternT, encoding_state >

  codecvt<InternT, _ExternT, encoding_state> specialization.

- class codecvt< char, char, mbstate_t >

  class codecvt<char, char, mbstate_t> specialization.

- class codecvt< wchar_t, char, mbstate_t >

  class codecvt<wchar_t, char, mbstate_t> specialization.

- class codecvt_base

  Empty base class for codecvt facet [22.2.1.5].

- class codecvt_byname

  class codecvt_byname [22.2.1.6].

- class collate

  Facet for localized string comparison.

- class collate_byname

  class collate_byname [22.2.4.2].

- struct complex
- class condition_variable

  condition_variable

- class condition_variable_any

condition_variable_any

- struct conditional

  conditional

- class const_mem_fun1_ref_t

  One of the adaptors for member pointers.

- class const_mem_fun1_t

  One of the adaptors for member pointers.

- class const_mem_fun_ref_t

  One of the adaptors for member pointers.

- class const_mem_fun_t

  One of the adaptors for member pointers.

- class ctype

  Primary class template ctype facet.
  This template class defines classification and conversion functions for character sets. It wraps cctype functionality. Ctype gets used by streams for many I/O operations.

- class ctype< char >

  The ctype<char> specialization.
  This class defines classification and conversion functions for the char type. It gets used by char streams for many I/O operations. The char specialization provides a number of optimizations as well.

- class ctype< wchar_t >

  The ctype<wchar_t> specialization.
  This class defines classification and conversion functions for the wchar_t type. It gets used by wchar_t streams for many I/O operations. The wchar_t specialization provides a number of optimizations as well.

- struct ctype_base

  Base class for ctype.

- class ctype_byname

  class ctype_byname [22.2.1.2].

- class ctype_byname< char >

  22.2.1.4 Class ctype_byname specializations.

- class decay

decay

- struct default_delete

  Primary template, default_delete.

- struct default_delete< _Tp[ ]>

  Specialization, default_delete.

- struct defer_lock_t

  Do not acquire ownership of the mutex.

- class deque

  A standard container using fixed-size memory allocation and constant-time manipulation of elements at either end.

- class discard_block_engine
- class discrete_distribution

  A discrete_distribution random number distribution.

- struct divides

  One of the math functors.

- class domain_error
- struct enable_if

  enable_if

- class enable_shared_from_this

  Base class allowing use of member function shared_from_this.

- struct equal_to

  One of the comparison functors.

- class error_category

  error_category

- struct error_code

  error_code

- struct error_condition

  error_condition

- class exception

  Base class for all library exceptions.

- class exponential_distribution

  An exponential continuous distribution for random numbers.

- struct extent

  extent

- class extreme_value_distribution

  A extreme_value_distribution random number distribution.

- class fisher_f_distribution

  A fisher_f_distribution random number distribution.

- struct forward_iterator_tag

  Forward iterators support a superset of input iterator operations.

- class forward_list

  A standard container with linear time access to elements, and fixed time insertion/deletion at any point in the sequence.

- class fpos

  Class representing stream positions.

- class front_insert_iterator

  Turns assignment into insertion.

- class function< _Res(_ArgTypes...)>

  Primary class template for std::function.
  Polymorphic function wrapper.

- class future

  Primary template for future.

- class future< _Res & >

  Partial specialization for future<R&>.

- class future< void >

  Explicit specialization for future<void>.

- class future_error

  Exception type thrown by futures.

- class gamma_distribution

A gamma continuous distribution for random numbers.

- class geometric_distribution

  A discrete geometric random number distribution.

- struct greater

  One of the comparison functors.

- struct greater_equal

  One of the comparison functors.

- class gslice

  Class defining multi-dimensional subset of an array.

- class gslice_array

  Reference to multi-dimensional subset of an array.

- struct has_nothrow_assign

  has_nothrow_assign

- struct has_nothrow_copy_constructor

  has_nothrow_copy_constructor

- struct has_nothrow_default_constructor

  has_nothrow_default_constructor

- struct has_trivial_assign

  has_trivial_assign

- struct has_trivial_copy_constructor

  has_trivial_copy_constructor

- struct has_trivial_default_constructor

  has_trivial_default_constructor

- struct has_trivial_destructor

  has_trivial_destructor

- struct has_virtual_destructor

  has_virtual_destructor

- struct hash

Primary class template hash.

- struct hash< ::bitset< _Nb > >
  std::hash specialization for bitset.
- struct hash< ::vector< bool, _Alloc > >
  std::hash specialization for vector<bool>.
- struct hash< __debug::bitset< _Nb > >
  std::hash specialization for bitset.
- struct hash< __debug::vector< bool, _Alloc > >
  std::hash specialization for vector<bool>.
- struct hash< __gnu_cxx::throw_value_limit >
  Explicit specialization of std::hash for __gnu_cxx::throw_value_limit.
- struct hash< __gnu_cxx::throw_value_random >
  Explicit specialization of std::hash for __gnu_cxx::throw_value_limit.
- struct hash< __profile::bitset< _Nb > >
  std::hash specialization for bitset.
- struct hash< __profile::vector< bool, _Alloc > >
  std::hash specialization for vector<bool>.
- struct hash< _Tp * >
  Partial specializations for pointer types.
- struct hash< error_code >
  std::hash specialization for error_code.
- struct hash< string >
  std::hash specialization for string.
- struct hash< thread::id >
  std::hash specialization for thread::id.
- struct hash< u16string >
  std::hash specialization for u16string.
- struct hash< u32string >

std::hash specialization for u32string.

- struct hash< wstring >

  std::hash specialization for wstring.

- struct identity

  identity

- class independent_bits_engine
- class indirect_array

  Reference to arbitrary subset of an array.

- class initializer_list

  initializer_list

- struct input_iterator_tag

  Marking input iterators.

- class insert_iterator

  Turns assignment into insertion.

- struct integral_constant

  integral_constant

- class invalid_argument
- class ios_base

  The base of the I/O class hierarchy.
  This class defines everything that can be defined about I/O that does not depend on the type of characters being input or output. Most people will only see `ios_base` *when they need to specify the full name of the various I/O flags (e.g., the openmodes).*

- struct is_abstract

  is_abstract

- struct is_arithmetic

  is_arithmetic

- struct is_array

  is_array

- struct is_base_of

  is_base_of

- struct is_bind_expression

  Determines if the given type _Tp is a function object should be treated as a subexpression when evaluating calls to function objects returned by bind(). [TR1 3.6.1].

- struct is_bind_expression< _Bind< _Signature > >

  Class template _Bind is always a bind expression.

- struct is_bind_expression< _Bind_result< _Result, _Signature > >

  Class template _Bind is always a bind expression.

- struct is_class

  is_class

- struct is_compound

  is_compound

- struct is_const

  is_const

- struct is_constructible

  is_constructible

- struct is_convertible

  is_convertible

- struct is_empty

  is_empty

- struct is_enum

  is_enum

- struct is_error_code_enum

  is_error_code_enum

- struct is_error_condition_enum

  is_error_condition_enum

- struct is_explicitly_convertible

  is_explicitly_convertible

- struct is_floating_point

  is_floating_point

- struct is_function

  is_function

- struct is_fundamental

  is_fundamental

- struct is_integral

  is_integral

- struct is_lvalue_reference

  is_lvalue_reference

- struct is_member_function_pointer

  is_member_function_pointer

- struct is_member_object_pointer

  is_member_object_pointer

- struct is_object

  is_object

- struct is_placeholder

  Determines if the given type _Tp is a placeholder in a bind() expression and, if so, which placeholder it is. [TR1 3.6.2].

- struct is_placeholder< _Placeholder< _Num > >
- struct is_pod

  is_pod

- struct is_pointer

  is_pointer

- struct is_polymorphic

  is_polymorphic

- struct is_reference

  is_reference

- struct is_rvalue_reference

  is_rvalue_reference

- struct is_same

is_same

- struct is_scalar
  is_scalar
- struct is_signed
  is_signed
- struct is_standard_layout
  is_standard_layout
- struct is_trivial
  is_trivial
- struct is_union
  is_union
- struct is_unsigned
  is_unsigned
- struct is_void
  is_void
- struct is_volatile
  is_volatile
- class istream_iterator
  Provides input iterator semantics for streams.
- class istreambuf_iterator
  Provides input iterator semantics for streambufs.
- struct iterator
  Common iterator class.
- struct iterator_traits
  Traits class for iterators.
- struct iterator_traits< _Tp * >
  Partial specialization for pointer types.
- struct iterator_traits< const _Tp * >

Partial specialization for const pointer types.

- class length_error
- struct less

  One of the comparison functors.

- struct less_equal

  One of the comparison functors.

- class linear_congruential_engine

  A model of a linear congruential random number generator.

- class list

  A standard container with linear time access to elements, and fixed time insertion/deletion at any point in the sequence.

- class locale

  Container class for localization functionality.
  The locale class is first a class wrapper for C library locales. It is also an extensible container for user-defined localization. A locale is a collection of facets that implement various localization features such as money, time, and number printing.

- class lock_guard

  Scoped lock idiom.

- class logic_error

  One of two subclasses of exception.

- struct logical_and

  One of the Boolean operations functors.

- struct logical_not

  One of the Boolean operations functors.

- struct logical_or

  One of the Boolean operations functors.

- class lognormal_distribution

  A lognormal_distribution random number distribution.

- struct make_signed

  make_signed

- struct make_unsigned

  make_unsigned

- class map

  A standard container made up of (key,value) pairs, which can be retrieved based on a key, in logarithmic time.

- class mask_array

  Reference to selected subset of an array.

- class match_results

  The results of a match or search operation.

- class mem_fun1_ref_t

  One of the adaptors for member pointers.

- class mem_fun1_t

  One of the adaptors for member pointers.

- class mem_fun_ref_t

  One of the adaptors for member pointers.

- class mem_fun_t

  One of the adaptors for member pointers.

- class messages

  Primary class template messages.
  This facet encapsulates the code to retrieve messages from message catalogs. The only thing defined by the standard for this facet is the interface. All underlying functionality is implementation-defined.

- struct messages_base

  Messages facet base class providing catalog typedef.

- class messages_byname

  class messages_byname [22.2.7.2].

- struct minus

  One of the math functors.

- struct modulus

  One of the math functors.

- class money_base

  Money format ordering data.
  This class contains an ordered array of 4 fields to represent the pattern for formatting a money amount. Each field may contain one entry from the part enum. symbol, sign, and value must be present and the remaining field must contain either none or space.

- class money_get

  Primary class template money_get.
  This facet encapsulates the code to parse and return a monetary amount from a string.

- class money_put

  Primary class template money_put.
  This facet encapsulates the code to format and output a monetary amount.

- class moneypunct

  Primary class template moneypunct.
  This facet encapsulates the punctuation, grouping and other formatting features of money amount string representations.

- class moneypunct_byname

  class moneypunct_byname [22.2.6.4].

- class move_iterator
- class multimap

  A standard container made up of (key,value) pairs, which can be retrieved based on a key, in logarithmic time.

- struct multiplies

  One of the math functors.

- class multiset

  A standard container made up of elements, which can be retrieved in logarithmic time.

- class mutex

  mutex

- struct negate

  One of the math functors.

- class negative_binomial_distribution

  A negative_binomial_distribution random number distribution.

- class nested_exception

  Exception class with exception_ptr data member.

- class normal_distribution

  A normal continuous distribution for random numbers.

- struct not_equal_to

  One of the comparison functors.

- class num_get

  Primary class template num_get.
  This facet encapsulates the code to parse and return a number from a string. It is used by the istream numeric extraction operators.

- class num_put

  Primary class template num_put.
  This facet encapsulates the code to convert a number to a string. It is used by the ostream numeric insertion operators.

- struct numeric_limits

  Properties of fundamental types.

- struct numeric_limits< bool >

  numeric_limits<bool> specialization.

- struct numeric_limits< char >

  numeric_limits<char> specialization.

- struct numeric_limits< char16_t >

  numeric_limits<char16_t> specialization.

- struct numeric_limits< char32_t >

  numeric_limits<char32_t> specialization.

- struct numeric_limits< double >

  numeric_limits<double> specialization.

- struct numeric_limits< float >

  numeric_limits<float> specialization.

- struct numeric_limits< int >

  numeric_limits<int> specialization.

- struct numeric_limits< long >

  numeric_limits<long> specialization.

- struct numeric_limits< long double >

  numeric_limits<long double> specialization.

- struct numeric_limits< long long >

  numeric_limits<long long> specialization.

- struct numeric_limits< short >

  numeric_limits<short> specialization.

- struct numeric_limits< signed char >

  numeric_limits<signed char> specialization.

- struct numeric_limits< unsigned char >

  numeric_limits<unsigned char> specialization.

- struct numeric_limits< unsigned int >

  numeric_limits<unsigned int> specialization.

- struct numeric_limits< unsigned long >

  numeric_limits<unsigned long> specialization.

- struct numeric_limits< unsigned long long >

  numeric_limits<unsigned long long> specialization.

- struct numeric_limits< unsigned short >

  numeric_limits<unsigned short> specialization.

- struct numeric_limits< wchar_t >

  numeric_limits<wchar_t> specialization.

- class numpunct

  Primary class template numpunct.
  This facet stores several pieces of information related to printing and scanning numbers, such as the decimal point character. It takes a template parameter specifying the char type. The numpunct facet is used by streams for many I/O operations involving numbers.

- class numpunct_byname

  class numpunct_byname [22.2.3.2].

- struct once_flag

  once_flag

- class ostream_iterator

  Provides output iterator semantics for streams.

- class ostreambuf_iterator

  Provides output iterator semantics for streambufs.

- class out_of_range
- struct output_iterator_tag

  Marking output iterators.

- class overflow_error
- struct owner_less< shared_ptr< _Tp > >

  Partial specialization of owner_less for shared_ptr.

- struct owner_less< weak_ptr< _Tp > >

  Partial specialization of owner_less for weak_ptr.

- class packaged_task< _Res(_ArgTypes...)>

  packaged_task

- struct pair

  pair holds two objects of arbitrary type.

- class piecewise_constant_distribution

  A piecewise_constant_distribution random number distribution.

- class piecewise_linear_distribution

  A piecewise_linear_distribution random number distribution.

- struct plus

  One of the math functors.

- class pointer_to_binary_function

  One of the adaptors for function pointers.

- class pointer_to_unary_function

  One of the adaptors for function pointers.

- class poisson_distribution

  A discrete Poisson random number distribution.

- class priority_queue

  A standard container automatically sorting its contents.

- class promise

  Primary template for promise.

- class promise< _Res & >

  Partial specialization for promise<R&>.

- class promise< void >

  Explicit specialization for promise<void>.

- class queue

  A standard container giving FIFO behavior.

- struct random_access_iterator_tag

  Random-access iterators support a superset of bidirectional iterator operations.

- class random_device
- class range_error
- struct rank

  rank

- struct ratio

  Provides compile-time rational arithmetic.

- struct ratio_add

  ratio_add

- struct ratio_divide

  ratio_divide

- struct ratio_equal

  ratio_equal

- struct ratio_greater

  ratio_greater

- struct ratio_greater_equal

  ratio_greater_equal

- struct ratio_less

ratio_less

- struct ratio_less_equal

  ratio_less_equal

- struct ratio_multiply

  ratio_multiply

- struct ratio_not_equal

  ratio_not_equal

- struct ratio_subtract

  ratio_subtract

- class raw_storage_iterator
- class recursive_mutex

  recursive_mutex

- class recursive_timed_mutex

  recursive_timed_mutex

- class reference_wrapper

  Primary class template for reference_wrapper.

- class regex_error

  A regular expression exception class.
  The regular expression library throws objects of this class on error.

- class regex_iterator
- class regex_token_iterator
- struct regex_traits

  Describes aspects of a regular expression.

- struct remove_all_extents

  remove_all_extents

- struct remove_const

  remove_const

- struct remove_cv

  remove_cv

- struct remove_extent

remove_extent

- struct remove_pointer

  remove_pointer

- struct remove_reference

  remove_reference

- struct remove_volatile

  remove_volatile

- class reverse_iterator
- class runtime_error

  One of two subclasses of exception.

- class seed_seq

  The seed_seq class generates sequences of seeds for random number generators.

- class set

  A standard container made up of unique keys, which can be retrieved in logarithmic time.

- class shared_future

  Primary template for shared_future.

- class shared_future< _Res & >

  Partial specialization for shared_future<R&>.

- class shared_future< void >

  Explicit specialization for shared_future<void>.

- class shared_ptr

  A smart pointer with reference-counted copy semantics.

- class shuffle_order_engine

  Produces random numbers by combining random numbers from some base engine to produce random numbers with a specifies number of bits __w.

- class slice

  Class defining one-dimensional subset of an array.

- class slice_array

  Reference to one-dimensional subset of an array.

- class stack

  A standard container giving FILO behavior.

- class student_t_distribution

  A student_t_distribution random number distribution.

- class sub_match
- class system_error

  Thrown to indicate error code of underlying system.

- class thread

  thread

- class time_base

  Time format ordering data.
  This class provides an enum representing different orderings of time: day, month, and year.

- class time_get

  Primary class template time_get.
  This facet encapsulates the code to parse and return a date or time from a string. It is used by the istream numeric extraction operators.

- class time_get_byname

  class time_get_byname [22.2.5.2].

- class time_put

  Primary class template time_put.
  This facet encapsulates the code to format and output dates and times according to formats used by strftime().

- class time_put_byname

  class time_put_byname [22.2.5.4].

- class timed_mutex

  timed_mutex

- struct try_to_lock_t

  Try to acquire ownership of the mutex without blocking.

- class tuple

  tuple

- class tuple< _T1, _T2 >

  tuple (2-element), with construction and assignment from a pair.

- struct tuple_element< 0, tuple< _Head, _Tail...> >
- struct tuple_element< __i, tuple< _Head, _Tail...> >
- struct tuple_size< tuple< _Elements...> >

  class tuple_size

- class type_info

  Part of RTTI.

- struct unary_function
- class unary_negate

  One of the negation functors.

- class underflow_error
- class uniform_int_distribution

  Uniform discrete distribution for random numbers. A discrete random distribution on the range $[min, max]$ *with equal probability throughout the range.*

- class uniform_real_distribution

  Uniform continuous distribution for random numbers.

- class unique_lock

  unique_lock

- class unique_ptr

  20.7.12.2 unique_ptr for single objects.

- class unique_ptr< _Tp[ ], _Tp_Deleter >

  20.7.12.3 unique_ptr for array objects with a runtime length

- class unordered_map

  A standard container composed of unique keys (containing at most one of each key value) that associates values of another type with the keys.

- class unordered_multimap

  A standard container composed of equivalent keys (possibly containing multiple of each key value) that associates values of another type with the keys.

- class unordered_multiset

A standard container composed of equivalent keys (possibly containing multiple of each key value) in which the elements' keys are the elements themselves.

- class unordered_set

  A standard container composed of unique keys (containing at most one of each key value) in which the elements' keys are the elements themselves.

- class valarray

  Smart array designed to support numeric processing.

- class vector

  A standard container which offers fixed time access to individual elements in any order.

- class vector< bool, _Alloc >

  A specialization of vector for booleans which offers fixed time access to individual elements in any order.

- class weak_ptr

  A smart pointer with weak semantics.

- class weibull_distribution

  A weibull_distribution random number distribution.

Typedefs

- typedef struct std::__atomic_flag_base **__atomic_flag_base**
- typedef FILE **__c_file**
- typedef __locale_t **__c_locale**
- typedef __gthread_mutex_t **__c_lock**
- typedef unsigned long **_Bit_type**
- typedef atomic_short **atomic_int_fast16_t**
- typedef atomic_int **atomic_int_fast32_t**
- typedef atomic_llong **atomic_int_fast64_t**
- typedef atomic_schar **atomic_int_fast8_t**
- typedef atomic_short **atomic_int_least16_t**
- typedef atomic_int **atomic_int_least32_t**
- typedef atomic_llong **atomic_int_least64_t**
- typedef atomic_schar **atomic_int_least8_t**
- typedef atomic_llong **atomic_intmax_t**
- typedef atomic_long **atomic_intptr_t**
- typedef atomic_long **atomic_ptrdiff_t**

- typedef atomic_ulong **atomic_size_t**
- typedef atomic_long **atomic_ssize_t**
- typedef atomic_ushort **atomic_uint_fast16_t**
- typedef atomic_uint **atomic_uint_fast32_t**
- typedef atomic_ullong **atomic_uint_fast64_t**
- typedef atomic_uchar **atomic_uint_fast8_t**
- typedef atomic_ushort **atomic_uint_least16_t**
- typedef atomic_uint **atomic_uint_least32_t**
- typedef atomic_ullong **atomic_uint_least64_t**
- typedef atomic_uchar **atomic_uint_least8_t**
- typedef atomic_ullong **atomic_uintmax_t**
- typedef atomic_ulong **atomic_uintptr_t**
- typedef ratio< 1, 1000000000000000000 > **atto**
- typedef ratio< 1, 100 > **centi**
- typedef match_results< const char * > **cmatch**
- typedef regex_iterator< const char * > **cregex_iterator**
- typedef regex_token_iterator< const char * > cregex_token_iterator
- typedef sub_match< const char * > csub_match
- typedef ratio< 10, 1 > **deca**
- typedef ratio< 1, 10 > **deci**
- typedef minstd_rand0 **default_random_engine**
- typedef ratio< 1000000000000000000, 1 > **exa**
- typedef integral_constant< bool, false > false_type
- typedef ratio< 1, 1000000000000000 > **femto**
- typedef basic_filebuf< char > filebuf
- typedef basic_fstream< char > fstream
- typedef ratio< 1000000000, 1 > **giga**
- typedef ratio< 100, 1 > **hecto**
- typedef basic_ifstream< char > ifstream
- typedef basic_ios< char > ios
- typedef basic_iostream< char > iostream
- typedef basic_istream< char > istream
- typedef basic_istringstream< char > istringstream
- typedef ratio< 1000, 1 > **kilo**
- typedef shuffle_order_engine< minstd_rand0, 256 > **knuth_b**
- typedef ratio< 1000000, 1 > **mega**
- typedef enum std::memory_order memory_order
- typedef ratio< 1, 1000000 > **micro**
- typedef ratio< 1, 1000 > **milli**
- typedef linear_congruential_engine< uint_fast32_t, 48271UL, 0UL, 2147483647UL > minstd_rand
- typedef linear_congruential_engine< uint_fast32_t, 16807UL, 0UL, 2147483647UL > minstd_rand0

- typedef mersenne_twister_engine< uint_fast32_t, 32, 624, 397, 31, 0x9908b0dfUL, 11, 0xffffffffUL, 7, 0x9d2c5680UL, 15, 0xefc60000UL, 18, 1812433253UL > mt19937
- typedef mersenne_twister_engine< uint_fast64_t, 64, 312, 156, 31, 0xb5026f5aa96619e9ULL, 29, 0x5555555555555555ULL, 17, 0x71d67fffeda60000ULL, 37, 0xfff7eee000000000ULL, 43, 6364136223846793005ULL > mt19937_64
- typedef ratio< 1, 1000000000 > **nano**
- typedef void(* new_handler)()
- typedef basic_ofstream< char > ofstream
- typedef basic_ostream< char > ostream
- typedef basic_ostringstream< char > ostringstream
- typedef ratio< 1000000000000000, 1 > **peta**
- typedef ratio< 1, 1000000000000 > **pico**
- typedef discard_block_engine< ranlux24_base, 223, 23 > **ranlux24**
- typedef subtract_with_carry_engine< uint_fast32_t, 24, 10, 24 > **ranlux24_base**
- typedef discard_block_engine< ranlux48_base, 389, 11 > **ranlux48**
- typedef subtract_with_carry_engine< uint_fast64_t, 48, 5, 12 > **ranlux48_base**

- typedef basic_regex< char > regex
- typedef match_results< string::const_iterator > **smatch**
- typedef regex_iterator< string::const_iterator > **sregex_iterator**
- typedef regex_token_iterator< string::const_iterator > sregex_token_iterator
- typedef sub_match< string::const_iterator > ssub_match
- typedef basic_streambuf< char > streambuf
- typedef long streamoff
- typedef fpos< mbstate_t > streampos
- typedef ptrdiff_t streamsize
- typedef basic_string< char > **string**
- typedef basic_stringbuf< char > stringbuf
- typedef basic_stringstream< char > stringstream
- typedef ratio< 1000000000000, 1 > **tera**
- typedef void(* terminate_handler)()
- typedef integral_constant< bool, true > true_type
- typedef fpos< mbstate_t > u16streampos
- typedef basic_string< char16_t > **u16string**
- typedef fpos< mbstate_t > u32streampos
- typedef basic_string< char32_t > **u32string**
- typedef void(* unexpected_handler)()
- typedef match_results< const wchar_t * > **wcmatch**
- typedef regex_iterator< const wchar_t * > **wcregex_iterator**
- typedef regex_token_iterator< const wchar_t * > wcregex_token_iterator

- typedef sub_match< const wchar_t * > wcsub_match
- typedef basic_filebuf< wchar_t > wfilebuf
- typedef basic_fstream< wchar_t > wfstream
- typedef basic_ifstream< wchar_t > wifstream
- typedef basic_ios< wchar_t > wios
- typedef basic_iostream< wchar_t > wiostream
- typedef basic_istream< wchar_t > wistream
- typedef basic_istringstream< wchar_t > wistringstream
- typedef basic_ofstream< wchar_t > wofstream
- typedef basic_ostream< wchar_t > wostream
- typedef basic_ostringstream< wchar_t > wostringstream
- typedef basic_regex< wchar_t > wregex
- typedef match_results< wstring::const_iterator > **wsmatch**
- typedef regex_iterator< wstring::const_iterator > **wsregex_iterator**
- typedef regex_token_iterator< wstring::const_iterator > wsregex_token_iterator
- typedef sub_match< wstring::const_iterator > wssub_match
- typedef basic_streambuf< wchar_t > wstreambuf
- typedef fpos< mbstate_t > wstreampos
- typedef basic_string< wchar_t > **wstring**
- typedef basic_stringbuf< wchar_t > wstringbuf
- typedef basic_stringstream< wchar_t > wstringstream

Enumerations

- enum { **_S_threshold** }
- enum { **_S_chunk_size** }
- enum { **_S_word_bit** }
- enum **_Ios_Fmtflags** {

  _S_boolalpha, **_S_dec**, **_S_fixed**, **_S_hex**,

  _S_internal, **_S_left**, **_S_oct**, **_S_right**,

  _S_scientific, **_S_showbase**, **_S_showpoint**, **_S_showpos**,

  _S_skipws, **_S_unitbuf**, **_S_uppercase**, **_S_adjustfield**,

  _S_basefield, **_S_floatfield**, **_S_ios_fmtflags_end** }
- enum **_Ios_Iostate** {

  _S_goodbit, **_S_badbit**, **_S_eofbit**, **_S_failbit**,

  _S_ios_iostate_end }
- enum **_Ios_Openmode** {

  _S_app, **_S_ate**, **_S_bin**, **_S_in**,

  _S_out, **_S_trunc**, **_S_ios_openmode_end** }

- enum **_Ios_Seekdir** { **_S_beg**, **_S_cur**, **_S_end**, **_S_ios_seekdir_end** }
- enum **_Manager_operation** { **__get_type_info**, **__get_functor_ptr**, **__clone_functor**, **__destroy_functor** }
- enum **_Rb_tree_color** { **_S_red**, **_S_black** }
- enum cv_status { **no_timeout**, **timeout** }
- enum **errc** {

  address_family_not_supported, **address_in_use**, **address_not_available**, **already_connected**,

  argument_list_too_long, **argument_out_of_domain**, **bad_address**, **bad_file_descriptor**,

  bad_message, **broken_pipe**, **connection_aborted**, **connection_already_in_progress**,

  connection_refused, **connection_reset**, **cross_device_link**, **destination_address_required**,

  device_or_resource_busy, **directory_not_empty**, **executable_format_error**, **file_exists**,

  file_too_large, **filename_too_long**, **function_not_supported**, **host_unreachable**,

  identifier_removed, **illegal_byte_sequence**, **inappropriate_io_control_operation**, **interrupted**,

  invalid_argument, **invalid_seek**, **io_error**, **is_a_directory**,

  message_size, **network_down**, **network_reset**, **network_unreachable**,

  no_buffer_space, **no_child_process**, **no_link**, **no_lock_available**,

  no_message_available, **no_message**, **no_protocol_option**, **no_space_on_device**,

  no_stream_resources, **no_such_device_or_address**, **no_such_device**, **no_such_file_or_directory**,

  no_such_process, **not_a_directory**, **not_a_socket**, **not_a_stream**,

  not_connected, **not_enough_memory**, **not_supported**, **operation_canceled**,

  operation_in_progress, **operation_not_permitted**, **operation_not_supported**, **operation_would_block**,

  owner_dead, **permission_denied**, **protocol_error**, **protocol_not_supported**,

  read_only_file_system, **resource_deadlock_would_occur**, **resource_unavailable_try_again**, **result_out_of_range**,

  state_not_recoverable, **stream_timeout**, **text_file_busy**, **timed_out**,

  too_many_files_open_in_system, **too_many_files_open**, **too_many_links**, **too_many_symbolic_link_levels**,

  value_too_large, **wrong_protocol_type** }

- enum float_denorm_style { denorm_indeterminate, denorm_absent, denorm_present }
- enum float_round_style {

  round_indeterminate, round_toward_zero, round_to_nearest, round_toward_infinity,

  round_toward_neg_infinity }
- enum future_errc { **broken_promise**, **future_already_retrieved**, **promise_already_satisfied**, **no_state** }
- enum **launch** { **any**, **async**, **sync** }
- enum memory_order {

  memory_order_relaxed, **memory_order_consume**, **memory_order_acquire**, **memory_order_release**,

  memory_order_acq_rel, **memory_order_seq_cst** }

Functions

- template<typename _CharT >
  _CharT * **__add_grouping** (_CharT *__s, _CharT __sep, const char *__gbeg, size_t __gsize, const _CharT *__first, const _CharT *__last)
- template<typename _RandomAccessIterator , typename _Distance , typename _Tp , typename _Compare >
  void **__adjust_heap** (_RandomAccessIterator __first, _Distance __holeIndex, _Distance __len, _Tp __value, _Compare __comp)
- template<typename _RandomAccessIterator , typename _Distance , typename _Tp >
  void **__adjust_heap** (_RandomAccessIterator __first, _Distance __holeIndex, _Distance __len, _Tp __value)
- template<typename _RandomAccessIterator , typename _Distance >
  void **__advance** (_RandomAccessIterator &__i, _Distance __n, random_access_iterator_tag)
- template<typename _BidirectionalIterator , typename _Distance >
  void **__advance** (_BidirectionalIterator &__i, _Distance __n, bidirectional_iterator_tag)
- template<typename _InputIterator , typename _Distance >
  void **__advance** (_InputIterator &__i, _Distance __n, input_iterator_tag)
- void **__atomic_flag_wait_explicit** (__atomic_flag_base *, memory_order) throw ()
- **__attribute__** ((__pure__)) bool __verify_grouping(const char *__grouping
- **__attribute__** ((__const__)) __atomic_flag_base *__atomic_flag_for_address(const void *__z) throw ()
- memory_order **__calculate_memory_order** (memory_order __m)
- template<typename _Member , typename _Class >
  _Mem_fn< _Member _Class::* > **__callable_functor** (_Member _Class::*const &__p)

- template<typename _Member , typename _Class >
  _Mem_fn< _Member _Class::* > **__callable_functor** (_Member _Class::*&__p)
- template<typename _Functor >
  _Functor & **__callable_functor** (_Functor &__f)
- template<typename _Facet >
  const _Facet & **__check_facet** (const _Facet *__f)
- template<typename _RandomAccessIterator , typename _Distance , typename _Compare >
  void **__chunk_insertion_sort** (_RandomAccessIterator __first, _RandomAccessIterator __last, _Distance __chunk_size, _Compare __comp)
- template<typename _RandomAccessIterator , typename _Distance >
  void **__chunk_insertion_sort** (_RandomAccessIterator __first, _RandomAccessIterator __last, _Distance __chunk_size)
- template<typename _Tp >
  _Tp **__cmath_power** (_Tp, unsigned int)
- template<typename _Tp >
  _Tp **__complex_abs** (const complex< _Tp > &__z)
- template<typename _Tp >
  std::complex< _Tp > **__complex_acos** (const std::complex< _Tp > &__z)
- template<typename _Tp >
  std::complex< _Tp > **__complex_acosh** (const std::complex< _Tp > &__z)
- template<typename _Tp >
  _Tp **__complex_arg** (const complex< _Tp > &__z)
- template<typename _Tp >
  std::complex< _Tp > **__complex_asin** (const std::complex< _Tp > &__z)
- template<typename _Tp >
  std::complex< _Tp > **__complex_asinh** (const std::complex< _Tp > &__z)
- template<typename _Tp >
  std::complex< _Tp > **__complex_atan** (const std::complex< _Tp > &__z)
- template<typename _Tp >
  std::complex< _Tp > **__complex_atanh** (const std::complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > **__complex_cos** (const complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > **__complex_cosh** (const complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > **__complex_exp** (const complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > **__complex_log** (const complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > **__complex_pow** (const complex< _Tp > &__x, const complex< _Tp > &__y)
- template<typename _Tp >
  std::complex< _Tp > **__complex_proj** (const std::complex< _Tp > &__z)

- template<typename _Tp >
  complex< _Tp > **__complex_sin** (const complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > **__complex_sinh** (const complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > **__complex_sqrt** (const complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > **__complex_tan** (const complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > **__complex_tanh** (const complex< _Tp > &__z)
- int **__convert_from_v** (const __c_locale &__cloc __attribute__((__unused__)), char *__out, const int __size __attribute__((__unused__)), const char *__fmt,...)

- template<>
  void **__convert_to_v** (const char *, long double &, ios_base::iostate &, const __c_locale &) throw ()
- template<>
  void **__convert_to_v** (const char *, double &, ios_base::iostate &, const __c_-locale &) throw ()
- template<>
  void **__convert_to_v** (const char *, float &, ios_base::iostate &, const __c_-locale &) throw ()
- template<typename _Tp >
  void **__convert_to_v** (const char *, _Tp &, ios_base::iostate &, const __c_locale &) throw ()
- template<bool _IsMove, typename _II , typename _OI >
  _OI **__copy_move_a** (_II __first, _II __last, _OI __result)
- template<bool _IsMove, typename _CharT >
  __gnu_cxx::__enable_if< __is_char< _CharT >::__value, _CharT * >::__-type **__copy_move_a2** (istreambuf_iterator< _CharT > __first, istreambuf_-iterator< _CharT > __last, _CharT *__result)
- template<bool _IsMove, typename _CharT >
  __gnu_cxx::__enable_if< __is_char< _CharT >::__value, ostreambuf_-iterator< _CharT > >::__type **__copy_move_a2** (const _CharT *__first, const _CharT *__last, ostreambuf_iterator< _CharT > __result)
- template<bool _IsMove, typename _CharT >
  __gnu_cxx::__enable_if< __is_char< _CharT >::__value, ostreambuf_-iterator< _CharT > >::__type **__copy_move_a2** (_CharT *__first, _CharT *_-_last, ostreambuf_iterator< _CharT > __result)
- template<bool _IsMove, typename _II , typename _OI >
  _OI **__copy_move_a2** (_II __first, _II __last, _OI __result)
- template<bool _IsMove, typename _CharT >
  __gnu_cxx::__enable_if< __is_char< _CharT >::__value, _CharT * >::__-type **__copy_move_a2** (istreambuf_iterator< _CharT, char_traits< _CharT > >, istreambuf_iterator< _CharT, char_traits< _CharT > >, _CharT *)

- template<bool _IsMove, typename _CharT >
  __gnu_cxx::__enable_if< __is_char< _CharT >::__value, ostreambuf_iterator< _CharT, char_traits< _CharT > > >::__type **__copy_move_a2** (const _CharT *, const _CharT *, ostreambuf_iterator< _CharT, char_traits< _CharT > >)
- template<bool _IsMove, typename _CharT >
  __gnu_cxx::__enable_if< __is_char< _CharT >::__value, ostreambuf_iterator< _CharT, char_traits< _CharT > > >::__type **__copy_move_a2** (_CharT *, _CharT *, ostreambuf_iterator< _CharT, char_traits< _CharT > >)

- template<bool _IsMove, typename _BI1 , typename _BI2 >
  _BI2 **__copy_move_backward_a** (_BI1 __first, _BI1 __last, _BI2 __result)
- template<bool _IsMove, typename _BI1 , typename _BI2 >
  _BI2 **__copy_move_backward_a2** (_BI1 __first, _BI1 __last, _BI2 __result)
- template<typename _RandomAccessIterator , typename _Size , typename _OutputIterator >
  _OutputIterator **__copy_n** (_RandomAccessIterator __first, _Size __n, _OutputIterator __result, random_access_iterator_tag)
- template<typename _InputIterator , typename _Size , typename _OutputIterator >
  _OutputIterator **__copy_n** (_InputIterator __first, _Size __n, _OutputIterator __result, input_iterator_tag)
- template streamsize **__copy_streambufs** (basic_streambuf< wchar_t > *, basic_streambuf< wchar_t > *)
- template streamsize **__copy_streambufs** (basic_streambuf< char > *, basic_streambuf< char > *)
- template<typename _CharT , typename _Traits >
  streamsize **__copy_streambufs** (basic_streambuf< _CharT, _Traits > *__sbin, basic_streambuf< _CharT, _Traits > *__sbout)
- template<>
  streamsize **__copy_streambufs_eof** (basic_streambuf< wchar_t > *__sbin, basic_streambuf< wchar_t > *__sbout, bool &__ineof)
- template<>
  streamsize **__copy_streambufs_eof** (basic_streambuf< char > *__sbin, basic_streambuf< char > *__sbout, bool &__ineof)
- template<typename _CharT , typename _Traits >
  streamsize **__copy_streambufs_eof** (basic_streambuf< _CharT, _Traits > *, basic_streambuf< _CharT, _Traits > *, bool &)
- size_t **__deque_buf_size** (size_t __size)
- template<typename _RandomAccessIterator >
  iterator_traits< _RandomAccessIterator >::difference_type **__distance** (_RandomAccessIterator __first, _RandomAccessIterator __last, random_access_iterator_tag)
- template<typename _InputIterator >
  iterator_traits< _InputIterator >::difference_type **__distance** (_InputIterator __first, _InputIterator __last, input_iterator_tag)

- template<typename _II1 , typename _II2 >
  bool **__equal_aux** (_II1 __first1, _II1 __last1, _II2 __first2)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_byte< _Tp >::__value, void >::__type **__fill_a** (_Tp *__first, _Tp *__last, const _Tp &__c)
- template<typename _ForwardIterator , typename _Tp >
  __gnu_cxx::__enable_if<!__is_scalar< _Tp >::__value, void >::__type **__fill_a** (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__value)
- void **__fill_bvector** (_Bit_iterator __first, _Bit_iterator __last, bool __x)
- template<typename _Size , typename _Tp >
  __gnu_cxx::__enable_if< __is_byte< _Tp >::__value, _Tp * >::__type **__fill_n_a** (_Tp *__first, _Size __n, const _Tp &__c)
- template<typename _OutputIterator , typename _Size , typename _Tp >
  __gnu_cxx::__enable_if<!__is_scalar< _Tp >::__value, _OutputIterator >::__type **__fill_n_a** (_OutputIterator __first, _Size __n, const _Tp &__value)
- template<typename _RandomAccessIterator , typename _Compare >
  void __final_insertion_sort (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  void __final_insertion_sort (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _RandomAccessIterator , typename _Tp >
  _RandomAccessIterator __find (_RandomAccessIterator __first, _RandomAccessIterator __last, const _Tp &__val, random_access_iterator_tag)
- template<typename _InputIterator , typename _Tp >
  _InputIterator __find (_InputIterator __first, _InputIterator __last, const _Tp &__val, input_iterator_tag)
- template<typename _BidirectionalIterator1 , typename _BidirectionalIterator2 , typename _BinaryPredicate >
  _BidirectionalIterator1 **__find_end** (_BidirectionalIterator1 __first1, _BidirectionalIterator1 __last1, _BidirectionalIterator2 __first2, _BidirectionalIterator2 __last2, bidirectional_iterator_tag, bidirectional_iterator_tag, _BinaryPredicate __comp)
- template<typename _BidirectionalIterator1 , typename _BidirectionalIterator2 >
  _BidirectionalIterator1 **__find_end** (_BidirectionalIterator1 __first1, _BidirectionalIterator1 __last1, _BidirectionalIterator2 __first2, _BidirectionalIterator2 __last2, bidirectional_iterator_tag, bidirectional_iterator_tag)
- template<typename _ForwardIterator1 , typename _ForwardIterator2 , typename _BinaryPredicate >
  _ForwardIterator1 **__find_end** (_ForwardIterator1 __first1, _ForwardIterator1 __last1, _ForwardIterator2 __first2, _ForwardIterator2 __last2, forward_iterator_tag, forward_iterator_tag, _BinaryPredicate __comp)

- template<typename _ForwardIterator1 , typename _ForwardIterator2 >
  _ForwardIterator1 **__find_end** (_ForwardIterator1 __first1, _ForwardIterator1 __last1, _ForwardIterator2 __first2, _ForwardIterator2 __last2, forward_iterator_tag, forward_iterator_tag)
- template<typename _RandomAccessIterator , typename _Predicate >
  _RandomAccessIterator __find_if (_RandomAccessIterator __first, _RandomAccessIterator __last, _Predicate __pred, random_access_iterator_tag)
- template<typename _InputIterator , typename _Predicate >
  _InputIterator __find_if (_InputIterator __first, _InputIterator __last, _Predicate __pred, input_iterator_tag)
- template<typename _RandomAccessIterator , typename _Predicate >
  _RandomAccessIterator __find_if_not (_RandomAccessIterator __first, _RandomAccessIterator __last, _Predicate __pred, random_access_iterator_tag)
- template<typename _InputIterator , typename _Predicate >
  _InputIterator __find_if_not (_InputIterator __first, _InputIterator __last, _Predicate __pred, input_iterator_tag)
- template<typename _EuclideanRingElement >
  _EuclideanRingElement __gcd (_EuclideanRingElement __m, _EuclideanRingElement __n)
- template<std::size_t __i, typename _Head , typename... _Tail>
  __add_c_ref< _Head >::type **__get_helper** (const _Tuple_impl< __i, _Head, _Tail...> &__t)
- template<std::size_t __i, typename _Head , typename... _Tail>
  __add_ref< _Head >::type **__get_helper** (_Tuple_impl< __i, _Head, _Tail...> &__t)
- template<typename _Ex >
  const nested_exception * **__get_nested_exception** (const _Ex &__ex)
- mutex & **__get_once_mutex** ()
- template<typename _RandomAccessIterator , typename _Compare >
  void __heap_select (_RandomAccessIterator __first, _RandomAccessIterator __middle, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  void __heap_select (_RandomAccessIterator __first, _RandomAccessIterator __middle, _RandomAccessIterator __last)
- template<typename _Tp >
  size_t **__iconv_adaptor** (size_t(*__func)(iconv_t, _Tp, size_t *, char **, size_t *), iconv_t __cd, char **__inbuf, size_t *__inbytes, char **__outbuf, size_t *__outbytes)
- template<typename _ForwardIterator , typename _Predicate , typename _Distance >
  _ForwardIterator __inplace_stable_partition (_ForwardIterator __first, _ForwardIterator __last, _Predicate __pred, _Distance __len)
- template<typename _RandomAccessIterator , typename _Compare >
  void __inplace_stable_sort (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)

- template<typename _RandomAccessIterator >
  void __inplace_stable_sort (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _RandomAccessIterator , typename _Compare >
  void __insertion_sort (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  void __insertion_sort (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _CharT , typename _ValueT >
  int **__int_to_char** (_CharT *__bufend, _ValueT __v, const _CharT *__lit, ios_base::fmtflags __flags, bool __dec)
- template<typename _RandomAccessIterator , typename _Size , typename _Compare >
  void **__introselect** (_RandomAccessIterator __first, _RandomAccessIterator __nth, _RandomAccessIterator __last, _Size __depth_limit, _Compare __comp)
- template<typename _RandomAccessIterator , typename _Size >
  void **__introselect** (_RandomAccessIterator __first, _RandomAccessIterator __nth, _RandomAccessIterator __last, _Size __depth_limit)
- template<typename _RandomAccessIterator , typename _Size , typename _Compare >
  void __introsort_loop (_RandomAccessIterator __first, _RandomAccessIterator __last, _Size __depth_limit, _Compare __comp)
- template<typename _RandomAccessIterator , typename _Size >
  void __introsort_loop (_RandomAccessIterator __first, _RandomAccessIterator __last, _Size __depth_limit)
- template<typename _Functor , typename... _Args>
  enable_if< (is_pointer< _Functor >::value &&is_function< typename remove_pointer< _Functor >::type >::value), typename result_of< _Functor(_Args...)>::type >::type **__invoke** (_Functor __f, _Args &&...__args)
- template<typename _Functor , typename... _Args>
  enable_if< (!is_member_pointer< _Functor >::value &&!is_function< _Functor >::value &&!is_function< typename remove_pointer< _Functor >::type >::value), typename result_of< _Functor(_Args...)>::type >::type __invoke (_Functor &__f, _Args &&...__args)
- template<typename _RandomAccessIterator , typename _Compare >
  bool **__is_heap** (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  bool **__is_heap** (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _RandomAccessIterator , typename _Compare , typename _Distance >
  bool **__is_heap** (_RandomAccessIterator __first, _Compare __comp, _Distance __n)

- template<typename _RandomAccessIterator , typename _Distance >
  bool **__is_heap** (_RandomAccessIterator __first, _Distance __n)
- template<typename _RandomAccessIterator , typename _Distance , typename _Compare >
  _Distance **__is_heap_until** (_RandomAccessIterator __first, _Distance __n, _Compare __comp)
- template<typename _RandomAccessIterator , typename _Distance >
  _Distance **__is_heap_until** (_RandomAccessIterator __first, _Distance __n)
- template<typename _Iter >
  iterator_traits< _Iter >::iterator_category __iterator_category (const _Iter &)
- template<typename _II1 , typename _II2 >
  bool **__lexicographical_compare_aux** (_II1 __first1, _II1 __last1, _II2 __first2, _II2 __last2)
- long long **__lg** (long long __n)
- long **__lg** (long __n)
- int **__lg** (int __n)
- template<typename _Size >
  _Size __lg (_Size __n)
- template<typename _BidirectionalIterator , typename _Distance , typename _Pointer , typename _Compare >
  void __merge_adaptive (_BidirectionalIterator __first, _BidirectionalIterator __middle, _BidirectionalIterator __last, _Distance __len1, _Distance __len2, _Pointer __buffer, _Distance __buffer_size, _Compare __comp)
- template<typename _BidirectionalIterator , typename _Distance , typename _Pointer >
  void __merge_adaptive (_BidirectionalIterator __first, _BidirectionalIterator __middle, _BidirectionalIterator __last, _Distance __len1, _Distance __len2, _Pointer __buffer, _Distance __buffer_size)
- template<typename _BidirectionalIterator1 , typename _BidirectionalIterator2 , typename _BidirectionalIterator3 , typename _Compare >
  _BidirectionalIterator3 __merge_backward (_BidirectionalIterator1 __first1, _BidirectionalIterator1 __last1, _BidirectionalIterator2 __first2, _BidirectionalIterator2 __last2, _BidirectionalIterator3 __result, _Compare __comp)
- template<typename _BidirectionalIterator1 , typename _BidirectionalIterator2 , typename _BidirectionalIterator3 >
  _BidirectionalIterator3 __merge_backward (_BidirectionalIterator1 __first1, _BidirectionalIterator1 __last1, _BidirectionalIterator2 __first2, _BidirectionalIterator2 __last2, _BidirectionalIterator3 __result)
- template<typename _RandomAccessIterator1 , typename _RandomAccessIterator2 , typename _Distance , typename _Compare >
  void **__merge_sort_loop** (_RandomAccessIterator1 __first, _RandomAccessIterator1 __last, _RandomAccessIterator2 __result, _Distance __step_size, _Compare __comp)
- template<typename _RandomAccessIterator1 , typename _RandomAccessIterator2 , typename _Distance >

void **__merge_sort_loop** (_RandomAccessIterator1 __first, _RandomAccessIterator1 __last, _RandomAccessIterator2 __result, _Distance __step_size)

- template<typename _RandomAccessIterator , typename _Pointer , typename _Compare > void **__merge_sort_with_buffer** (_RandomAccessIterator __first, _RandomAccessIterator __last, _Pointer __buffer, _Compare __comp)
- template<typename _RandomAccessIterator , typename _Pointer > void **__merge_sort_with_buffer** (_RandomAccessIterator __first, _RandomAccessIterator __last, _Pointer __buffer)
- template<typename _BidirectionalIterator , typename _Distance , typename _Compare > void __merge_without_buffer (_BidirectionalIterator __first, _BidirectionalIterator __middle, _BidirectionalIterator __last, _Distance __len1, _Distance __len2, _Compare __comp)
- template<typename _BidirectionalIterator , typename _Distance > void __merge_without_buffer (_BidirectionalIterator __first, _BidirectionalIterator __middle, _BidirectionalIterator __last, _Distance __len1, _Distance __len2)
- template<typename _Iterator > _Miter_base< _Iterator >::iterator_type **__miter_base** (_Iterator __it)
- template<typename _Iterator , typename _Compare > void __move_median_first (_Iterator __a, _Iterator __b, _Iterator __c, _Compare __comp)
- template<typename _Iterator > void __move_median_first (_Iterator __a, _Iterator __b, _Iterator __c)
- template<typename _Iterator > _Niter_base< _Iterator >::iterator_type **__niter_base** (_Iterator __it)
- void **__once_proxy** ()
- template<typename _CharT , typename _Traits > void **__ostream_fill** (basic_ostream< _CharT, _Traits > &__out, streamsize __n)
- template wostream & **__ostream_insert** (wostream &, const wchar_t *, streamsize)
- template ostream & **__ostream_insert** (ostream &, const char *, streamsize)
- template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & **__ostream_insert** (basic_ostream< _CharT, _Traits > &__out, const _CharT *__s, streamsize __n)
- template<typename _CharT , typename _Traits > void **__ostream_write** (basic_ostream< _CharT, _Traits > &__out, const _CharT *__s, streamsize __n)
- template<typename _BidirectionalIterator , typename _Predicate > _BidirectionalIterator __partition (_BidirectionalIterator __first, _BidirectionalIterator __last, _Predicate __pred, bidirectional_iterator_tag)
- template<typename _ForwardIterator , typename _Predicate > _ForwardIterator __partition (_ForwardIterator __first, _ForwardIterator __last, _Predicate __pred, forward_iterator_tag)

- template<typename _RandomAccessIterator , typename _Compare >
  void **__pop_heap** (_RandomAccessIterator __first, _RandomAccessIterator __last, _RandomAccessIterator __result, _Compare __comp)
- template<typename _RandomAccessIterator >
  void **__pop_heap** (_RandomAccessIterator __first, _RandomAccessIterator __last, _RandomAccessIterator __result)
- template<typename _Tp >
  _Tp **__pow_helper** (_Tp __x, int __n)
- template<typename _RandomAccessIterator , typename _Distance , typename _Tp , typename _Compare >
  void **__push_heap** (_RandomAccessIterator __first, _Distance __holeIndex, _Distance __topIndex, _Tp __value, _Compare __comp)
- template<typename _RandomAccessIterator , typename _Distance , typename _Tp >
  void **__push_heap** (_RandomAccessIterator __first, _Distance __holeIndex, _Distance __topIndex, _Tp __value)
- template<typename _RandomAccessIterator >
  void __reverse (_RandomAccessIterator __first, _RandomAccessIterator __last, random_access_iterator_tag)
- template<typename _BidirectionalIterator >
  void __reverse (_BidirectionalIterator __first, _BidirectionalIterator __last, bidirectional_iterator_tag)
- template<typename _RandomAccessIterator >
  void __rotate (_RandomAccessIterator __first, _RandomAccessIterator __middle, _RandomAccessIterator __last, random_access_iterator_tag)
- template<typename _BidirectionalIterator >
  void __rotate (_BidirectionalIterator __first, _BidirectionalIterator __middle, _BidirectionalIterator __last, bidirectional_iterator_tag)
- template<typename _ForwardIterator >
  void __rotate (_ForwardIterator __first, _ForwardIterator __middle, _ForwardIterator __last, forward_iterator_tag)
- template<typename _BidirectionalIterator1 , typename _BidirectionalIterator2 , typename _Distance >
  _BidirectionalIterator1 __rotate_adaptive (_BidirectionalIterator1 __first, _BidirectionalIterator1 __middle, _BidirectionalIterator1 __last, _Distance __len1, _Distance __len2, _BidirectionalIterator2 __buffer, _Distance __buffer_size)
- template<typename _RandomAccessIter , typename _Integer , typename _Tp , typename _BinaryPredicate >
  _RandomAccessIter __search_n (_RandomAccessIter __first, _RandomAccessIter __last, _Integer __count, const _Tp &__val, _BinaryPredicate __binary_pred, std::random_access_iterator_tag)
- template<typename _ForwardIterator , typename _Integer , typename _Tp , typename _BinaryPredicate >
  _ForwardIterator __search_n (_ForwardIterator __first, _ForwardIterator __last, _Integer __count, const _Tp &__val, _BinaryPredicate __binary_pred, std::forward_iterator_tag)

- template<typename _RandomAccessIter , typename _Integer , typename _Tp >
  _RandomAccessIter __search_n (_RandomAccessIter __first, _RandomAccessIter __last, _Integer __count, const _Tp &__val, std::random_access_iterator_tag)
- template<typename _ForwardIterator , typename _Integer , typename _Tp >
  _ForwardIterator __search_n (_ForwardIterator __first, _ForwardIterator __last, _Integer __count, const _Tp &__val, std::forward_iterator_tag)
- void **__set_once_functor_lock_ptr** (unique_lock< mutex > *)
- template<typename _ForwardIterator , typename _Pointer , typename _Predicate , typename _Distance >
  _ForwardIterator __stable_partition_adaptive (_ForwardIterator __first, _ForwardIterator __last, _Predicate __pred, _Distance __len, _Pointer __buffer, _Distance __buffer_size)
- template<typename _RandomAccessIterator , typename _Pointer , typename _Distance , typename _Compare >
  void **__stable_sort_adaptive** (_RandomAccessIterator __first, _RandomAccessIterator __last, _Pointer __buffer, _Distance __buffer_size, _Compare __comp)
- template<typename _RandomAccessIterator , typename _Pointer , typename _Distance >
  void **__stable_sort_adaptive** (_RandomAccessIterator __first, _RandomAccessIterator __last, _Pointer __buffer, _Distance __buffer_size)

- void **__throw_bad_alloc** (void) __attribute__((__noreturn__))
- void **__throw_bad_cast** (void) __attribute__((__noreturn__))
- void **__throw_bad_exception** (void) __attribute__((__noreturn__))
- void **__throw_bad_function_call** () __attribute__((__noreturn__))
- void **__throw_bad_typeid** (void) __attribute__((__noreturn__))
- void **__throw_bad_weak_ptr** ()
- void **__throw_domain_error** (const char *) __attribute__((__noreturn__))
- void **__throw_future_error** (int) __attribute__((__noreturn__))
- void **__throw_invalid_argument** (const char *) __attribute__((__noreturn__))
- void **__throw_ios_failure** (const char *) __attribute__((__noreturn__))
- void **__throw_length_error** (const char *) __attribute__((__noreturn__))
- void **__throw_logic_error** (const char *) __attribute__((__noreturn__))
- void **__throw_out_of_range** (const char *) __attribute__((__noreturn__))
- void **__throw_overflow_error** (const char *) __attribute__((__noreturn__))
- void **__throw_range_error** (const char *) __attribute__((__noreturn__))
- void **__throw_runtime_error** (const char *) __attribute__((__noreturn__))
- void **__throw_system_error** (int) __attribute__((__noreturn__))
- void **__throw_underflow_error** (const char *) __attribute__((__noreturn__))
- template<typename _Ex >
  void **__throw_with_nested** (_Ex &&,...) __attribute__((__noreturn__))

- template<typename _Ex >
  void **__throw_with_nested** (_Ex &&, const nested_exception *=0) __attribute__((__noreturn__))
- template<typename... _TElements, std::size_t... _TIdx, typename... _UElements, std::size_t... _UIdx>
  tuple< _TElements..., _UElements...> **__tuple_cat_helper** (tuple< _TElements...> &&__t, const __index_holder< _TIdx...> &, tuple< _UElements...> &&__u, const __index_holder< _UIdx...> &)
- template<typename... _TElements, std::size_t... _TIdx, typename... _UElements, std::size_t... _UIdx>
  tuple< _TElements..., _UElements...> **__tuple_cat_helper** (const tuple< _TElements...> &__t, const __index_holder< _TIdx...> &, tuple< _UElements...> &&__u, const __index_holder< _UIdx...> &)
- template<typename... _TElements, std::size_t... _TIdx, typename... _UElements, std::size_t... _UIdx>
  tuple< _TElements..., _UElements...> **__tuple_cat_helper** (tuple< _TElements...> &&__t, const __index_holder< _TIdx...> &, const tuple< _UElements...> &__u, const __index_holder< _UIdx...> &)
- template<typename... _TElements, std::size_t... _TIdx, typename... _UElements, std::size_t... _UIdx>
  tuple< _TElements..., _UElements...> **__tuple_cat_helper** (const tuple< _TElements...> &__t, const __index_holder< _TIdx...> &, const tuple< _UElements...> &__u, const __index_holder< _UIdx...> &)
- template<typename _RandomAccessIterator , typename _Compare >
  void __unguarded_insertion_sort (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  void __unguarded_insertion_sort (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _RandomAccessIterator , typename _Compare >
  void __unguarded_linear_insert (_RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  void __unguarded_linear_insert (_RandomAccessIterator __last)
- template<typename _RandomAccessIterator , typename _Tp , typename _Compare >
  _RandomAccessIterator __unguarded_partition (_RandomAccessIterator __first, _RandomAccessIterator __last, const _Tp &__pivot, _Compare __comp)
- template<typename _RandomAccessIterator , typename _Tp >
  _RandomAccessIterator __unguarded_partition (_RandomAccessIterator __first, _RandomAccessIterator __last, const _Tp &__pivot)
- template<typename _RandomAccessIterator , typename _Compare >
  _RandomAccessIterator __unguarded_partition_pivot (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  _RandomAccessIterator __unguarded_partition_pivot (_RandomAccessIterator __first, _RandomAccessIterator __last)

- template<typename _ForwardIterator , typename _Tp >
  void **__uninitialized_construct_range** (_ForwardIterator __first, _ForwardIterator __last, _Tp &__value)
- template<typename _InputIterator , typename _ForwardIterator , typename _Tp >
  _ForwardIterator **__uninitialized_copy_a** (_InputIterator __first, _InputIterator __last, _ForwardIterator __result, allocator< _Tp > &)
- template<typename _InputIterator , typename _ForwardIterator , typename _Allocator >
  _ForwardIterator **__uninitialized_copy_a** (_InputIterator __first, _InputIterator __last, _ForwardIterator __result, _Allocator &__alloc)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _ForwardIterator , typename _Allocator >
  _ForwardIterator **__uninitialized_copy_move** (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _ForwardIterator __result, _Allocator &__alloc)
- template<typename _RandomAccessIterator , typename _Size , typename _ForwardIterator >
  _ForwardIterator **__uninitialized_copy_n** (_RandomAccessIterator __first, _Size __n, _ForwardIterator __result, random_access_iterator_tag)
- template<typename _InputIterator , typename _Size , typename _ForwardIterator >
  _ForwardIterator **__uninitialized_copy_n** (_InputIterator __first, _Size __n, _ForwardIterator __result, input_iterator_tag)
- template<typename _ForwardIterator , typename _Tp , typename _Tp2 >
  void **__uninitialized_fill_a** (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__x, allocator< _Tp2 > &)
- template<typename _ForwardIterator , typename _Tp , typename _Allocator >
  void **__uninitialized_fill_a** (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__x, _Allocator &__alloc)
- template<typename _ForwardIterator , typename _Tp , typename _InputIterator , typename _Allocator >
  _ForwardIterator **__uninitialized_fill_move** (_ForwardIterator __result, _ForwardIterator __mid, const _Tp &__x, _InputIterator __first, _InputIterator __last, _Allocator &__alloc)
- template<typename _ForwardIterator , typename _Size , typename _Tp , typename _Tp2 >
  void **__uninitialized_fill_n_a** (_ForwardIterator __first, _Size __n, const _Tp &__x, allocator< _Tp2 > &)
- template<typename _ForwardIterator , typename _Size , typename _Tp , typename _Allocator >
  void **__uninitialized_fill_n_a** (_ForwardIterator __first, _Size __n, const _Tp &__x, _Allocator &__alloc)
- template<typename _InputIterator , typename _ForwardIterator , typename _Allocator >
  _ForwardIterator **__uninitialized_move_a** (_InputIterator __first, _InputIterator __last, _ForwardIterator __result, _Allocator &__alloc)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _ForwardIterator , typename _Allocator >
  _ForwardIterator **__uninitialized_move_copy** (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _ForwardIterator __result, _Allocator &__alloc)

- template<typename _InputIterator , typename _ForwardIterator , typename _Tp , typename _Allocator >
  void **__uninitialized_move_fill** (_InputIterator __first1, _InputIterator __last1, _ForwardIterator __first2, _ForwardIterator __last2, const _Tp &__x, _Allocator &__alloc)
- template<typename _InputIterator , typename _ForwardIterator , typename _BinaryPredicate >
  _ForwardIterator __unique_copy (_InputIterator __first, _InputIterator __last, _ForwardIterator __result, _BinaryPredicate __binary_pred, input_iterator_tag, forward_iterator_tag)
- template<typename _InputIterator , typename _OutputIterator , typename _BinaryPredicate >
  _OutputIterator __unique_copy (_InputIterator __first, _InputIterator __last, _OutputIterator __result, _BinaryPredicate __binary_pred, input_iterator_tag, output_iterator_tag)
- template<typename _ForwardIterator , typename _OutputIterator , typename _BinaryPredicate >
  _OutputIterator __unique_copy (_ForwardIterator __first, _ForwardIterator __last, _OutputIterator __result, _BinaryPredicate __binary_pred, forward_iterator_tag, output_iterator_tag)
- template<typename _InputIterator , typename _ForwardIterator >
  _ForwardIterator __unique_copy (_InputIterator __first, _InputIterator __last, _ForwardIterator __result, input_iterator_tag, forward_iterator_tag)
- template<typename _InputIterator , typename _OutputIterator >
  _OutputIterator __unique_copy (_InputIterator __first, _InputIterator __last, _OutputIterator __result, input_iterator_tag, output_iterator_tag)
- template<typename _ForwardIterator , typename _OutputIterator >
  _OutputIterator __unique_copy (_ForwardIterator __first, _ForwardIterator __last, _OutputIterator __result, forward_iterator_tag, output_iterator_tag)
- template<typename _Tp , class _Dom >
  void **__valarray_copy** (const _Expr< _Dom, _Tp > &__e, size_t __n, _Array< _Tp > __a, _Array< bool > __m)
- template<typename _Tp >
  void **__valarray_copy** (_Array< _Tp > __e, _Array< size_t > __f, size_t __n, _Array< _Tp > __a, _Array< size_t > __i)
- template<typename _Tp , class _Dom >
  void **__valarray_copy** (const _Expr< _Dom, _Tp > &__e, size_t __n, _Array< _Tp > __a, _Array< size_t > __i)
- template<typename _Tp , class _Dom >
  void **__valarray_copy** (const _Expr< _Dom, _Tp > &__e, size_t __n, _Array< _Tp > __a, size_t __s)
- template<typename _Tp , class _Dom >
  void **__valarray_copy** (const _Expr< _Dom, _Tp > &__e, size_t __n, _Array< _Tp > __a)
- template<typename _Tp >
  void **__valarray_copy** (_Array< _Tp > __a, _Array< bool > __m, size_t __n, _Array< _Tp > __b, _Array< bool > __k)

- template<typename _Tp >
  void **__valarray_copy** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< bool > __m)
- template<typename _Tp >
  void **__valarray_copy** (_Array< _Tp > __a, _Array< bool > __m, _Array< _Tp > __b, size_t __n)
- template<typename _Tp >
  void **__valarray_copy** (_Array< _Tp > __src, size_t __n, _Array< size_t > __i, _Array< _Tp > __dst, _Array< size_t > __j)
- template<typename _Tp >
  void **__valarray_copy** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< size_t > __i)
- template<typename _Tp >
  void **__valarray_copy** (_Array< _Tp > __a, _Array< size_t > __i, _Array< _Tp > __b, size_t __n)
- template<typename _Tp >
  void **__valarray_copy** (_Array< _Tp > __a, size_t __n, size_t __s1, _Array< _Tp > __b, size_t __s2)
- template<typename _Tp >
  void **__valarray_copy** (_Array< _Tp > __a, _Array< _Tp > __b, size_t __n, size_t __s)
- template<typename _Tp >
  void **__valarray_copy** (_Array< _Tp > __a, size_t __n, size_t __s, _Array< _Tp > __b)
- template<typename _Tp >
  void **__valarray_copy** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b)
- template<typename _Tp >
  void **__valarray_copy** (const _Tp *__restrict__ __src, size_t __n, const size_t *__restrict__ __i, _Tp *__restrict__ __dst, const size_t *__restrict__ __j)
- template<typename _Tp >
  void **__valarray_copy** (const _Tp *__restrict__ __a, size_t __n, _Tp *__restrict__ __b, const size_t *__restrict__ __i)
- template<typename _Tp >
  void **__valarray_copy** (const _Tp *__restrict__ __a, const size_t *__restrict__ __i, _Tp *__restrict__ __b, size_t __n)
- template<typename _Tp >
  void **__valarray_copy** (const _Tp *__restrict__ __src, size_t __n, size_t __s1, _Tp *__restrict__ __dst, size_t __s2)
- template<typename _Tp >
  void **__valarray_copy** (const _Tp *__restrict__ __a, _Tp *__restrict__ __b, size_t __n, size_t __s)
- template<typename _Tp >
  void **__valarray_copy** (const _Tp *__restrict__ __a, size_t __n, size_t __s, _Tp *__restrict__ __b)

- template<typename _Tp >
  void **__valarray_copy** (const _Tp *__restrict__ __a, size_t __n, _Tp *__restrict__ __b)
- template<typename _Tp >
  void **__valarray_copy_construct** (_Array< _Tp > __a, _Array< bool > __m, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **__valarray_copy_construct** (const _Expr< _Dom, _Tp > &__e, size_t __n, _Array< _Tp > __a)
- template<typename _Tp >
  void **__valarray_copy_construct** (_Array< _Tp > __a, size_t __n, size_t __s, _Array< _Tp > __b)
- template<typename _Tp >
  void **__valarray_copy_construct** (_Array< _Tp > __a, _Array< size_t > __i, _Array< _Tp > __b, size_t __n)
- template<typename _Tp >
  void **__valarray_copy_construct** (const _Tp *__restrict__ __a, const size_t *__restrict__ __i, _Tp *__restrict__ __o, size_t __n)
- template<typename _Tp >
  void **__valarray_copy_construct** (const _Tp *__restrict__ __a, size_t __n, size_t __s, _Tp *__restrict__ __o)
- template<typename _Tp >
  void **__valarray_copy_construct** (const _Tp *__b, const _Tp *__e, _Tp *__restrict__ __o)
- template<typename _Tp >
  void **__valarray_default_construct** (_Tp *__b, _Tp *__e)
- template<typename _Tp >
  void **__valarray_destroy_elements** (_Tp *__b, _Tp *__e)
- template<typename _Tp >
  void **__valarray_fill** (_Array< _Tp > __a, size_t __n, _Array< bool > __m, const _Tp &__t)
- template<typename _Tp >
  void **__valarray_fill** (_Array< _Tp > __a, _Array< size_t > __i, size_t __n, const _Tp &__t)
- template<typename _Tp >
  void **__valarray_fill** (_Array< _Tp > __a, size_t __n, size_t __s, const _Tp &__t)
- template<typename _Tp >
  void **__valarray_fill** (_Array< _Tp > __a, size_t __n, const _Tp &__t)
- template<typename _Tp >
  void **__valarray_fill** (_Tp *__restrict__ __a, const size_t *__restrict__ __i, size_t __n, const _Tp &__t)
- template<typename _Tp >
  void **__valarray_fill** (_Tp *__restrict__ __a, size_t __n, size_t __s, const _Tp &__t)

- template<typename _Tp >
  void **__valarray_fill** (_Tp *__restrict__ __a, size_t __n, const _Tp &__t)
- template<typename _Tp >
  void **__valarray_fill_construct** (_Tp *__b, _Tp *__e, const _Tp __t)
- void * **__valarray_get_memory** (size_t __n)
- template<typename _Tp >
  _Tp *__restrict__ **__valarray_get_storage** (size_t __n)
- template<typename _Ta >
  _Ta::value_type **__valarray_max** (const _Ta &__a)
- template<typename _Ta >
  _Ta::value_type **__valarray_min** (const _Ta &__a)
- template<typename _Tp >
  _Tp **__valarray_product** (const _Tp *__f, const _Tp *__l)
- void **__valarray_release_memory** (void *__p)
- template<typename _Tp >
  _Tp **__valarray_sum** (const _Tp *__f, const _Tp *__l)
- template<typename _CharT , typename _OutIter >
  _OutIter **__write** (_OutIter __s, const _CharT *__ws, int __len)
- template<typename _CharT >
  ostreambuf_iterator< _CharT > **__write** (ostreambuf_iterator< _CharT > __s, const _CharT *__ws, int __len)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___bitwise_and** (_Array< _Tp > __a, _Array< bool > __m, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___bitwise_and** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< bool > __m)
- template<typename _Tp >
  void **_Array_augmented___bitwise_and** (_Array< _Tp > __a, _Array< bool > __m, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___bitwise_and** (_Array< _Tp > __a, _Array< size_t > __i, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___bitwise_and** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< size_t > __i)
- template<typename _Tp >
  void **_Array_augmented___bitwise_and** (_Array< _Tp > __a, _Array< size_t > __i, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___bitwise_and** (_Array< _Tp > __a, size_t __s, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___bitwise_and** (_Array< _Tp > __a, _Array< _Tp > __b, size_t __n, size_t __s)

- template<typename _Tp >
  void **_Array_augmented___bitwise_and** (_Array< _Tp > __a, size_t __n, size_t __s, _Array< _Tp > __b)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___bitwise_and** (_Array< _Tp > __a, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___bitwise_and** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b)
- template<typename _Tp >
  void **_Array_augmented___bitwise_and** (_Array< _Tp > __a, size_t __n, const _Tp &__t)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___bitwise_or** (_Array< _Tp > __a, _Array< bool > __m, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___bitwise_or** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< bool > __m)
- template<typename _Tp >
  void **_Array_augmented___bitwise_or** (_Array< _Tp > __a, _Array< bool > __m, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___bitwise_or** (_Array< _Tp > __a, _Array< size_t > __i, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___bitwise_or** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< size_t > __i)
- template<typename _Tp >
  void **_Array_augmented___bitwise_or** (_Array< _Tp > __a, _Array< size_t > __i, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___bitwise_or** (_Array< _Tp > __a, size_t __s, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___bitwise_or** (_Array< _Tp > __a, _Array< _Tp > __b, size_t __n, size_t __s)
- template<typename _Tp >
  void **_Array_augmented___bitwise_or** (_Array< _Tp > __a, size_t __n, size_t __s, _Array< _Tp > __b)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___bitwise_or** (_Array< _Tp > __a, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___bitwise_or** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b)

- template<typename _Tp >
  void **_Array_augmented___bitwise_or** (_Array< _Tp > __a, size_t __n, const _Tp &__t)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___bitwise_xor** (_Array< _Tp > __a, _Array< bool > __m, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___bitwise_xor** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< bool > __m)
- template<typename _Tp >
  void **_Array_augmented___bitwise_xor** (_Array< _Tp > __a, _Array< bool > __m, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___bitwise_xor** (_Array< _Tp > __a, _Array< size_t > __i, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___bitwise_xor** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< size_t > __i)
- template<typename _Tp >
  void **_Array_augmented___bitwise_xor** (_Array< _Tp > __a, _Array< size_t > __i, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___bitwise_xor** (_Array< _Tp > __a, size_t __s, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___bitwise_xor** (_Array< _Tp > __a, _Array< _Tp > __b, size_t __n, size_t __s)
- template<typename _Tp >
  void **_Array_augmented___bitwise_xor** (_Array< _Tp > __a, size_t __n, size_t __s, _Array< _Tp > __b)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___bitwise_xor** (_Array< _Tp > __a, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___bitwise_xor** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b)
- template<typename _Tp >
  void **_Array_augmented___bitwise_xor** (_Array< _Tp > __a, size_t __n, const _Tp &__t)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___divides** (_Array< _Tp > __a, _Array< bool > _-_m, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___divides** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< bool > __m)

- template<typename _Tp >
  void **_Array_augmented___divides** (_Array< _Tp > __a, _Array< bool > _-_m, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___divides** (_Array< _Tp > __a, _Array< size_t > __i, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___divides** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< size_t > __i)
- template<typename _Tp >
  void **_Array_augmented___divides** (_Array< _Tp > __a, _Array< size_t > __i, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___divides** (_Array< _Tp > __a, size_t __s, const _-Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___divides** (_Array< _Tp > __a, _Array< _Tp > _-_b, size_t __n, size_t __s)
- template<typename _Tp >
  void **_Array_augmented___divides** (_Array< _Tp > __a, size_t __n, size_t __s, _Array< _Tp > __b)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___divides** (_Array< _Tp > __a, const _Expr< _-Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___divides** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b)
- template<typename _Tp >
  void **_Array_augmented___divides** (_Array< _Tp > __a, size_t __n, const _-Tp &__t)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___minus** (_Array< _Tp > __a, _Array< bool > __-m, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___minus** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< bool > __m)
- template<typename _Tp >
  void **_Array_augmented___minus** (_Array< _Tp > __a, _Array< bool > __-m, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___minus** (_Array< _Tp > __a, _Array< size_t > __i, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___minus** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< size_t > __i)

- template<typename _Tp >
  void **_Array_augmented___minus** (_Array< _Tp > __a, _Array< size_t > __i, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___minus** (_Array< _Tp > __a, size_t __s, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___minus** (_Array< _Tp > __a, _Array< _Tp > __b, size_t __n, size_t __s)
- template<typename _Tp >
  void **_Array_augmented___minus** (_Array< _Tp > __a, size_t __n, size_t __s, _Array< _Tp > __b)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___minus** (_Array< _Tp > __a, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___minus** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b)
- template<typename _Tp >
  void **_Array_augmented___minus** (_Array< _Tp > __a, size_t __n, const _Tp &__t)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___modulus** (_Array< _Tp > __a, _Array< bool > __m, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___modulus** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< bool > __m)
- template<typename _Tp >
  void **_Array_augmented___modulus** (_Array< _Tp > __a, _Array< bool > __m, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___modulus** (_Array< _Tp > __a, _Array< size_t > __i, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___modulus** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< size_t > __i)
- template<typename _Tp >
  void **_Array_augmented___modulus** (_Array< _Tp > __a, _Array< size_t > __i, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___modulus** (_Array< _Tp > __a, size_t __s, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___modulus** (_Array< _Tp > __a, _Array< _Tp > __b, size_t __n, size_t __s)

- template<typename _Tp >
  void **_Array_augmented___modulus** (_Array< _Tp > __a, size_t __n, size_t __s, _Array< _Tp > __b)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___modulus** (_Array< _Tp > __a, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___modulus** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b)
- template<typename _Tp >
  void **_Array_augmented___modulus** (_Array< _Tp > __a, size_t __n, const _Tp &__t)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___multiplies** (_Array< _Tp > __a, _Array< bool > __m, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___multiplies** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< bool > __m)
- template<typename _Tp >
  void **_Array_augmented___multiplies** (_Array< _Tp > __a, _Array< bool > __m, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___multiplies** (_Array< _Tp > __a, _Array< size_t > __i, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___multiplies** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< size_t > __i)
- template<typename _Tp >
  void **_Array_augmented___multiplies** (_Array< _Tp > __a, _Array< size_t > __i, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___multiplies** (_Array< _Tp > __a, size_t __s, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___multiplies** (_Array< _Tp > __a, _Array< _Tp > __b, size_t __n, size_t __s)
- template<typename _Tp >
  void **_Array_augmented___multiplies** (_Array< _Tp > __a, size_t __n, size_t __s, _Array< _Tp > __b)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___multiplies** (_Array< _Tp > __a, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___multiplies** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b)

- template<typename _Tp >
  void **_Array_augmented___multiplies** (_Array< _Tp > __a, size_t __n, const _Tp &__t)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___plus** (_Array< _Tp > __a, _Array< bool > __m, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___plus** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< bool > __m)
- template<typename _Tp >
  void **_Array_augmented___plus** (_Array< _Tp > __a, _Array< bool > __m, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___plus** (_Array< _Tp > __a, _Array< size_t > __i, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___plus** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< size_t > __i)
- template<typename _Tp >
  void **_Array_augmented___plus** (_Array< _Tp > __a, _Array< size_t > __i, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___plus** (_Array< _Tp > __a, size_t __s, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___plus** (_Array< _Tp > __a, _Array< _Tp > __b, size_t __n, size_t __s)
- template<typename _Tp >
  void **_Array_augmented___plus** (_Array< _Tp > __a, size_t __n, size_t __s, _Array< _Tp > __b)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___plus** (_Array< _Tp > __a, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___plus** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b)
- template<typename _Tp >
  void **_Array_augmented___plus** (_Array< _Tp > __a, size_t __n, const _Tp &__t)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___shift_left** (_Array< _Tp > __a, _Array< bool > __m, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___shift_left** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< bool > __m)

- template<typename _Tp >
  void **_Array_augmented___shift_left** (_Array< _Tp > __a, _Array< bool > __m, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___shift_left** (_Array< _Tp > __a, _Array< size_t > __i, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___shift_left** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< size_t > __i)
- template<typename _Tp >
  void **_Array_augmented___shift_left** (_Array< _Tp > __a, _Array< size_t > __i, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___shift_left** (_Array< _Tp > __a, size_t __s, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___shift_left** (_Array< _Tp > __a, _Array< _Tp > __b, size_t __n, size_t __s)
- template<typename _Tp >
  void **_Array_augmented___shift_left** (_Array< _Tp > __a, size_t __n, size_t __s, _Array< _Tp > __b)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___shift_left** (_Array< _Tp > __a, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___shift_left** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b)
- template<typename _Tp >
  void **_Array_augmented___shift_left** (_Array< _Tp > __a, size_t __n, const _Tp &__t)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___shift_right** (_Array< _Tp > __a, _Array< bool > __m, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___shift_right** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< bool > __m)
- template<typename _Tp >
  void **_Array_augmented___shift_right** (_Array< _Tp > __a, _Array< bool > __m, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___shift_right** (_Array< _Tp > __a, _Array< size_t > __i, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___shift_right** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< size_t > __i)

- template<typename _Tp >
  void **_Array_augmented___shift_right** (_Array< _Tp > __a, _Array< size_t > __i, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___shift_right** (_Array< _Tp > __a, size_t __s, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___shift_right** (_Array< _Tp > __a, _Array< _Tp > __b, size_t __n, size_t __s)
- template<typename _Tp >
  void **_Array_augmented___shift_right** (_Array< _Tp > __a, size_t __n, size_t __s, _Array< _Tp > __b)
- template<typename _Tp , class _Dom >
  void **_Array_augmented___shift_right** (_Array< _Tp > __a, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **_Array_augmented___shift_right** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b)
- template<typename _Tp >
  void **_Array_augmented___shift_right** (_Array< _Tp > __a, size_t __n, const _Tp &__t)
- template<typename _T1 , typename _T2 >
  void _Construct (_T1 *__p, _T2 &&__value)
- template<typename _ForwardIterator , typename _Tp >
  void **_Destroy** (_ForwardIterator __first, _ForwardIterator __last, allocator< _Tp > &)
- template<typename _ForwardIterator , typename _Allocator >
  void **_Destroy** (_ForwardIterator __first, _ForwardIterator __last, _Allocator &__alloc)
- template<typename _ForwardIterator >
  void _Destroy (_ForwardIterator __first, _ForwardIterator __last)
- template<typename _Tp >
  void _Destroy (_Tp *__pointer)
- void **_Rb_tree_insert_and_rebalance** (const bool __insert_left, _Rb_tree_node_base *__x, _Rb_tree_node_base *__p, _Rb_tree_node_base &__header) throw ()
- _Rb_tree_node_base * **_Rb_tree_rebalance_for_erase** (_Rb_tree_node_base *const __z, _Rb_tree_node_base &__header) throw ()
- void **abort** (void) _GLIBC_NORETURN throw ()
- template<typename _Tp >
  _Expr< _UnClos< _Abs, _ValArray, _Tp >, _Tp > **abs** (const valarray< _Tp > &__v)
- template<class _Dom >
  _Expr< _UnClos< _Abs, _Expr, _Dom >, typename _Dom::value_type > **abs** (const _Expr< _Dom, typename _Dom::value_type > &__e)

- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **abs** (_Tp __x)
- long double **abs** (long double __x)
- float **abs** (float __x)
- double **abs** (double __x)
- template<typename _Tp >
  _Tp abs (const complex< _Tp > &)
- template<typename _InputIterator , typename _Tp , typename _BinaryOperation >
  _Tp accumulate (_InputIterator __first, _InputIterator __last, _Tp __init, _BinaryOperation __binary_op)
- template<typename _InputIterator , typename _Tp >
  _Tp accumulate (_InputIterator __first, _InputIterator __last, _Tp __init)
- template<typename _Tp >
  _Expr< _UnClos< _Acos, _ValArray, _Tp >, _Tp > **acos** (const valarray< _Tp > &__v)
- template<class _Dom >
  _Expr< _UnClos< _Acos, _Expr, _Dom >, typename _Dom::value_type > **acos** (const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<typename _Tp >
  std::complex< _Tp > acos (const std::complex< _Tp > &__z)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **acos** (_Tp __x)
- long double **acos** (long double __x)
- float **acos** (float __x)
- template<typename _Tp >
  std::complex< _Tp > acosh (const std::complex< _Tp > &__z)
- template<typename _InputIterator , typename _OutputIterator , typename _BinaryOperation >
  _OutputIterator adjacent_difference (_InputIterator __first, _InputIterator __last, _OutputIterator __result, _BinaryOperation __binary_op)
- template<typename _InputIterator , typename _OutputIterator >
  _OutputIterator adjacent_difference (_InputIterator __first, _InputIterator __last, _OutputIterator __result)
- template<typename _ForwardIterator , typename _BinaryPredicate >
  _ForwardIterator adjacent_find (_ForwardIterator __first, _ForwardIterator __last, _BinaryPredicate __binary_pred)
- template<typename _ForwardIterator >
  _ForwardIterator adjacent_find (_ForwardIterator __first, _ForwardIterator __last)
- template<typename _FIter , typename _BinaryPredicate >
  _FIter **adjacent_find** (_FIter, _FIter, _BinaryPredicate)
- template<typename _FIter >
  _FIter **adjacent_find** (_FIter, _FIter)

- template<typename _InputIterator , typename _Distance >
  void advance (_InputIterator &__i, _Distance __n)
- template<typename _InputIterator , typename _Predicate >
  bool all_of (_InputIterator __first, _InputIterator __last, _Predicate __pred)
- template<typename _IIter , typename _Predicate >
  bool **all_of** (_IIter, _IIter, _Predicate)
- template<typename _Tp , typename _Alloc , typename... _Args>
  shared_ptr< _Tp > allocate_shared (_Alloc __a, _Args &&...__args)
- template<typename _InputIterator , typename _Predicate >
  bool any_of (_InputIterator __first, _InputIterator __last, _Predicate __pred)
- template<typename _IIter , typename _Predicate >
  bool **any_of** (_IIter, _IIter, _Predicate)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type arg (_Tp __x)
- template<typename _Tp >
  _Tp arg (const complex< _Tp > &)
- template<typename _Tp >
  _Expr< _UnClos< _Asin, _ValArray, _Tp >, _Tp > **asin** (const valarray< _Tp > &__v)
- template<class _Dom >
  _Expr< _UnClos< _Asin, _Expr, _Dom >, typename _Dom::value_type > **asin** (const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<typename _Tp >
  std::complex< _Tp > asin (const std::complex< _Tp > &__z)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **asin** (_Tp __x)
- long double **asin** (long double __x)
- float **asin** (float __x)
- template<typename _Tp >
  std::complex< _Tp > asinh (const std::complex< _Tp > &__z)
- template<typename _Fn , typename... _Args>
  enable_if<!is_same< typename decay< _Fn >::type, launch >::value, future< decltype(std::declval< _Fn >)(std::declval< _Args >)...)> >::type **async** (_Fn &&__fn, _Args &&...__args)
- template<typename _Fn , typename... _Args>
  future< typename result_of< _Fn(_Args...)>::type > **async** (launch __policy, _Fn &&__fn, _Args &&...__args)
- template<typename _Tp >
  _Expr< _UnClos< _Atan, _ValArray, _Tp >, _Tp > **atan** (const valarray< _Tp > &__v)
- template<class _Dom >
  _Expr< _UnClos< _Atan, _Expr, _Dom >, typename _Dom::value_type > **atan** (const _Expr< _Dom, typename _Dom::value_type > &__e)

- template<typename _Tp >
  std::complex< _Tp > atan (const std::complex< _Tp > &__z)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **atan** (_Tp __x)
- long double **atan** (long double __x)
- float **atan** (float __x)
- template<typename _Tp >
  _Expr< _BinClos< _Atan2, _Constant, _ValArray, _Tp, _Tp >, _Tp > **atan2** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< _Atan2, _ValArray, _Constant, _Tp, _Tp >, _Tp > **atan2** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< _Atan2, _ValArray, _ValArray, _Tp, _Tp >, _Tp > **atan2** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<class _Dom >
  _Expr< _BinClos< _Atan2, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename _Dom::value_type > **atan2** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< _Atan2, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename _Dom::value_type > **atan2** (const _Expr< _Dom, typename _Dom::value_type > &__e, const typename _Dom::value_type &__t)
- template<class _Dom >
  _Expr< _BinClos< _Atan2, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename _Dom::value_type > **atan2** (const valarray< typename _Dom::valarray > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< _Atan2, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename _Dom::value_type > **atan2** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< _Atan2, _Expr, _Expr, _Dom1, _Dom2 >, typename _Dom1::value_type > **atan2** (const _Expr< _Dom1, typename _Dom1::value_type > &__e1, const _Expr< _Dom2, typename _Dom2::value_type > &__e2)

- template<typename _Tp , typename _Up >
  __gnu_cxx::__promote_2< typename __gnu_cxx::__enable_if< __is_arithmetic< _Tp >::__value &&__is_arithmetic< _Up >::__value, _Tp >::__type, _Up >::__type **atan2** (_Tp __y, _Up __x)
- long double **atan2** (long double __y, long double __x)
- float **atan2** (float __y, float __x)

- template<typename _Tp >
  std::complex< _Tp > atanh (const std::complex< _Tp > &__z)
- int **atexit** (void(*)()) throw ()
- template<typename _ITp >
  bool **atomic_compare_exchange_strong** (__atomic_base< _ITp > *__a, _ITp *__i1, _ITp __i2)
- bool **atomic_compare_exchange_strong** (atomic_bool *__a, bool *__i1, bool __i2)
- bool **atomic_compare_exchange_strong** (atomic_address *__a, void **__v1, void *__v2)
- template<typename _ITp >
  bool **atomic_compare_exchange_strong_explicit** (__atomic_base< _ITp > *__a, _ITp *__i1, _ITp __i2, memory_order __m1, memory_order __m2)
- bool **atomic_compare_exchange_strong_explicit** (atomic_bool *__a, bool *__i1, bool __i2, memory_order __m1, memory_order __m2)
- bool **atomic_compare_exchange_strong_explicit** (atomic_address *__a, void **__v1, void *__v2, memory_order __m1, memory_order __m2)
- template<typename _ITp >
  bool **atomic_compare_exchange_weak** (__atomic_base< _ITp > *__a, _ITp *__i1, _ITp __i2)
- bool **atomic_compare_exchange_weak** (atomic_bool *__a, bool *__i1, bool __i2)
- bool **atomic_compare_exchange_weak** (atomic_address *__a, void **__v1, void *__v2)
- template<typename _ITp >
  bool **atomic_compare_exchange_weak_explicit** (__atomic_base< _ITp > *__a, _ITp *__i1, _ITp __i2, memory_order __m1, memory_order __m2)
- bool **atomic_compare_exchange_weak_explicit** (atomic_bool *__a, bool *__i1, bool __i2, memory_order __m1, memory_order __m2)
- bool **atomic_compare_exchange_weak_explicit** (atomic_address *__a, void **__v1, void *__v2, memory_order __m1, memory_order __m2)
- template<typename _ITp >
  _ITp **atomic_exchange** (__atomic_base< _ITp > *__a, _ITp __i)
- bool **atomic_exchange** (atomic_bool *__a, bool __i)
- void * **atomic_exchange** (atomic_address *__a, void *__v)
- template<typename _ITp >
  _ITp **atomic_exchange_explicit** (__atomic_base< _ITp > *__a, _ITp __i, memory_order __m)
- bool **atomic_exchange_explicit** (atomic_bool *__a, bool __i, memory_order __m)
- void * **atomic_exchange_explicit** (atomic_address *__a, void *__v, memory_order __m)
- template<typename _ITp >
  _ITp **atomic_fetch_add** (__atomic_base< _ITp > *__a, _ITp __i)

- void * **atomic_fetch_add** (atomic_address *__a, ptrdiff_t __d)
- template<typename _ITp >
  _ITp **atomic_fetch_add_explicit** (__atomic_base< _ITp > *__a, _ITp __i, memory_order __m)
- void * **atomic_fetch_add_explicit** (atomic_address *__a, ptrdiff_t __d, memory_order __m)
- template<typename _ITp >
  _ITp **atomic_fetch_and** (__atomic_base< _ITp > *__a, _ITp __i)
- template<typename _ITp >
  _ITp **atomic_fetch_and_explicit** (__atomic_base< _ITp > *__a, _ITp __i, memory_order __m)
- template<typename _ITp >
  _ITp **atomic_fetch_or** (__atomic_base< _ITp > *__a, _ITp __i)
- template<typename _ITp >
  _ITp **atomic_fetch_or_explicit** (__atomic_base< _ITp > *__a, _ITp __i, memory_order __m)
- template<typename _ITp >
  _ITp **atomic_fetch_sub** (__atomic_base< _ITp > *__a, _ITp __i)
- void * **atomic_fetch_sub** (atomic_address *__a, ptrdiff_t __d)
- template<typename _ITp >
  _ITp **atomic_fetch_sub_explicit** (__atomic_base< _ITp > *__a, _ITp __i, memory_order __m)
- void * **atomic_fetch_sub_explicit** (atomic_address *__a, ptrdiff_t __d, memory_order __m)
- template<typename _ITp >
  _ITp **atomic_fetch_xor** (__atomic_base< _ITp > *__a, _ITp __i)
- template<typename _ITp >
  _ITp **atomic_fetch_xor_explicit** (__atomic_base< _ITp > *__a, _ITp __i, memory_order __m)
- void **atomic_flag_clear** (__atomic_flag_base *__a)
- void **atomic_flag_clear_explicit** (__atomic_flag_base *, memory_order) throw ()
- void **atomic_flag_clear_explicit** (atomic_flag *__a, memory_order __m)
- bool **atomic_flag_test_and_set** (__atomic_flag_base *__a)
- bool **atomic_flag_test_and_set_explicit** (__atomic_flag_base *, memory_order) throw ()
- bool **atomic_flag_test_and_set_explicit** (atomic_flag *__a, memory_order __m)
- template<typename _ITp >
  bool **atomic_is_lock_free** (const __atomic_base< _ITp > *__a)
- bool **atomic_is_lock_free** (const atomic_bool *__a)
- bool **atomic_is_lock_free** (const atomic_address *__a)
- template<typename _ITp >
  _ITp **atomic_load** (const __atomic_base< _ITp > *__a)

- bool **atomic_load** (const atomic_bool *__a)
- void * **atomic_load** (const atomic_address *__a)
- template<typename _ITp >
  _ITp **atomic_load_explicit** (const __atomic_base< _ITp > *__a, memory_order __m)
- bool **atomic_load_explicit** (const atomic_bool *__a, memory_order __m)
- void * **atomic_load_explicit** (const atomic_address *__a, memory_order __m)
- template<typename _ITp >
  void **atomic_store** (__atomic_base< _ITp > *__a, _ITp __i)
- void **atomic_store** (atomic_bool *__a, bool __i)
- void **atomic_store** (atomic_address *__a, void *__v)
- template<typename _ITp >
  void **atomic_store_explicit** (__atomic_base< _ITp > *__a, _ITp __i, memory_order __m)
- void **atomic_store_explicit** (atomic_bool *__a, bool __i, memory_order __m)
- void **atomic_store_explicit** (atomic_address *__a, void *__v, memory_order __m)
- template<typename _Container >
  back_insert_iterator< _Container > back_inserter (_Container &__x)
- template<typename _ForwardIterator , typename _Tp , typename _Compare >
  bool binary_search (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__val, _Compare __comp)
- template<typename _ForwardIterator , typename _Tp >
  bool binary_search (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__val)
- template<typename _FIter , typename _Tp , typename _Compare >
  bool **binary_search** (_FIter, _FIter, const _Tp &, _Compare)
- template<typename _FIter , typename _Tp >
  bool **binary_search** (_FIter, _FIter, const _Tp &)
- template<typename _Result , typename _Functor , typename... _ArgTypes>
  _Bind_result< _Result, typename _Maybe_wrap_member_pointer< _Functor >::type(_ArgTypes...)> bind (_Functor __f, _ArgTypes...__args)
- template<typename _Functor , typename... _ArgTypes>
  _Bind< typename _Maybe_wrap_member_pointer< _Functor >::type(_ArgTypes...)> bind (_Functor __f, _ArgTypes...__args)
- template<typename _Operation , typename _Tp >
  binder1st< _Operation > bind1st (const _Operation &__fn, const _Tp &__x)
- template<typename _Operation , typename _Tp >
  binder2nd< _Operation > bind2nd (const _Operation &__fn, const _Tp &__x)
- ios_base & boolalpha (ios_base &__base)
- template<typename _Callable , typename... _Args>
  void call_once (once_flag &__once, _Callable __f, _Args &&...__args)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **ceil** (_Tp __x)

- long double **ceil** (long double __x)
- float **ceil** (float __x)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type **conj** (_Tp __x)
- template<typename _Tp >
  complex< _Tp > conj (const complex< _Tp > &)
- template<typename _Tp , typename _Tp1 >
  shared_ptr< _Tp > **const_pointer_cast** (const shared_ptr< _Tp1 > &__r)
- template<typename _CharT >
  __gnu_cxx::__enable_if< __is_char< _CharT >::__value, ostreambuf_iterator< _CharT > >::__type **copy** (istreambuf_iterator< _CharT > __first, istreambuf_iterator< _CharT > __last, ostreambuf_iterator< _CharT > __result)
- template<typename _Tp >
  _Deque_iterator< _Tp, _Tp &, _Tp * > **copy** (_Deque_iterator< _Tp, _Tp &, _Tp * > __first, _Deque_iterator< _Tp, _Tp &, _Tp * > __last, _Deque_iterator< _Tp, _Tp &, _Tp * > __result)
- template<typename _II , typename _OI >
  _OI copy (_II __first, _II __last, _OI __result)
- template<typename _Tp >
  _Deque_iterator< _Tp, _Tp &, _Tp * > **copy** (_Deque_iterator< _Tp, const _Tp &, const _Tp * > __first, _Deque_iterator< _Tp, const _Tp &, const _Tp * > __last, _Deque_iterator< _Tp, _Tp &, _Tp * > __result)
- template<typename _IIter , typename _OIter >
  _OIter **copy** (_IIter, _IIter, _OIter)
- template<typename _Tp >
  _Deque_iterator< _Tp, _Tp &, _Tp * > **copy_backward** (_Deque_iterator< _Tp, _Tp &, _Tp * > __first, _Deque_iterator< _Tp, _Tp &, _Tp * > __last, _Deque_iterator< _Tp, _Tp &, _Tp * > __result)
- template<typename _BI1 , typename _BI2 >
  _BI2 copy_backward (_BI1 __first, _BI1 __last, _BI2 __result)
- template<typename _Tp >
  _Deque_iterator< _Tp, _Tp &, _Tp * > **copy_backward** (_Deque_iterator< _Tp, const _Tp &, const _Tp * > __first, _Deque_iterator< _Tp, const _Tp &, const _Tp * > __last, _Deque_iterator< _Tp, _Tp &, _Tp * > __result)
- template<typename _BIter1 , typename _BIter2 >
  _BIter2 **copy_backward** (_BIter1, _BIter1, _BIter2)
- template<typename _Ex >
  exception_ptr copy_exception (_Ex __ex) throw ()
- template<typename _InputIterator , typename _OutputIterator , typename _Predicate >
  _OutputIterator copy_if (_InputIterator __first, _InputIterator __last, _OutputIterator __result, _Predicate __pred)
- template<typename _IIter , typename _OIter , typename _Predicate >
  _OIter **copy_if** (_IIter, _IIter, _OIter, _Predicate)

- template<typename _InputIterator , typename _Size , typename _OutputIterator >
  _OutputIterator copy_n (_InputIterator __first, _Size __n, _OutputIterator __result)
- template<typename _IIter , typename _Size , typename _OIter >
  _OIter **copy_n** (_IIter, _Size, _OIter)
- template<typename _Tp >
  _Expr< _UnClos< _Cos, _ValArray, _Tp >, _Tp > **cos** (const valarray< _Tp > &__v)
- template<class _Dom >
  _Expr< _UnClos< _Cos, _Expr, _Dom >, typename _Dom::value_type > **cos** (const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **cos** (_Tp __x)
- long double **cos** (long double __x)
- float **cos** (float __x)
- template<typename _Tp >
  complex< _Tp > cos (const complex< _Tp > &)
- template<typename _Tp >
  _Expr< _UnClos< _Cosh, _ValArray, _Tp >, _Tp > **cosh** (const valarray< _Tp > &__v)
- template<class _Dom >
  _Expr< _UnClos< _Cosh, _Expr, _Dom >, typename _Dom::value_type > **cosh** (const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **cosh** (_Tp __x)
- long double **cosh** (long double __x)
- float **cosh** (float __x)
- template<typename _Tp >
  complex< _Tp > cosh (const complex< _Tp > &)
- template<typename _InputIterator , typename _Tp >
  iterator_traits< _InputIterator >::difference_type count (_InputIterator __first, _InputIterator __last, const _Tp &__value)
- template<typename _IIter , typename _Tp >
  iterator_traits< _IIter >::difference_type **count** (_IIter, _IIter, const _Tp &)
- template<typename _InputIterator , typename _Predicate >
  iterator_traits< _InputIterator >::difference_type count_if (_InputIterator __first, _InputIterator __last, _Predicate __pred)
- template<typename _IIter , typename _Predicate >
  iterator_traits< _IIter >::difference_type **count_if** (_IIter, _IIter, _Predicate)
- exception_ptr current_exception () throw ()
- ios_base & dec (ios_base &__base)
- template<typename _Tp >
  add_rvalue_reference< _Tp >::type **declval** ()

- template<typename _InputIterator >
  iterator_traits< _InputIterator >::difference_type distance (_InputIterator __-
  first, _InputIterator __last)
- template<typename _Tp , typename _Tp1 >
  shared_ptr< _Tp > **dynamic_pointer_cast** (const shared_ptr< _Tp1 > &__r)
- template ostream & **endl** (ostream &)
- template<typename _CharT , typename _Traits >
  basic_ostream< _CharT, _Traits > & endl (basic_ostream< _CharT, _Traits >
  &__os)
- template ostream & **ends** (ostream &)
- template<typename _CharT , typename _Traits >
  basic_ostream< _CharT, _Traits > & ends (basic_ostream< _CharT, _Traits >
  &__os)
- template<typename _II1 , typename _II2 >
  bool equal (_II1 __first1, _II1 __last1, _II2 __first2)
- template<typename _IIter1 , typename _IIter2 , typename _BinaryPredicate >
  bool equal (_IIter1 __first1, _IIter1 __last1, _IIter2 __first2, _BinaryPredicate
  __binary_pred)
- template<typename _IIter1 , typename _IIter2 >
  bool **equal** (_IIter1, _IIter1, _IIter2)
- template<typename _ForwardIterator , typename _Tp , typename _Compare >
  pair< _ForwardIterator, _ForwardIterator > equal_range (_ForwardIterator __-
  first, _ForwardIterator __last, const _Tp &__val, _Compare __comp)
- template<typename _ForwardIterator , typename _Tp >
  pair< _ForwardIterator, _ForwardIterator > equal_range (_ForwardIterator __-
  first, _ForwardIterator __last, const _Tp &__val)
- template<typename _FIter , typename _Tp , typename _Compare >
  pair< _FIter, _FIter > **equal_range** (_FIter, _FIter, const _Tp &, _Compare)
- template<typename _FIter , typename _Tp >
  pair< _FIter, _FIter > **equal_range** (_FIter, _FIter, const _Tp &)
- void **exit** (int) _GLIBC_NORETURN throw ()
- template<typename _Tp >
  _Expr< _UnClos< _Exp, _ValArray, _Tp >, _Tp > **exp** (const valarray< _Tp
  > &__v)
- template<class _Dom >
  _Expr< _UnClos< _Exp, _Expr, _Dom >, typename _Dom::value_type > **exp**
  (const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **exp**
  (_Tp __x)
- long double **exp** (long double __x)
- float **exp** (float __x)
- template<typename _Tp >
  complex< _Tp > exp (const complex< _Tp > &)

- template<typename _Tp >
  _Tp fabs (const std::complex< _Tp > &__z)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **fabs** (_Tp __x)
- long double **fabs** (long double __x)
- float **fabs** (float __x)
- void **fill** (_Bit_iterator __first, _Bit_iterator __last, const bool &__x)
- template<typename _ForwardIterator , typename _Tp >
  void fill (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__value)
- template<typename _Tp >
  void **fill** (const _Deque_iterator< _Tp, _Tp &, _Tp * > &__first, const _Deque_iterator< _Tp, _Tp &, _Tp * > &__last, const _Tp &__value)
- template<typename _FIter , typename _Tp >
  void **fill** (_FIter, _FIter, const _Tp &)
- template<typename _OI , typename _Size , typename _Tp >
  _OI fill_n (_OI __first, _Size __n, const _Tp &__value)
- template<typename _OIter , typename _Size , typename _Tp >
  _OIter **fill_n** (_OIter, _Size, const _Tp &)
- template<typename _CharT >
  __gnu_cxx::__enable_if< __is_char< _CharT >::__value, istreambuf_iterator< _CharT > >::__type **find** (istreambuf_iterator< _CharT > __first, istreambuf_iterator< _CharT > __last, const _CharT &__val)
- template<typename _InputIterator , typename _Tp >
  _InputIterator find (_InputIterator __first, _InputIterator __last, const _Tp &__val)
- template<typename _IIter , typename _Tp >
  _IIter **find** (_IIter, _IIter, const _Tp &)
- template<typename _ForwardIterator1 , typename _ForwardIterator2 , typename _BinaryPredicate >
  _ForwardIterator1 find_end (_ForwardIterator1 __first1, _ForwardIterator1 __last1, _ForwardIterator2 __first2, _ForwardIterator2 __last2, _BinaryPredicate __comp)
- template<typename _ForwardIterator1 , typename _ForwardIterator2 >
  _ForwardIterator1 find_end (_ForwardIterator1 __first1, _ForwardIterator1 __last1, _ForwardIterator2 __first2, _ForwardIterator2 __last2)
- template<typename _FIter1 , typename _FIter2 , typename _BinaryPredicate >
  _FIter1 **find_end** (_FIter1, _FIter1, _FIter2, _FIter2, _BinaryPredicate)
- template<typename _FIter1 , typename _FIter2 >
  _FIter1 **find_end** (_FIter1, _FIter1, _FIter2, _FIter2)
- template<typename _InputIterator , typename _ForwardIterator , typename _BinaryPredicate >
  _InputIterator find_first_of (_InputIterator __first1, _InputIterator __last1, _ForwardIterator __first2, _ForwardIterator __last2, _BinaryPredicate __comp)

- template<typename _InputIterator , typename _ForwardIterator >
  _InputIterator find_first_of (_InputIterator __first1, _InputIterator __last1, _ForwardIterator __first2, _ForwardIterator __last2)
- template<typename _FIter1 , typename _FIter2 , typename _BinaryPredicate >
  _FIter1 **find_first_of** (_FIter1, _FIter1, _FIter2, _FIter2, _BinaryPredicate)
- template<typename _FIter1 , typename _FIter2 >
  _FIter1 **find_first_of** (_FIter1, _FIter1, _FIter2, _FIter2)
- template<typename _InputIterator , typename _Predicate >
  _InputIterator find_if (_InputIterator __first, _InputIterator __last, _Predicate __pred)
- template<typename _IIter , typename _Predicate >
  _IIter **find_if** (_IIter, _IIter, _Predicate)
- template<typename _InputIterator , typename _Predicate >
  _InputIterator find_if_not (_InputIterator __first, _InputIterator __last, _Predicate __pred)
- template<typename _IIter , typename _Predicate >
  _IIter **find_if_not** (_IIter, _IIter, _Predicate)
- ios_base & fixed (ios_base &__base)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **floor** (_Tp __x)
- long double **floor** (long double __x)
- float **floor** (float __x)
- template ostream & **flush** (ostream &)
- template<typename _CharT , typename _Traits >
  basic_ostream< _CharT, _Traits > & flush (basic_ostream< _CharT, _Traits > &__os)
- long double **fmod** (long double __x, long double __y)
- float **fmod** (float __x, float __y)
- template<typename _InputIterator , typename _Function >
  _Function for_each (_InputIterator __first, _InputIterator __last, _Function __f)
- template<typename _IIter , typename _Funct >
  _Funct **for_each** (_IIter, _IIter, _Funct)
- template<typename _Tp >
  enable_if< is_lvalue_reference< _Tp >::value, _Tp >::type **forward** (typename std::remove_reference< _Tp >::type &&__t)
- template<typename _Tp >
  enable_if< is_lvalue_reference< _Tp >::value, _Tp >::type **forward** (typename std::identity< _Tp >::type __t)
- template<typename _Tp >
  enable_if<!is_lvalue_reference< _Tp >::value, _Tp && >::type forward (typename std::identity< _Tp >::type &&__t)
- template<typename _Tp >
  enable_if<!is_lvalue_reference< _Tp >::value, _Tp && >::type forward (typename std::identity< _Tp >::type &__t)

- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **frexp** (_Tp __x, int *__exp)
- long double **frexp** (long double __x, int *__exp)
- float **frexp** (float __x, int *__exp)
- template<typename _Container >
  front_insert_iterator< _Container > front_inserter (_Container &__x)
- template<typename _ForwardIterator , typename _Generator >
  void generate (_ForwardIterator __first, _ForwardIterator __last, _Generator __gen)
- template<typename _FIter , typename _Generator >
  void **generate** (_FIter, _FIter, _Generator)
- template<typename _RealType , size_t __bits, typename _UniformRandomNumberGenerator >
  _RealType generate_canonical (_UniformRandomNumberGenerator &__g)
- template<typename _OutputIterator , typename _Size , typename _Generator >
  _OutputIterator generate_n (_OutputIterator __first, _Size __n, _Generator __gen)
- template<typename _OIter , typename _Size , typename _Generator >
  _OIter **generate_n** (_OIter, _Size, _Generator)
- _GLIBCXX_CONST const error_category & **generic_category** () throw ()
- template<std::size_t _Int, class _Tp1 , class _Tp2 >
  const tuple_element< _Int, std::pair< _Tp1, _Tp2 > >::type & **get** (const std::pair< _Tp1, _Tp2 > &__in)
- template<std::size_t _Int, class _Tp1 , class _Tp2 >
  tuple_element< _Int, std::pair< _Tp1, _Tp2 > >::type & **get** (std::pair< _Tp1, _Tp2 > &__in)
- template<std::size_t _Int, typename _Tp , std::size_t _Nm>
  const _Tp & **get** (const array< _Tp, _Nm > &__arr)
- template<std::size_t _Int, typename _Tp , std::size_t _Nm>
  _Tp & **get** (array< _Tp, _Nm > &__arr)
- template<std::size_t __i, typename... _Elements>
  __add_c_ref< typename tuple_element< __i, tuple< _Elements...> >::type >::type **get** (const tuple< _Elements...> &__t)
- template<std::size_t __i, typename... _Elements>
  __add_ref< typename tuple_element< __i, tuple< _Elements...> >::type >::type **get** (tuple< _Elements...> &__t)
- template<typename _Del , typename _Tp , _Lock_policy _Lp>
  _Del * get_deleter (const __shared_ptr< _Tp, _Lp > &__p)
- template<typename _MoneyT >
  _Get_money< _MoneyT > get_money (_MoneyT &__mon, bool __intl=false)
- template<typename _Tp >
  pair< _Tp *, ptrdiff_t > get_temporary_buffer (ptrdiff_t __len)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>

basic_istream< _CharT, _Traits > & getline (basic_istream< _CharT, _Traits > &__is, __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base > &__str)

- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  basic_istream< _CharT, _Traits > & getline (basic_istream< _CharT, _Traits > &__is, __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base > &__str, _CharT __delim)
- template basic_istream< wchar_t > & **getline** (basic_istream< wchar_t > &, wstring &)
- template basic_istream< wchar_t > & **getline** (basic_istream< wchar_t > &, wstring &, wchar_t)
- template basic_istream< char > & **getline** (basic_istream< char > &, string &)
- template basic_istream< char > & **getline** (basic_istream< char > &, string &, char)
- template<>
  basic_istream< wchar_t > & **getline** (basic_istream< wchar_t > &__in, basic_string< wchar_t > &__str, wchar_t __delim)
- template<>
  basic_istream< char > & **getline** (basic_istream< char > &__in, basic_string< char > &__str, char __delim)
- template<typename _CharT , typename _Traits , typename _Alloc >
  basic_istream< _CharT, _Traits > & getline (basic_istream< _CharT, _Traits > &__is, basic_string< _CharT, _Traits, _Alloc > &__str)
- template<typename _CharT , typename _Traits , typename _Alloc >
  basic_istream< _CharT, _Traits > & getline (basic_istream< _CharT, _Traits > &__is, basic_string< _CharT, _Traits, _Alloc > &__str, _CharT __delim)
- template<typename _Facet >
  bool has_facet (const locale &__loc) throw ()
- template bool **has_facet**< **__timepunct**< **char** > > (const locale &)
- template bool **has_facet**< **__timepunct**< **wchar_t** > > (const locale &)
- template bool **has_facet**< **codecvt**< **char, char, mbstate_t** > > (const locale &)
- template bool **has_facet**< **codecvt**< **wchar_t, char, mbstate_t** > > (const locale &)
- template bool **has_facet**< **collate**< **char** > > (const locale &)
- template bool **has_facet**< **collate**< **wchar_t** > > (const locale &)
- template bool **has_facet**< **ctype**< **char** > > (const locale &)
- template bool **has_facet**< **ctype**< **wchar_t** > > (const locale &)
- template bool **has_facet**< **messages**< **char** > > (const locale &)
- template bool **has_facet**< **messages**< **wchar_t** > > (const locale &)
- template bool **has_facet**< **money_get**< **char** > > (const locale &)
- template bool **has_facet**< **money_get**< **wchar_t** > > (const locale &)
- template bool **has_facet**< **money_put**< **char** > > (const locale &)

- template bool **has_facet**< **money_put**< **wchar_t** > > (const locale &)
- template bool **has_facet**< **moneypunct**< **char** > > (const locale &)
- template bool **has_facet**< **moneypunct**< **wchar_t** > > (const locale &)
- template bool **has_facet**< **num_get**< **char** > > (const locale &)
- template bool **has_facet**< **num_get**< **wchar_t** > > (const locale &)
- template bool **has_facet**< **num_put**< **char** > > (const locale &)
- template bool **has_facet**< **num_put**< **wchar_t** > > (const locale &)
- template bool **has_facet**< **numpunct**< **char** > > (const locale &)
- template bool **has_facet**< **numpunct**< **wchar_t** > > (const locale &)
- template bool **has_facet**< **time_get**< **char** > > (const locale &)
- template bool **has_facet**< **time_get**< **wchar_t** > > (const locale &)
- template bool **has_facet**< **time_put**< **char** > > (const locale &)
- template bool **has_facet**< **time_put**< **wchar_t** > > (const locale &)
- ios_base & hex (ios_base &__base)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type **imag** (_Tp)
- template<typename _Tp >
  _Tp **imag** (const complex< _Tp > &__z)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _Compare >
  bool includes (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _Compare __comp)
- template<typename _InputIterator1 , typename _InputIterator2 >
  bool includes (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2)
- template<typename _IIter1 , typename _IIter2 , typename _Compare >
  bool **includes** (_IIter1, _IIter1, _IIter2, _IIter2, _Compare)
- template<typename _IIter1 , typename _IIter2 >
  bool **includes** (_IIter1, _IIter1, _IIter2, _IIter2)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _Tp , typename _BinaryOperation1 , typename _BinaryOperation2 >
  _Tp inner_product (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _Tp __init, _BinaryOperation1 __binary_op1, _BinaryOperation2 __binary_op2)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _Tp >
  _Tp inner_product (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _Tp __init)
- template<typename _BidirectionalIterator , typename _Compare >
  void inplace_merge (_BidirectionalIterator __first, _BidirectionalIterator __middle, _BidirectionalIterator __last, _Compare __comp)
- template<typename _BidirectionalIterator >
  void inplace_merge (_BidirectionalIterator __first, _BidirectionalIterator __middle, _BidirectionalIterator __last)
- template<typename _BIter , typename _Compare >
  void **inplace_merge** (_BIter, _BIter, _BIter, _Compare)

- template<typename _BIter >
  void **inplace_merge** (_BIter, _BIter, _BIter)
- template<typename _Container , typename _Iterator >
  insert_iterator< _Container > inserter (_Container &__x, _Iterator __i)
- ios_base & internal (ios_base &__base)
- template<typename _ForwardIterator , typename _Tp >
  void iota (_ForwardIterator __first, _ForwardIterator __last, _Tp __value)
- template<typename _RandomAccessIterator , typename _Compare >
  bool is_heap (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  bool is_heap (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _RAIter , typename _Compare >
  bool **is_heap** (_RAIter, _RAIter, _Compare)
- template<typename _RAIter >
  bool **is_heap** (_RAIter, _RAIter)
- template<typename _RandomAccessIterator , typename _Compare >
  _RandomAccessIterator is_heap_until (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  _RandomAccessIterator is_heap_until (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _RAIter , typename _Compare >
  _RAIter **is_heap_until** (_RAIter, _RAIter, _Compare)
- template<typename _RAIter >
  _RAIter **is_heap_until** (_RAIter, _RAIter)
- template<typename _InputIterator , typename _Predicate >
  bool is_partitioned (_InputIterator __first, _InputIterator __last, _Predicate __pred)
- template<typename _IIter , typename _Predicate >
  bool **is_partitioned** (_IIter, _IIter, _Predicate)
- template<typename _ForwardIterator , typename _Compare >
  bool is_sorted (_ForwardIterator __first, _ForwardIterator __last, _Compare __comp)
- template<typename _ForwardIterator >
  bool is_sorted (_ForwardIterator __first, _ForwardIterator __last)
- template<typename _FIter , typename _Compare >
  bool **is_sorted** (_FIter, _FIter, _Compare)
- template<typename _FIter >
  bool **is_sorted** (_FIter, _FIter)
- template<typename _ForwardIterator , typename _Compare >
  _ForwardIterator is_sorted_until (_ForwardIterator __first, _ForwardIterator __last, _Compare __comp)

- template<typename _ForwardIterator >
  _ForwardIterator is_sorted_until (_ForwardIterator __first, _ForwardIterator __last)
- template<typename _FIter , typename _Compare >
  _FIter **is_sorted_until** (_FIter, _FIter, _Compare)
- template<typename _FIter >
  _FIter **is_sorted_until** (_FIter, _FIter)
- template<typename _CharT >
  bool isalnum (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool isalpha (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool iscntrl (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool isdigit (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool isgraph (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool islower (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool isprint (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool ispunct (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool isspace (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool isupper (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool isxdigit (_CharT __c, const locale &__loc)
- template<typename _ForwardIterator1 , typename _ForwardIterator2 >
  void iter_swap (_ForwardIterator1 __a, _ForwardIterator2 __b)
- template<typename _FIter1 , typename _FIter2 >
  void **iter_swap** (_FIter1, _FIter2)
- template<typename _Tp >
  _Tp kill_dependency (_Tp __y)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **ldexp** (_Tp __x, int __exp)
- long double **ldexp** (long double __x, int __exp)
- float **ldexp** (float __x, int __exp)
- ios_base & left (ios_base &__base)
- template<typename _II1 , typename _II2 , typename _Compare >
  bool lexicographical_compare (_II1 __first1, _II1 __last1, _II2 __first2, _II2 __last2, _Compare __comp)

- template<typename _II1 , typename _II2 >
  bool lexicographical_compare (_II1 __first1, _II1 __last1, _II2 __first2, _II2 _-
  _last2)
- template<typename _IIter1 , typename _IIter2 , typename _Compare >
  bool **lexicographical_compare** (_IIter1, _IIter1, _IIter2, _IIter2, _Compare)
- template<typename _IIter1 , typename _IIter2 >
  bool **lexicographical_compare** (_IIter1, _IIter1, _IIter2, _IIter2)
- template<typename _L1 , typename _L2 , typename... _L3>
  void lock (_L1 &, _L2 &, _L3 &...)
- template<typename _Tp >
  _Expr< _UnClos< _Log, _ValArray, _Tp >, _Tp > **log** (const valarray< _Tp
  > &__v)
- template<class _Dom >
  _Expr< _UnClos< _Log, _Expr, _Dom >, typename _Dom::value_type > **log**
  (const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **log**
  (_Tp __x)
- long double **log** (long double __x)
- float **log** (float __x)
- template<typename _Tp >
  complex< _Tp > log (const complex< _Tp > &)
- template<typename _Tp >
  _Expr< _UnClos< _Log10, _ValArray, _Tp >, _Tp > **log10** (const valarray<
  _Tp > &__v)
- template<class _Dom >
  _Expr< _UnClos< _Log10, _Expr, _Dom >, typename _Dom::value_type >
  log10 (const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type
  log10 (_Tp __x)
- long double **log10** (long double __x)
- float **log10** (float __x)
- template<typename _Tp >
  complex< _Tp > log10 (const complex< _Tp > &)
- template<typename _ForwardIterator , typename _Tp , typename _Compare >
  _ForwardIterator lower_bound (_ForwardIterator __first, _ForwardIterator __-
  last, const _Tp &__val, _Compare __comp)
- template<typename _ForwardIterator , typename _Tp >
  _ForwardIterator lower_bound (_ForwardIterator __first, _ForwardIterator __-
  last, const _Tp &__val)
- template<typename _FIter , typename _Tp , typename _Compare >
  _FIter **lower_bound** (_FIter, _FIter, const _Tp &, _Compare)
- template<typename _FIter , typename _Tp >
  _FIter **lower_bound** (_FIter, _FIter, const _Tp &)

- error_code **make_error_code** (errc __e)
- error_code **make_error_code** (future_errc __errc)
- error_condition **make_error_condition** (errc __e)
- error_condition **make_error_condition** (future_errc __errc)
- template<typename _RandomAccessIterator , typename _Compare >
  void make_heap (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  void make_heap (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _RAIter , typename _Compare >
  void **make_heap** (_RAIter, _RAIter, _Compare)
- template<typename _RAIter >
  void **make_heap** (_RAIter, _RAIter)
- template<typename _Iterator >
  move_iterator< _Iterator > **make_move_iterator** (const _Iterator &__i)
- template<class _T1 , class _T2 >
  pair< typename __decay_and_strip< _T1 >::__type, typename __decay_and_strip< _T2 >::__type > **make_pair** (_T1 &&__x, _T2 &&__y)
- template<typename _Tp , typename... _Args>
  shared_ptr< _Tp > make_shared (_Args &&...__args)
- template<typename... _Elements>
  tuple< typename __decay_and_strip< _Elements >::__type...> **make_tuple** (_Elements &&...__args)
- template<typename _Tp , typename _Compare >
  _Tp **max** (initializer_list< _Tp >, _Compare)
- template<typename _Tp >
  _Tp **max** (initializer_list< _Tp >)
- template<typename _Tp , typename _Compare >
  const _Tp & max (const _Tp &__a, const _Tp &__b, _Compare __comp)
- template<typename _Tp >
  const _Tp & max (const _Tp &__a, const _Tp &__b)
- template<typename _ForwardIterator , typename _Compare >
  _ForwardIterator max_element (_ForwardIterator __first, _ForwardIterator __last, _Compare __comp)
- template<typename _ForwardIterator >
  _ForwardIterator max_element (_ForwardIterator __first, _ForwardIterator __last)
- template<typename _FIter , typename _Compare >
  _FIter **max_element** (_FIter, _FIter, _Compare)
- template<typename _FIter >
  _FIter **max_element** (_FIter, _FIter)
- template<typename _Tp , typename _Class >
  _Mem_fn< _Tp _Class::* > mem_fn (_Tp _Class::*__pm)

- template<typename _Ret , typename _Tp , typename _Arg >
  mem_fun1_t< _Ret, _Tp, _Arg > **mem_fun** (_Ret(_Tp::*__f)(_Arg))
- template<typename _Ret , typename _Tp >
  mem_fun_t< _Ret, _Tp > **mem_fun** (_Ret(_Tp::*__f)())
- template<typename _Ret , typename _Tp , typename _Arg >
  mem_fun1_ref_t< _Ret, _Tp, _Arg > **mem_fun_ref** (_Ret(_Tp::*__f)(_Arg))
- template<typename _Ret , typename _Tp >
  mem_fun_ref_t< _Ret, _Tp > **mem_fun_ref** (_Ret(_Tp::*__f)())
- void * **memchr** (void *__s, int __c, size_t __n)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator , typename _Compare >
  _OutputIterator merge (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result, _Compare __comp)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator >
  _OutputIterator merge (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Compare >
  _OIter **merge** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Compare)
- template<typename _IIter1 , typename _IIter2 , typename _OIter >
  _OIter **merge** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter)
- template<typename _Tp , typename _Compare >
  _Tp **min** (initializer_list< _Tp >, _Compare)
- template<typename _Tp >
  _Tp **min** (initializer_list< _Tp >)
- template<typename _Tp , typename _Compare >
  const _Tp & min (const _Tp &__a, const _Tp &__b, _Compare __comp)
- template<typename _Tp >
  const _Tp & min (const _Tp &__a, const _Tp &__b)
- template<typename _ForwardIterator , typename _Compare >
  _ForwardIterator min_element (_ForwardIterator __first, _ForwardIterator __last, _Compare __comp)
- template<typename _ForwardIterator >
  _ForwardIterator min_element (_ForwardIterator __first, _ForwardIterator __last)
- template<typename _FIter , typename _Compare >
  _FIter **min_element** (_FIter, _FIter, _Compare)
- template<typename _FIter >
  _FIter **min_element** (_FIter, _FIter)
- template<typename _Tp , typename _Compare >
  pair< _Tp, _Tp > **minmax** (initializer_list< _Tp >, _Compare)
- template<typename _Tp >
  pair< _Tp, _Tp > **minmax** (initializer_list< _Tp >)

- template<typename _Tp , typename _Compare >
  pair< const _Tp &, const _Tp & > minmax (const _Tp &__a, const _Tp &__b, _Compare __comp)
- template<typename _Tp >
  pair< const _Tp &, const _Tp & > minmax (const _Tp &__a, const _Tp &__b)
- template<typename _ForwardIterator , typename _Compare >
  pair< _ForwardIterator, _ForwardIterator > minmax_element (_ForwardIterator __first, _ForwardIterator __last, _Compare __comp)
- template<typename _ForwardIterator >
  pair< _ForwardIterator, _ForwardIterator > minmax_element (_ForwardIterator __first, _ForwardIterator __last)
- template<typename _FIter , typename _Compare >
  pair< _FIter, _FIter > **minmax_element** (_FIter, _FIter, _Compare)
- template<typename _FIter >
  pair< _FIter, _FIter > **minmax_element** (_FIter, _FIter)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _BinaryPredicate >
  pair< _InputIterator1, _InputIterator2 > mismatch (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _BinaryPredicate __binary_pred)
- template<typename _InputIterator1 , typename _InputIterator2 >
  pair< _InputIterator1, _InputIterator2 > mismatch (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2)
- template<typename _IIter1 , typename _IIter2 , typename _BinaryPredicate >
  pair< _IIter1, _IIter2 > **mismatch** (_IIter1, _IIter1, _IIter2, _BinaryPredicate)
- template<typename _IIter1 , typename _IIter2 >
  pair< _IIter1, _IIter2 > **mismatch** (_IIter1, _IIter1, _IIter2)
- long double **modf** (long double __x, long double *__iptr)
- float **modf** (float __x, float *__iptr)
- template<typename _Tp >
  _Deque_iterator< _Tp, _Tp &, _Tp * > **move** (_Deque_iterator< _Tp, _Tp &, _Tp * > __first, _Deque_iterator< _Tp, _Tp &, _Tp * > __last, _Deque_iterator< _Tp, _Tp &, _Tp * > __result)
- template<typename _II , typename _OI >
  _OI move (_II __first, _II __last, _OI __result)
- template<typename _Tp >
  std::remove_reference< _Tp >::type && move (_Tp &&__t)
- template<typename _Tp >
  _Deque_iterator< _Tp, _Tp &, _Tp * > **move** (_Deque_iterator< _Tp, const _Tp &, const _Tp * > __first, _Deque_iterator< _Tp, const _Tp &, const _Tp * > __last, _Deque_iterator< _Tp, _Tp &, _Tp * > __result)
- template<typename _Tp >
  _Deque_iterator< _Tp, _Tp &, _Tp * > **move_backward** (_Deque_iterator< _Tp, _Tp &, _Tp * > __first, _Deque_iterator< _Tp, _Tp &, _Tp * > __last, _Deque_iterator< _Tp, _Tp &, _Tp * > __result)

- template<typename _BI1 , typename _BI2 >
  _BI2 move_backward (_BI1 __first, _BI1 __last, _BI2 __result)
- template<typename _Tp >
  _Deque_iterator< _Tp, _Tp &, _Tp * > **move_backward** (_Deque_iterator< _Tp, const _Tp &, const _Tp * > __first, _Deque_iterator< _Tp, const _Tp &, const _Tp * > __last, _Deque_iterator< _Tp, _Tp &, _Tp * > __result)
- template<typename _ForwardIterator >
  _ForwardIterator **next** (_ForwardIterator __x, typename iterator_traits< _ForwardIterator >::difference_type __n=1)
- template<typename _BidirectionalIterator , typename _Compare >
  bool next_permutation (_BidirectionalIterator __first, _BidirectionalIterator __last, _Compare __comp)
- template<typename _BidirectionalIterator >
  bool next_permutation (_BidirectionalIterator __first, _BidirectionalIterator __last)
- template<typename _BIter , typename _Compare >
  bool **next_permutation** (_BIter, _BIter, _Compare)
- template<typename _BIter >
  bool **next_permutation** (_BIter, _BIter)
- ios_base & noboolalpha (ios_base &__base)
- template<typename _InputIterator , typename _Predicate >
  bool none_of (_InputIterator __first, _InputIterator __last, _Predicate __pred)
- template<typename _IIter , typename _Predicate >
  bool **none_of** (_IIter, _IIter, _Predicate)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type **norm** (_Tp __x)
- template<typename _Tp >
  _Tp norm (const complex< _Tp > &)
- ios_base & noshowbase (ios_base &__base)
- ios_base & noshowpoint (ios_base &__base)
- ios_base & noshowpos (ios_base &__base)
- ios_base & noskipws (ios_base &__base)
- template<typename _Predicate >
  unary_negate< _Predicate > not1 (const _Predicate &__pred)
- template<typename _Predicate >
  binary_negate< _Predicate > not2 (const _Predicate &__pred)
- ios_base & nounitbuf (ios_base &__base)
- ios_base & nouppercase (ios_base &__base)
- template<typename _RandomAccessIterator , typename _Compare >
  void nth_element (_RandomAccessIterator __first, _RandomAccessIterator __nth, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  void nth_element (_RandomAccessIterator __first, _RandomAccessIterator __nth, _RandomAccessIterator __last)

- template<typename _RAIter , typename _Compare >
  void **nth_element** (_RAIter, _RAIter, _RAIter, _Compare)
- template<typename _RAIter >
  void **nth_element** (_RAIter, _RAIter, _RAIter)
- ios_base & oct (ios_base &__base)
- template<class _Dom >
  _Expr< _BinClos< __not_equal_to, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __not_equal_to, typename _Dom::value_type >::result_type > **operator!=** (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __not_equal_to, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __not_equal_to, typename _Dom::value_type >::result_type > **operator!=** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __not_equal_to, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __not_equal_to, typename _Dom::value_type >::result_type > **operator!=** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __not_equal_to, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __not_equal_to, typename _Dom::value_type >::result_type > **operator!=** (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __not_equal_to, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __not_equal_to, typename _Dom1::value_type >::result_type > **operator!=** (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- template<typename _Tp , typename _Tp_Deleter , typename _Up , typename _Up_Deleter >
  bool **operator!=** (const unique_ptr< _Tp, _Tp_Deleter > &__x, const unique_ptr< _Up, _Up_Deleter > &__y)
- template<typename _CharT , typename _Traits >
  bool **operator!=** (const istreambuf_iterator< _CharT, _Traits > &__a, const istreambuf_iterator< _CharT, _Traits > &__b)
- template<class _Tp , class _CharT , class _Traits , class _Dist >
  bool operator!= (const istream_iterator< _Tp, _CharT, _Traits, _Dist > &__x, const istream_iterator< _Tp, _CharT, _Traits, _Dist > &__y)
- template<typename _Tp , typename _Alloc >
  bool operator!= (const vector< _Tp, _Alloc > &__x, const vector< _Tp, _Alloc > &__y)

- template<typename _Key , typename _Val , typename _KeyOfValue , typename _Compare , typename _Alloc >
  bool **operator!=** (const _Rb_tree< _Key, _Val, _KeyOfValue, _Compare, _Alloc > &__x, const _Rb_tree< _Key, _Val, _KeyOfValue, _Compare, _Alloc > &__y)
- template<typename _Val >
  bool **operator!=** (const _Rb_tree_iterator< _Val > &__x, const _Rb_tree_const_iterator< _Val > &__y)
- template<typename _Tp , typename _Seq >
  bool operator!= (const stack< _Tp, _Seq > &__x, const stack< _Tp, _Seq > &__y)
- template<typename _Key , typename _Compare , typename _Alloc >
  bool operator!= (const set< _Key, _Compare, _Alloc > &__x, const set< _Key, _Compare, _Alloc > &__y)
- template<typename _Tp , typename _Seq >
  bool operator!= (const queue< _Tp, _Seq > &__x, const queue< _Tp, _Seq > &__y)
- template<class _T1 , class _T2 >
  bool operator!= (const pair< _T1, _T2 > &__x, const pair< _T1, _T2 > &__y)
- template<typename _Key , typename _Compare , typename _Alloc >
  bool operator!= (const multiset< _Key, _Compare, _Alloc > &__x, const multiset< _Key, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Compare , typename _Alloc >
  bool operator!= (const multimap< _Key, _Tp, _Compare, _Alloc > &__x, const multimap< _Key, _Tp, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Compare , typename _Alloc >
  bool operator!= (const map< _Key, _Tp, _Compare, _Alloc > &__x, const map< _Key, _Tp, _Compare, _Alloc > &__y)
- template<typename _Tp , typename _Alloc >
  bool operator!= (const list< _Tp, _Alloc > &__x, const list< _Tp, _Alloc > &__y)
- template<typename _Val >
  bool **operator!=** (const _List_iterator< _Val > &__x, const _List_const_iterator< _Val > &__y)
- template<typename _IteratorL , typename _IteratorR >
  bool **operator!=** (const move_iterator< _IteratorL > &__x, const move_iterator< _IteratorR > &__y)
- template<typename _IteratorL , typename _IteratorR >
  bool **operator!=** (const reverse_iterator< _IteratorL > &__x, const reverse_iterator< _IteratorR > &__y)
- template<typename _Iterator >
  bool **operator!=** (const reverse_iterator< _Iterator > &__x, const reverse_iterator< _Iterator > &__y)

- template<typename _Tp , typename _Alloc >
  bool operator!= (const deque< _Tp, _Alloc > &__x, const deque< _Tp, _Alloc > &__y)
- template<typename _Tp , typename _RefL , typename _PtrL , typename _RefR , typename _PtrR >
  bool **operator!=** (const _Deque_iterator< _Tp, _RefL, _PtrL > &__x, const _Deque_iterator< _Tp, _RefR, _PtrR > &__y)
- template<typename _Tp , typename _Ref , typename _Ptr >
  bool **operator!=** (const _Deque_iterator< _Tp, _Ref, _Ptr > &__x, const _Deque_iterator< _Tp, _Ref, _Ptr > &__y)
- template<typename _Tp1 , typename _Tp2 >
  bool **operator!=** (const shared_ptr< _Tp1 > &__a, const shared_ptr< _Tp2 > &__b)
- template<typename _StateT >
  bool **operator!=** (const fpos< _StateT > &__lhs, const fpos< _StateT > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool operator!= (const forward_list< _Tp, _Alloc > &__lx, const forward_list< _Tp, _Alloc > &__ly)
- template<typename _Tp , typename _Alloc >
  bool operator!= (const _Fwd_list_iterator< _Tp, _Alloc > &__x, const _Fwd_list_const_iterator< _Tp, _Alloc > &__y)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool operator!= (const basic_string< _CharT, _Traits, _Alloc > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool operator!= (const _CharT *__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool operator!= (const basic_string< _CharT, _Traits, _Alloc > &__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _Tp >
  bool **operator!=** (const allocator< _Tp > &, const allocator< _Tp > &)
- template<typename _T1 , typename _T2 >
  bool **operator!=** (const allocator< _T1 > &, const allocator< _T2 > &)
- template<typename _Bi_iter , class _Allocator >
  bool operator!= (const match_results< _Bi_iter, _Allocator > &__m1, const match_results< _Bi_iter, _Allocator > &__m2)
- template<typename _Bi_iter >
  bool operator!= (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const &__rhs)
- template<typename _Bi_iter >
  bool operator!= (typename iterator_traits< _Bi_iter >::value_type const &__lhs, const sub_match< _Bi_iter > &__rhs)

- template<typename _Bi_iter >
  bool operator!= (const sub_match< _Bi_iter > &__lhs, typename iterator_-traits< _Bi_iter >::value_type const *__rhs)
- template<typename _Bi_iter >
  bool operator!= (typename iterator_traits< _Bi_iter >::value_type const *__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc >
  bool operator!= (const sub_match< _Bi_iter > &__lhs, const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &_-_rhs)
- template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc >
  bool operator!= (const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _BiIter >
  bool operator!= (const sub_match< _BiIter > &__lhs, const sub_match< _-BiIter > &__rhs)
- template<typename _Tp , std::size_t _Nm>
  bool **operator!=** (const array< _Tp, _Nm > &__one, const array< _Tp, _Nm > &__two)
- template<typename _Tp >
  _Expr< _BinClos< __not_equal_to, _Constant, _ValArray, _Tp, _Tp >, type-name __fun< __not_equal_to, _Tp >::result_type > **operator!=** (const _Tp &_-_t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __not_equal_to, _ValArray, _Constant, _Tp, _Tp >, type-name __fun< __not_equal_to, _Tp >::result_type > **operator!=** (const valar-ray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __not_equal_to, _ValArray, _ValArray, _Tp, _Tp >, type-name __fun< __not_equal_to, _Tp >::result_type > **operator!=** (const valar-ray< _Tp > &__v, const valarray< _Tp > &__w)
- template<typename... _TElements, typename... _UElements>
  bool **operator!=** (const tuple< _TElements...> &__t, const tuple< _-UElements...> &__u)
- bool **operator!=** (thread::id __x, thread::id __y)
- bool **operator!=** (const error_condition &__lhs, const error_condition &__rhs)
- bool **operator!=** (const error_condition &__lhs, const error_code &__rhs)
- bool **operator!=** (const error_code &__lhs, const error_condition &__rhs)
- bool **operator!=** (const error_code &__lhs, const error_code &__rhs)
- template<typename _Res , typename... _Args>
  bool operator!= (_M_clear_type *, const function< _Res(_Args...)> &__f)
- template<typename _Res , typename... _Args>
  bool operator!= (const function< _Res(_Args...)> &__f, _M_clear_type *)

- template<class _Dom >
  _Expr< _BinClos< __modulus, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __modulus, typename _Dom::value_type >::result_type > **operator%** (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __modulus, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __modulus, typename _Dom::value_type >::result_type > **operator%** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __modulus, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __modulus, typename _Dom::value_type >::result_type > **operator%** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __modulus, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __modulus, typename _Dom::value_type >::result_type > **operator%** (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __modulus, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __modulus, typename _Dom1::value_type >::result_type > **operator%** (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- template<typename _Tp >
  _Expr< _BinClos< __modulus, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __modulus, _Tp >::result_type > **operator%** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __modulus, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __modulus, _Tp >::result_type > **operator%** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __modulus, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __modulus, _Tp >::result_type > **operator%** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<class _Dom >
  _Expr< _BinClos< __bitwise_and, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __bitwise_and, typename _Dom::value_type >::result_type > **operator&** (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __bitwise_and, _Expr, _ValArray, _Dom, typename

_Dom::value_type >, typename __fun< __bitwise_and, typename _Dom::value_type >::result_type > **operator&** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)

- template<class _Dom >
  _Expr< _BinClos< __bitwise_and, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __bitwise_and, typename _Dom::value_type >::result_type > **operator&** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __bitwise_and, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __bitwise_and, typename _Dom::value_type >::result_type > **operator&** (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __bitwise_and, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __bitwise_and, typename _Dom1::value_type >::result_type > **operator&** (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- _Ios_Iostate **operator&** (_Ios_Iostate __a, _Ios_Iostate __b)
- _Ios_Openmode **operator&** (_Ios_Openmode __a, _Ios_Openmode __b)
- _Ios_Fmtflags **operator&** (_Ios_Fmtflags __a, _Ios_Fmtflags __b)
- template<typename _Tp >
  _Expr< _BinClos< __bitwise_and, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __bitwise_and, _Tp >::result_type > **operator&** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __bitwise_and, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __bitwise_and, _Tp >::result_type > **operator&** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __bitwise_and, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __bitwise_and, _Tp >::result_type > **operator&** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<class _Dom >
  _Expr< _BinClos< __logical_and, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __logical_and, typename _Dom::value_type >::result_type > **operator&&** (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __logical_and, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __logical_and, typename _Dom::value_type >::result_type > **operator&&** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)

- template<class _Dom >
  _Expr< _BinClos< __logical_and, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __logical_and, typename _Dom::value_type >::result_type > **operator&&** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __logical_and, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __logical_and, typename _Dom::value_type >::result_type > **operator&&** (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __logical_and, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __logical_and, typename _Dom1::value_type >::result_type > **operator&&** (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- template<typename _Tp >
  _Expr< _BinClos< __logical_and, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __logical_and, _Tp >::result_type > **operator&&** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __logical_and, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __logical_and, _Tp >::result_type > **operator&&** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __logical_and, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __logical_and, _Tp >::result_type > **operator&&** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- _Ios_Iostate & **operator&=** (_Ios_Iostate &__a, _Ios_Iostate __b)
- _Ios_Openmode & **operator&=** (_Ios_Openmode &__a, _Ios_Openmode __b)
- _Ios_Fmtflags & **operator&=** (_Ios_Fmtflags &__a, _Ios_Fmtflags __b)
- template<class _Dom >
  _Expr< _BinClos< __multiplies, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __multiplies, typename _Dom::value_type >::result_type > **operator*** (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __multiplies, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __multiplies, typename _Dom::value_type >::result_type > **operator*** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __multiplies, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __multiplies, typename _Dom::value_type

>::result_type > **operator**∗ (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)

- template<class _Dom >
  _Expr< _BinClos< __multiplies, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __multiplies, typename _Dom::value_type >::result_type > **operator**∗ (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __multiplies, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __multiplies, typename _Dom1::value_type >::result_type > **operator**∗ (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- template<typename _Tp >
  _Expr< _BinClos< __multiplies, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __multiplies, _Tp >::result_type > **operator**∗ (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __multiplies, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __multiplies, _Tp >::result_type > **operator**∗ (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __multiplies, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __multiplies, _Tp >::result_type > **operator**∗ (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<class _Dom >
  _Expr< _BinClos< __plus, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __plus, typename _Dom::value_type >::result_type > **operator+** (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __plus, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __plus, typename _Dom::value_type >::result_type > **operator+** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __plus, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __plus, typename _Dom::value_type >::result_type > **operator+** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __plus, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __plus, typename _Dom::value_type >::result_type > **operator+** (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)

- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __plus, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __plus, typename _Dom1::value_type >::result_type > **operator+** (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- template<typename _Iterator >
  move_iterator< _Iterator > **operator+** (typename move_iterator< _Iterator >::difference_type __n, const move_iterator< _Iterator > &__x)
- template<typename _Iterator >
  reverse_iterator< _Iterator > **operator+** (typename reverse_iterator< _Iterator >::difference_type __n, const reverse_iterator< _Iterator > &__x)
- template<typename _Tp , typename _Ref , typename _Ptr >
  _Deque_iterator< _Tp, _Ref, _Ptr > **operator+** (ptrdiff_t __n, const _Deque_iterator< _Tp, _Ref, _Ptr > &__x)
- _Bit_const_iterator **operator+** (ptrdiff_t __n, const _Bit_const_iterator &__x)
- _Bit_iterator **operator+** (ptrdiff_t __n, const _Bit_iterator &__x)
- template<typename _CharT , typename _Traits , typename _Alloc >
  basic_string< _CharT, _Traits, _Alloc > operator+ (const basic_string< _CharT, _Traits, _Alloc > &__lhs, _CharT __rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  basic_string< _CharT, _Traits, _Alloc > operator+ (const basic_string< _CharT, _Traits, _Alloc > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  basic_string< _CharT, _Traits, _Alloc > operator+ (_CharT __lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  basic_string< _CharT, _Traits, _Alloc > operator+ (const _CharT *__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  basic_string< _CharT, _Traits, _Alloc > operator+ (const basic_string< _CharT, _Traits, _Alloc > &__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _Tp >
  _Expr< _BinClos< __plus, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __plus, _Tp >::result_type > **operator+** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __plus, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __plus, _Tp >::result_type > **operator+** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __plus, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __plus, _Tp >::result_type > **operator+** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)

- template<typename _Tp >
  complex< _Tp > operator+ (const complex< _Tp > &__x)
- template<class _Dom >
  _Expr< _BinClos< __minus, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __minus, typename _Dom::value_type >::result_type > **operator-** (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __minus, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __minus, typename _Dom::value_type >::result_type > **operator-** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __minus, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __minus, typename _Dom::value_type >::result_type > **operator-** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __minus, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __minus, typename _Dom::value_type >::result_type > **operator-** (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __minus, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __minus, typename _Dom1::value_type >::result_type > **operator-** (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- template<typename _IteratorL , typename _IteratorR >
  auto **operator-** (const move_iterator< _IteratorL > &__x, const move_iterator< _IteratorR > &__y)-> decltype(__x.base()-__y.base())
- template<typename _IteratorL , typename _IteratorR >
  auto **operator-** (const reverse_iterator< _IteratorL > &__x, const reverse_iterator< _IteratorR > &__y)-> decltype(__y.base()-__x.base())
- template<typename _Iterator >
  reverse_iterator< _Iterator >::difference_type **operator-** (const reverse_iterator< _Iterator > &__x, const reverse_iterator< _Iterator > &__y)
- template<typename _Tp , typename _RefL , typename _PtrL , typename _RefR , typename _PtrR >
  _Deque_iterator< _Tp, _RefL, _PtrL >::difference_type **operator-** (const _Deque_iterator< _Tp, _RefL, _PtrL > &__x, const _Deque_iterator< _Tp, _RefR, _PtrR > &__y)
- template<typename _Tp , typename _Ref , typename _Ptr >
  _Deque_iterator< _Tp, _Ref, _Ptr >::difference_type **operator-** (const _Deque_iterator< _Tp, _Ref, _Ptr > &__x, const _Deque_iterator< _Tp, _Ref, _Ptr > &__y)

- ptrdiff_t **operator-** (const _Bit_iterator_base &__x, const _Bit_iterator_base &__y)
- template<typename _Tp >
  _Expr< _BinClos< __minus, _Constant, _ValArray, _Tp, _Tp >, typename _-_fun< __minus, _Tp >::result_type > **operator-** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __minus, _ValArray, _Constant, _Tp, _Tp >, typename __-fun< __minus, _Tp >::result_type > **operator-** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __minus, _ValArray, _ValArray, _Tp, _Tp >, typename __-fun< __minus, _Tp >::result_type > **operator-** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<typename _Tp >
  complex< _Tp > operator- (const complex< _Tp > &__x)
- template<class _Dom >
  _Expr< _BinClos< __divides, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __divides, typename _Dom::value_type >::result_-type > **operator/** (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __divides, _Expr, _ValArray, _Dom, typename _-Dom::value_type >, typename __fun< __divides, typename _Dom::value_type >::result_type > **operator/** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __divides, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __divides, typename _Dom::value_type >::result_-type > **operator/** (const typename _Dom::value_type &__t, const _Expr< _-Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __divides, _Expr, _Constant, _Dom, typename _-Dom::value_type >, typename __fun< __divides, typename _Dom::value_type >::result_type > **operator/** (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __divides, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __divides, typename _Dom1::value_type >::result_type > **operator/** (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- template<typename _Tp >
  _Expr< _BinClos< __divides, _Constant, _ValArray, _Tp, _Tp >, typename _-_fun< __divides, _Tp >::result_type > **operator/** (const _Tp &__t, const valarray< _Tp > &__v)

- template<typename _Tp >
  _Expr< _BinClos< __divides, _ValArray, _Constant, _Tp, _Tp >, typename _-
  _fun< __divides, _Tp >::result_type > **operator/** (const valarray< _Tp > &_-
  _v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __divides, _ValArray, _ValArray, _Tp, _Tp >, typename _-
  _fun< __divides, _Tp >::result_type > **operator/** (const valarray< _Tp > &_-
  _v, const valarray< _Tp > &__w)
- template<class _Dom >
  _Expr< _BinClos< __less, _ValArray, _Expr, typename _Dom::value_type, _-
  Dom >, typename __fun< __less, typename _Dom::value_type >::result_type
  > **operator**< (const valarray< typename _Dom::value_type > &__v, const _-
  Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __less, _Expr, _ValArray, _Dom, typename _Dom::value_-
  type >, typename __fun< __less, typename _Dom::value_type >::result_type >
  operator< (const _Expr< _Dom, typename _Dom::value_type > &__e, const
  valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __less, _Constant, _Expr, typename _Dom::value_type, _-
  Dom >, typename __fun< __less, typename _Dom::value_type >::result_type
  > **operator**< (const typename _Dom::value_type &__t, const _Expr< _Dom,
  typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __less, _Expr, _Constant, _Dom, typename _Dom::value_-
  type >, typename __fun< __less, typename _Dom::value_type >::result_type >
  operator< (const _Expr< _Dom, typename _Dom::value_type > &__v, const
  typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __less, _Expr, _Expr, _Dom1, _Dom2 >, typename __-
  fun< __less, typename _Dom1::value_type >::result_type > **operator**< (const
  _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2,
  typename _Dom2::value_type > &__w)
- template<typename _Tp , typename _Tp_Deleter , typename _Up , typename _Up_Deleter >
  bool **operator**< (const unique_ptr< _Tp, _Tp_Deleter > &__x, const unique_-
  ptr< _Up, _Up_Deleter > &__y)
- template<typename _Tp , typename _Alloc >
  bool operator< (const vector< _Tp, _Alloc > &__x, const vector< _Tp, _Alloc
  > &__y)
- template<typename _Key , typename _Val , typename _KeyOfValue , typename _Compare , type-
  name _Alloc >
  bool **operator**< (const _Rb_tree< _Key, _Val, _KeyOfValue, _Compare, _Alloc
  > &__x, const _Rb_tree< _Key, _Val, _KeyOfValue, _Compare, _Alloc > &_-
  _y)

- template<typename _Tp , typename _Seq >
  bool operator< (const stack< _Tp, _Seq > &__x, const stack< _Tp, _Seq > &__y)
- template<typename _Key , typename _Compare , typename _Alloc >
  bool operator< (const set< _Key, _Compare, _Alloc > &__x, const set< _Key, _Compare, _Alloc > &__y)
- template<typename _Tp , typename _Seq >
  bool operator< (const queue< _Tp, _Seq > &__x, const queue< _Tp, _Seq > &__y)
- template<class _T1 , class _T2 >
  bool operator< (const pair< _T1, _T2 > &__x, const pair< _T1, _T2 > &__y)
- template<typename _Key , typename _Compare , typename _Alloc >
  bool operator< (const multiset< _Key, _Compare, _Alloc > &__x, const multiset< _Key, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Compare , typename _Alloc >
  bool operator< (const multimap< _Key, _Tp, _Compare, _Alloc > &__x, const multimap< _Key, _Tp, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Compare , typename _Alloc >
  bool operator< (const map< _Key, _Tp, _Compare, _Alloc > &__x, const map< _Key, _Tp, _Compare, _Alloc > &__y)
- template<typename _Tp , typename _Alloc >
  bool operator< (const list< _Tp, _Alloc > &__x, const list< _Tp, _Alloc > &__y)
- template<typename _IteratorL , typename _IteratorR >
  bool **operator**< (const move_iterator< _IteratorL > &__x, const move_iterator< _IteratorR > &__y)
- template<typename _IteratorL , typename _IteratorR >
  bool **operator**< (const reverse_iterator< _IteratorL > &__x, const reverse_iterator< _IteratorR > &__y)
- template<typename _Iterator >
  bool **operator**< (const reverse_iterator< _Iterator > &__x, const reverse_iterator< _Iterator > &__y)
- template<typename _Tp , typename _Alloc >
  bool operator< (const deque< _Tp, _Alloc > &__x, const deque< _Tp, _Alloc > &__y)
- template<typename _Tp , typename _RefL , typename _PtrL , typename _RefR , typename _PtrR >
  bool **operator**< (const _Deque_iterator< _Tp, _RefL, _PtrL > &__x, const _Deque_iterator< _Tp, _RefR, _PtrR > &__y)
- template<typename _Tp , typename _Ref , typename _Ptr >
  bool **operator**< (const _Deque_iterator< _Tp, _Ref, _Ptr > &__x, const _Deque_iterator< _Tp, _Ref, _Ptr > &__y)
- template<typename _Tp1 , typename _Tp2 >
  bool **operator**< (const shared_ptr< _Tp1 > &__a, const shared_ptr< _Tp2 > &__b)

- template<typename _Tp , typename _Alloc >
  bool operator< (const forward_list< _Tp, _Alloc > &__lx, const forward_list< _Tp, _Alloc > &__ly)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool operator< (const _CharT *__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool operator< (const basic_string< _CharT, _Traits, _Alloc > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool operator< (const basic_string< _CharT, _Traits, _Alloc > &__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _Bi_iter >
  bool operator< (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const &__rhs)
- template<typename _Bi_iter >
  bool operator< (typename iterator_traits< _Bi_iter >::value_type const &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter >
  bool operator< (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const *__rhs)
- template<typename _Bi_iter >
  bool operator< (typename iterator_traits< _Bi_iter >::value_type const *__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter , class _Ch_traits , class _Ch_alloc >
  bool operator< (const sub_match< _Bi_iter > &__lhs, const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__rhs)
- template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc >
  bool operator< (const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _BiIter >
  bool operator< (const sub_match< _BiIter > &__lhs, const sub_match< _BiIter > &__rhs)
- template<typename _Tp , std::size_t _Nm>
  bool **operator**< (const array< _Tp, _Nm > &__a, const array< _Tp, _Nm > &__b)
- template<typename _Tp >
  _Expr< _BinClos< __less, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __less, _Tp >::result_type > **operator**< (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __less, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __less, _Tp >::result_type > **operator**< (const valarray< _Tp > &__v, const _Tp &__t)

- template<typename _Tp >
  _Expr< _BinClos< __less, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __less, _Tp >::result_type > **operator**< (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<typename... _TElements, typename... _UElements>
  bool **operator**< (const tuple< _TElements...> &__t, const tuple< _UElements...> &__u)
- bool **operator**< (const error_condition &__lhs, const error_condition &__rhs)
- bool **operator**< (const error_code &__lhs, const error_code &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  basic_ostream< _CharT, _Traits > & operator<< (basic_ostream< _CharT, _Traits > &__os, const __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base > &__str)
- template<class _Dom >
  _Expr< _BinClos< __shift_left, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __shift_left, typename _Dom::value_type >::result_type > **operator**<< (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __shift_left, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __shift_left, typename _Dom::value_type >::result_type > **operator**<< (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __shift_left, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __shift_left, typename _Dom::value_type >::result_type > **operator**<< (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __shift_left, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __shift_left, typename _Dom::value_type >::result_type > **operator**<< (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __shift_left, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __shift_left, typename _Dom1::value_type >::result_type > **operator**<< (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- template<typename _Ch , typename _Tr , typename _Tp , _Lock_policy _Lp>
  std::basic_ostream< _Ch, _Tr > & operator<< (std::basic_ostream< _Ch, _Tr > &__os, const __shared_ptr< _Tp, _Lp > &__p)
- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_ostream< _CharT, _Traits > & **operator**<< (std::basic_ostream<

_CharT, _Traits > &__os, const piecewise_linear_distribution< _RealType > &__x)

- template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const piecewise_constant_distribution< _RealType > &__x)
- template<typename _IntType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const discrete_distribution< _IntType > &__x)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const gamma_distribution< _RealType > &__x)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const student_t_distribution< _RealType > &__x)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const fisher_f_distribution< _RealType > &__x)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const chi_squared_distribution< _RealType > &__x)

- template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const lognormal_distribution< _RealType > &__x)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const normal_distribution< _RealType > &__x)
- template<typename _IntType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const binomial_distribution< _IntType > &__x)
- template<typename _IntType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const poisson_distribution< _IntType > &__x)
- template<typename _IntType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const negative_binomial_distribution< _IntType > &__x)
- template<typename _RandomNumberEngine , size_t __k, typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const shuffle_order_engine< _RandomNumberEngine, __k > &__x)
- template<typename _RandomNumberEngine , size_t __p, size_t __r, typename _CharT , typename _Traits >

std::basic_ostream< _CharT, _Traits > & **operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const discard_block_engine< _RandomNumberEngine, __p, __r > &__x)

- template<typename _UIntType , size_t __w, size_t __s, size_t __r, typename _CharT , typename _Traits >
  std::basic_ostream< _CharT, _Traits > & **operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const subtract_with_carry_engine< _UIntType, __w, __s, __r > &__x)
- template<typename _UIntType , size_t __w, size_t __n, size_t __m, size_t __r, _UIntType __a, size_t __u, _UIntType __d, size_t __s, _UIntType __b, size_t __t, _UIntType __c, size_t __l, _UIntType __f, typename _CharT , typename _Traits >
  std::basic_ostream< _CharT, _Traits > & **operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const mersenne_twister_engine< _UIntType, __w, __n, __m, __r, __a, __u, __d, __s, __b, __t, __c, __l, __f > &__x)
- template<typename _UIntType , _UIntType __a, _UIntType __c, _UIntType __m, typename _CharT , typename _Traits >
  std::basic_ostream< _CharT, _Traits > & **operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const linear_congruential_engine< _UIntType, __a, __c, __m > &__lcr)
- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_ostream< _CharT, _Traits > & operator<< (std::basic_ostream< _CharT, _Traits > &, const std::extreme_value_distribution< _RealType > &)
- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_ostream< _CharT, _Traits > & operator<< (std::basic_ostream< _CharT, _Traits > &, const std::weibull_distribution< _RealType > &)
- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_ostream< _CharT, _Traits > & operator<< (std::basic_ostream< _CharT, _Traits > &, const std::exponential_distribution< _RealType > &)
- template<typename _IntType , typename _CharT , typename _Traits >
  std::basic_ostream< _CharT, _Traits > & operator<< (std::basic_ostream< _CharT, _Traits > &, const std::geometric_distribution< _IntType > &)
- template<typename _CharT , typename _Traits >
  std::basic_ostream< _CharT, _Traits > & operator<< (std::basic_ostream< _CharT, _Traits > &, const std::bernoulli_distribution &)
- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_ostream< _CharT, _Traits > & operator<< (std::basic_ostream< _CharT, _Traits > &, const std::cauchy_distribution< _RealType > &)
- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_ostream< _CharT, _Traits > & operator<< (std::basic_ostream< _CharT, _Traits > &, const std::uniform_real_distribution< _RealType > &)
- template<typename _IntType , typename _CharT , typename _Traits >
  std::basic_ostream< _CharT, _Traits > & operator<< (std::basic_ostream< _CharT, _Traits > &, const std::uniform_int_distribution< _IntType > &)
- template<typename _RandomNumberEngine , size_t __w, typename _UIntType , typename _CharT , typename _Traits >

std::basic_ostream< _CharT, _Traits > & operator<< (std::basic_ostream< _CharT, _Traits > &__os, const std::independent_bits_engine< _RandomNumberEngine, __w, _UIntType > &__x)

- template wostream & **operator**<< (wostream &, const wchar_t *)
- template wostream & **operator**<< (wostream &, wchar_t)
- template ostream & **operator**<< (ostream &, const signed char *)
- template ostream & **operator**<< (ostream &, const unsigned char *)
- template ostream & **operator**<< (ostream &, const char *)
- template ostream & **operator**<< (ostream &, signed char)
- template ostream & **operator**<< (ostream &, unsigned char)
- template ostream & **operator**<< (ostream &, char)
- template basic_ostream< wchar_t > & **operator**<< (basic_ostream< wchar_t > &, const wstring &)
- template basic_ostream< char > & **operator**<< (basic_ostream< char > &, const string &)
- template<typename _CharT , typename _Traits , typename _Alloc > basic_ostream< _CharT, _Traits > & operator<< (basic_ostream< _CharT, _Traits > &__os, const basic_string< _CharT, _Traits, _Alloc > &__str)
- template<typename _Ch_type , typename _Ch_traits , typename _Bi_iter > basic_ostream< _Ch_type, _Ch_traits > & operator<< (basic_ostream< _Ch_type, _Ch_traits > &__os, const sub_match< _Bi_iter > &__m)
- template<typename _Tp > _Expr< _BinClos< __shift_left, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __shift_left, _Tp >::result_type > **operator**<< (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp > _Expr< _BinClos< __shift_left, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __shift_left, _Tp >::result_type > **operator**<< (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp > _Expr< _BinClos< __shift_left, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __shift_left, _Tp >::result_type > **operator**<< (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<class _CharT , class _Traits > basic_ostream< _CharT, _Traits > & **operator**<< (basic_ostream< _CharT, _Traits > &__out, thread::id __id)
- template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & **operator**<< (basic_ostream< _CharT, _Traits > &__os, const error_code &__e)
- template<typename _CharT , typename _Traits , typename _Tp > basic_ostream< _CharT, _Traits > & operator<< (basic_ostream< _CharT, _Traits > &&__os, const _Tp &__x)
- template<typename _CharT , typename _Traits , typename _MoneyT > basic_ostream< _CharT, _Traits > & **operator**<< (basic_ostream< _CharT, _Traits > &__os, _Put_money< _MoneyT > __f)

- template<typename _CharT , typename _Traits >
basic_ostream< _CharT, _Traits > & **operator**<< (basic_ostream< _CharT, _Traits > &__os, _Setw __f)
- template<typename _CharT , typename _Traits >
basic_ostream< _CharT, _Traits > & **operator**<< (basic_ostream< _CharT, _Traits > &__os, _Setprecision __f)
- template<typename _CharT , typename _Traits >
basic_ostream< _CharT, _Traits > & **operator**<< (basic_ostream< _CharT, _Traits > &__os, _Setfill< _CharT > __f)
- template<typename _CharT , typename _Traits >
basic_ostream< _CharT, _Traits > & **operator**<< (basic_ostream< _CharT, _Traits > &__os, _Setbase __f)
- template<typename _CharT , typename _Traits >
basic_ostream< _CharT, _Traits > & **operator**<< (basic_ostream< _CharT, _Traits > &__os, _Setiosflags __f)
- template<typename _CharT , typename _Traits >
basic_ostream< _CharT, _Traits > & **operator**<< (basic_ostream< _CharT, _Traits > &__os, _Resetiosflags __f)
- template<typename _Tp , typename _CharT , class _Traits >
basic_ostream< _CharT, _Traits > & operator<< (basic_ostream< _CharT, _Traits > &__os, const complex< _Tp > &__x)
- template<class _Dom >
_Expr< _BinClos< __less_equal, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __less_equal, typename _Dom::value_type >::result_type > **operator**<= (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
_Expr< _BinClos< __less_equal, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __less_equal, typename _Dom::value_type >::result_type > **operator**<= (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
_Expr< _BinClos< __less_equal, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __less_equal, typename _Dom::value_type >::result_type > **operator**<= (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
_Expr< _BinClos< __less_equal, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __less_equal, typename _Dom::value_type >::result_type > **operator**<= (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
_Expr< _BinClos< __less_equal, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __less_equal, typename _Dom1::value_type >::result_type >

operator<= (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)

- template<typename _Tp , typename _Tp_Deleter , typename _Up , typename _Up_Deleter >
  bool **operator<=** (const unique_ptr< _Tp, _Tp_Deleter > &__x, const unique_ptr< _Up, _Up_Deleter > &__y)
- template<typename _Tp , typename _Alloc >
  bool operator<= (const vector< _Tp, _Alloc > &__x, const vector< _Tp, _Alloc > &__y)
- template<typename _Key , typename _Val , typename _KeyOfValue , typename _Compare , typename _Alloc >
  bool **operator<=** (const _Rb_tree< _Key, _Val, _KeyOfValue, _Compare, _Alloc > &__x, const _Rb_tree< _Key, _Val, _KeyOfValue, _Compare, _Alloc > &__y)
- template<typename _Tp , typename _Seq >
  bool operator<= (const stack< _Tp, _Seq > &__x, const stack< _Tp, _Seq > &__y)
- template<typename _Key , typename _Compare , typename _Alloc >
  bool operator<= (const set< _Key, _Compare, _Alloc > &__x, const set< _Key, _Compare, _Alloc > &__y)
- template<typename _Tp , typename _Seq >
  bool operator<= (const queue< _Tp, _Seq > &__x, const queue< _Tp, _Seq > &__y)
- template<class _T1 , class _T2 >
  bool operator<= (const pair< _T1, _T2 > &__x, const pair< _T1, _T2 > &__y)
- template<typename _Key , typename _Compare , typename _Alloc >
  bool operator<= (const multiset< _Key, _Compare, _Alloc > &__x, const multiset< _Key, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Compare , typename _Alloc >
  bool operator<= (const multimap< _Key, _Tp, _Compare, _Alloc > &__x, const multimap< _Key, _Tp, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Compare , typename _Alloc >
  bool operator<= (const map< _Key, _Tp, _Compare, _Alloc > &__x, const map< _Key, _Tp, _Compare, _Alloc > &__y)
- template<typename _Tp , typename _Alloc >
  bool operator<= (const list< _Tp, _Alloc > &__x, const list< _Tp, _Alloc > &__y)
- template<typename _IteratorL , typename _IteratorR >
  bool **operator<=** (const move_iterator< _IteratorL > &__x, const move_iterator< _IteratorR > &__y)
- template<typename _IteratorL , typename _IteratorR >
  bool **operator<=** (const reverse_iterator< _IteratorL > &__x, const reverse_iterator< _IteratorR > &__y)
- template<typename _Iterator >
  bool **operator<=** (const reverse_iterator< _Iterator > &__x, const reverse_iterator< _Iterator > &__y)

- template<typename _Tp , typename _Alloc >
  bool operator<= (const deque< _Tp, _Alloc > &__x, const deque< _Tp, _Alloc > &__y)
- template<typename _Tp , typename _RefL , typename _PtrL , typename _RefR , typename _PtrR >
  bool **operator<=** (const _Deque_iterator< _Tp, _RefL, _PtrL > &__x, const _Deque_iterator< _Tp, _RefR, _PtrR > &__y)
- template<typename _Tp , typename _Ref , typename _Ptr >
  bool **operator<=** (const _Deque_iterator< _Tp, _Ref, _Ptr > &__x, const _Deque_iterator< _Tp, _Ref, _Ptr > &__y)
- template<typename _Tp , typename _Alloc >
  bool operator<= (const forward_list< _Tp, _Alloc > &__lx, const forward_list< _Tp, _Alloc > &__ly)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool operator<= (const _CharT *__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool operator<= (const basic_string< _CharT, _Traits, _Alloc > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool operator<= (const basic_string< _CharT, _Traits, _Alloc > &__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _Bi_iter >
  bool operator<= (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const &__rhs)
- template<typename _Bi_iter >
  bool operator<= (typename iterator_traits< _Bi_iter >::value_type const &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter >
  bool operator<= (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const *__rhs)
- template<typename _Bi_iter >
  bool operator<= (typename iterator_traits< _Bi_iter >::value_type const *__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter , class _Ch_traits , class _Ch_alloc >
  bool operator<= (const sub_match< _Bi_iter > &__lhs, const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__rhs)
- template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc >
  bool operator<= (const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _BiIter >
  bool operator<= (const sub_match< _BiIter > &__lhs, const sub_match< _BiIter > &__rhs)

- template<typename _Tp , std::size_t _Nm>
  bool **operator<=** (const array< _Tp, _Nm > &__one, const array< _Tp, _Nm > &__two)
- template<typename _Tp >
  _Expr< _BinClos< __less_equal, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __less_equal, _Tp >::result_type > **operator<=** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __less_equal, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __less_equal, _Tp >::result_type > **operator<=** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __less_equal, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __less_equal, _Tp >::result_type > **operator<=** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<typename... _TElements, typename... _UElements>
  bool **operator<=** (const tuple< _TElements...> &__t, const tuple< _UElements...> &__u)
- bool **operator<=** (thread::id __x, thread::id __y)
- template<class _Dom >
  _Expr< _BinClos< __equal_to, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __equal_to, typename _Dom::value_type >::result_type > **operator==** (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __equal_to, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __equal_to, typename _Dom::value_type >::result_type > **operator==** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __equal_to, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __equal_to, typename _Dom::value_type >::result_type > **operator==** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __equal_to, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __equal_to, typename _Dom::value_type >::result_type > **operator==** (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __equal_to, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __equal_to, typename _Dom1::value_type >::result_type > **operator==** (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)

- template<typename _Tp , typename _Tp_Deleter , typename _Up , typename _Up_Deleter >
  bool **operator==** (const unique_ptr< _Tp, _Tp_Deleter > &__x, const unique_ptr< _Up, _Up_Deleter > &__y)
- template<typename _CharT , typename _Traits >
  bool **operator==** (const istreambuf_iterator< _CharT, _Traits > &__a, const istreambuf_iterator< _CharT, _Traits > &__b)
- template<typename _Tp , typename _CharT , typename _Traits , typename _Dist >
  bool operator== (const istream_iterator< _Tp, _CharT, _Traits, _Dist > &__x, const istream_iterator< _Tp, _CharT, _Traits, _Dist > &__y)
- template<typename _Tp , typename _Alloc >
  bool operator== (const vector< _Tp, _Alloc > &__x, const vector< _Tp, _Alloc > &__y)
- template<typename _Key , typename _Val , typename _KeyOfValue , typename _Compare , typename _Alloc >
  bool **operator==** (const _Rb_tree< _Key, _Val, _KeyOfValue, _Compare, _Alloc > &__x, const _Rb_tree< _Key, _Val, _KeyOfValue, _Compare, _Alloc > &__y)
- template<typename _Val >
  bool **operator==** (const _Rb_tree_iterator< _Val > &__x, const _Rb_tree_const_iterator< _Val > &__y)
- template<typename _Tp , typename _Seq >
  bool operator== (const stack< _Tp, _Seq > &__x, const stack< _Tp, _Seq > &__y)
- template<typename _Key , typename _Compare , typename _Alloc >
  bool operator== (const set< _Key, _Compare, _Alloc > &__x, const set< _Key, _Compare, _Alloc > &__y)
- template<typename _Tp , typename _Seq >
  bool operator== (const queue< _Tp, _Seq > &__x, const queue< _Tp, _Seq > &__y)
- template<class _T1 , class _T2 >
  bool operator== (const pair< _T1, _T2 > &__x, const pair< _T1, _T2 > &__y)
- template<typename _Key , typename _Compare , typename _Alloc >
  bool operator== (const multiset< _Key, _Compare, _Alloc > &__x, const multiset< _Key, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Compare , typename _Alloc >
  bool operator== (const multimap< _Key, _Tp, _Compare, _Alloc > &__x, const multimap< _Key, _Tp, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Compare , typename _Alloc >
  bool operator== (const map< _Key, _Tp, _Compare, _Alloc > &__x, const map< _Key, _Tp, _Compare, _Alloc > &__y)
- template<typename _Tp , typename _Alloc >
  bool operator== (const list< _Tp, _Alloc > &__x, const list< _Tp, _Alloc > &__y)

- template<typename _Val >
  bool **operator==** (const _List_iterator< _Val > &__x, const _List_const_iterator< _Val > &__y)
- template<typename _IteratorL , typename _IteratorR >
  bool **operator==** (const move_iterator< _IteratorL > &__x, const move_iterator< _IteratorR > &__y)
- template<typename _IteratorL , typename _IteratorR >
  bool **operator==** (const reverse_iterator< _IteratorL > &__x, const reverse_iterator< _IteratorR > &__y)
- template<typename _Iterator >
  bool operator== (const reverse_iterator< _Iterator > &__x, const reverse_iterator< _Iterator > &__y)
- template<typename _Tp , typename _Alloc >
  bool operator== (const deque< _Tp, _Alloc > &__x, const deque< _Tp, _Alloc > &__y)
- template<typename _Tp , typename _RefL , typename _PtrL , typename _RefR , typename _PtrR >
  bool **operator==** (const _Deque_iterator< _Tp, _RefL, _PtrL > &__x, const _Deque_iterator< _Tp, _RefR, _PtrR > &__y)
- template<typename _Tp , typename _Ref , typename _Ptr >
  bool **operator==** (const _Deque_iterator< _Tp, _Ref, _Ptr > &__x, const _Deque_iterator< _Tp, _Ref, _Ptr > &__y)
- template<typename _Tp1 , typename _Tp2 >
  bool **operator==** (const shared_ptr< _Tp1 > &__a, const shared_ptr< _Tp2 > &__b)
- template<typename _StateT >
  bool operator== (const fpos< _StateT > &__lhs, const fpos< _StateT > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool operator== (const forward_list< _Tp, _Alloc > &__lx, const forward_list< _Tp, _Alloc > &__ly)
- template<typename _Tp , typename _Alloc >
  bool operator== (const _Fwd_list_iterator< _Tp, _Alloc > &__x, const _Fwd_list_const_iterator< _Tp, _Alloc > &__y)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool operator== (const basic_string< _CharT, _Traits, _Alloc > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool operator== (const _CharT *__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _CharT >
  __gnu_cxx::__enable_if< __is_char< _CharT >::__value, bool >::__type **operator==** (const basic_string< _CharT > &__lhs, const basic_string< _CharT > &__rhs)

- template<typename _CharT , typename _Traits , typename _Alloc >
  bool operator== (const basic_string< _CharT, _Traits, _Alloc > &__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _Tp >
  bool **operator==** (const allocator< _Tp > &, const allocator< _Tp > &)
- template<typename _T1 , typename _T2 >
  bool **operator==** (const allocator< _T1 > &, const allocator< _T2 > &)
- template<typename _Bi_iter , typename _Allocator >
  bool operator== (const match_results< _Bi_iter, _Allocator > &__m1, const match_results< _Bi_iter, _Allocator > &__m2)
- template<typename _Bi_iter >
  bool operator== (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const &__rhs)
- template<typename _Bi_iter >
  bool operator== (typename iterator_traits< _Bi_iter >::value_type const &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter >
  bool operator== (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const *__rhs)
- template<typename _Bi_iter >
  bool operator== (typename iterator_traits< _Bi_iter >::value_type const *__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc >
  bool operator== (const sub_match< _Bi_iter > &__lhs, const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__rhs)
- template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc >
  bool operator== (const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _BiIter >
  bool operator== (const sub_match< _BiIter > &__lhs, const sub_match< _BiIter > &__rhs)
- template<typename _Tp , std::size_t _Nm>
  bool **operator==** (const array< _Tp, _Nm > &__one, const array< _Tp, _Nm > &__two)
- template<typename _Tp >
  _Expr< _BinClos< __equal_to, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __equal_to, _Tp >::result_type > **operator==** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __equal_to, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __equal_to, _Tp >::result_type > **operator==** (const valarray< _Tp > &__v, const _Tp &__t)

- template<typename _Tp >
  _Expr< _BinClos< __equal_to, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __equal_to, _Tp >::result_type > **operator==** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<typename... _TElements, typename... _UElements>
  bool **operator==** (const tuple< _TElements...> &__t, const tuple< _UElements...> &__u)
- bool **operator==** (const error_condition &__lhs, const error_condition &__rhs)
- bool **operator==** (const error_condition &__lhs, const error_code &__rhs)
- bool **operator==** (const error_code &__lhs, const error_condition &__rhs)
- bool **operator==** (const error_code &__lhs, const error_code &__rhs)
- template<typename _Res , typename... _Args>
  bool operator== (_M_clear_type *, const function< _Res(_Args...)> &__f)
- template<typename _Res , typename... _Args>
  bool operator== (const function< _Res(_Args...)> &__f, _M_clear_type *)
- template<class _Dom >
  _Expr< _BinClos< __greater, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __greater, typename _Dom::value_type >::result_type > **operator>** (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __greater, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __greater, typename _Dom::value_type >::result_type > **operator>** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __greater, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __greater, typename _Dom::value_type >::result_type > **operator>** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __greater, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __greater, typename _Dom::value_type >::result_type > **operator>** (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __greater, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __greater, typename _Dom1::value_type >::result_type > **operator>** (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- template<typename _Tp , typename _Tp_Deleter , typename _Up , typename _Up_Deleter >
  bool **operator>** (const unique_ptr< _Tp, _Tp_Deleter > &__x, const unique_ptr< _Up, _Up_Deleter > &__y)

- template<typename _Tp , typename _Alloc >
  bool operator> (const vector< _Tp, _Alloc > &__x, const vector< _Tp, _Alloc > &__y)
- template<typename _Key , typename _Val , typename _KeyOfValue , typename _Compare , typename _Alloc >
  bool **operator**> (const _Rb_tree< _Key, _Val, _KeyOfValue, _Compare, _Alloc > &__x, const _Rb_tree< _Key, _Val, _KeyOfValue, _Compare, _Alloc > &__y)
- template<typename _Tp , typename _Seq >
  bool operator> (const stack< _Tp, _Seq > &__x, const stack< _Tp, _Seq > &__y)
- template<typename _Key , typename _Compare , typename _Alloc >
  bool operator> (const set< _Key, _Compare, _Alloc > &__x, const set< _Key, _Compare, _Alloc > &__y)
- template<typename _Tp , typename _Seq >
  bool operator> (const queue< _Tp, _Seq > &__x, const queue< _Tp, _Seq > &__y)
- template<class _T1 , class _T2 >
  bool operator> (const pair< _T1, _T2 > &__x, const pair< _T1, _T2 > &__y)
- template<typename _Key , typename _Compare , typename _Alloc >
  bool operator> (const multiset< _Key, _Compare, _Alloc > &__x, const multiset< _Key, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Compare , typename _Alloc >
  bool operator> (const multimap< _Key, _Tp, _Compare, _Alloc > &__x, const multimap< _Key, _Tp, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Compare , typename _Alloc >
  bool operator> (const map< _Key, _Tp, _Compare, _Alloc > &__x, const map< _Key, _Tp, _Compare, _Alloc > &__y)
- template<typename _Tp , typename _Alloc >
  bool operator> (const list< _Tp, _Alloc > &__x, const list< _Tp, _Alloc > &__y)
- template<typename _IteratorL , typename _IteratorR >
  bool **operator**> (const move_iterator< _IteratorL > &__x, const move_iterator< _IteratorR > &__y)
- template<typename _IteratorL , typename _IteratorR >
  bool **operator**> (const reverse_iterator< _IteratorL > &__x, const reverse_iterator< _IteratorR > &__y)
- template<typename _Iterator >
  bool **operator**> (const reverse_iterator< _Iterator > &__x, const reverse_iterator< _Iterator > &__y)
- template<typename _Tp , typename _Alloc >
  bool operator> (const deque< _Tp, _Alloc > &__x, const deque< _Tp, _Alloc > &__y)
- template<typename _Tp , typename _RefL , typename _PtrL , typename _RefR , typename _PtrR >

bool **operator**> (const _Deque_iterator< _Tp, _RefL, _PtrL > &__x, const _Deque_iterator< _Tp, _RefR, _PtrR > &__y)

- template<typename _Tp , typename _Ref , typename _Ptr >
  bool **operator**> (const _Deque_iterator< _Tp, _Ref, _Ptr > &__x, const _Deque_iterator< _Tp, _Ref, _Ptr > &__y)
- template<typename _Tp , typename _Alloc >
  bool operator> (const forward_list< _Tp, _Alloc > &__lx, const forward_list< _Tp, _Alloc > &__ly)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool operator> (const _CharT *__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool operator> (const basic_string< _CharT, _Traits, _Alloc > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool operator> (const basic_string< _CharT, _Traits, _Alloc > &__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _Bi_iter >
  bool operator> (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const &__rhs)
- template<typename _Bi_iter >
  bool operator> (typename iterator_traits< _Bi_iter >::value_type const &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter >
  bool operator> (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const *__rhs)
- template<typename _Bi_iter >
  bool operator> (typename iterator_traits< _Bi_iter >::value_type const *__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter , class _Ch_traits , class _Ch_alloc >
  bool operator> (const sub_match< _Bi_iter > &__lhs, const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__rhs)
- template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc >
  bool operator> (const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _BiIter >
  bool operator> (const sub_match< _BiIter > &__lhs, const sub_match< _BiIter > &__rhs)
- template<typename _Tp , std::size_t _Nm>
  bool **operator**> (const array< _Tp, _Nm > &__one, const array< _Tp, _Nm > &__two)

- template<typename _Tp >
  _Expr< _BinClos< __greater, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __greater, _Tp >::result_type > **operator**> (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __greater, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __greater, _Tp >::result_type > **operator**> (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __greater, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __greater, _Tp >::result_type > **operator**> (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<typename... _TElements, typename... _UElements>
  bool **operator**> (const tuple< _TElements...> &__t, const tuple< _UElements...> &__u)
- bool **operator**> (thread::id __x, thread::id __y)
- template<class _Dom >
  _Expr< _BinClos< __greater_equal, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __greater_equal, typename _Dom::value_type >::result_type > **operator**>= (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __greater_equal, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __greater_equal, typename _Dom::value_type >::result_type > **operator**>= (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __greater_equal, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __greater_equal, typename _Dom::value_type >::result_type > **operator**>= (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __greater_equal, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __greater_equal, typename _Dom::value_type >::result_type > **operator**>= (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __greater_equal, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __greater_equal, typename _Dom1::value_type >::result_type > **operator**>= (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)

- template<typename _Tp , typename _Tp_Deleter , typename _Up , typename _Up_Deleter >
  bool **operator>=** (const unique_ptr< _Tp, _Tp_Deleter > &__x, const unique_ptr< _Up, _Up_Deleter > &__y)
- template<typename _Tp , typename _Alloc >
  bool operator>= (const vector< _Tp, _Alloc > &__x, const vector< _Tp, _Alloc > &__y)
- template<typename _Key , typename _Val , typename _KeyOfValue , typename _Compare , typename _Alloc >
  bool **operator>=** (const _Rb_tree< _Key, _Val, _KeyOfValue, _Compare, _Alloc > &__x, const _Rb_tree< _Key, _Val, _KeyOfValue, _Compare, _Alloc > &__y)
- template<typename _Tp , typename _Seq >
  bool operator>= (const stack< _Tp, _Seq > &__x, const stack< _Tp, _Seq > &__y)
- template<typename _Key , typename _Compare , typename _Alloc >
  bool operator>= (const set< _Key, _Compare, _Alloc > &__x, const set< _Key, _Compare, _Alloc > &__y)
- template<typename _Tp , typename _Seq >
  bool operator>= (const queue< _Tp, _Seq > &__x, const queue< _Tp, _Seq > &__y)
- template<class _T1 , class _T2 >
  bool operator>= (const pair< _T1, _T2 > &__x, const pair< _T1, _T2 > &__y)
- template<typename _Key , typename _Compare , typename _Alloc >
  bool operator>= (const multiset< _Key, _Compare, _Alloc > &__x, const multiset< _Key, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Compare , typename _Alloc >
  bool operator>= (const multimap< _Key, _Tp, _Compare, _Alloc > &__x, const multimap< _Key, _Tp, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Compare , typename _Alloc >
  bool operator>= (const map< _Key, _Tp, _Compare, _Alloc > &__x, const map< _Key, _Tp, _Compare, _Alloc > &__y)
- template<typename _Tp , typename _Alloc >
  bool operator>= (const list< _Tp, _Alloc > &__x, const list< _Tp, _Alloc > &__y)
- template<typename _IteratorL , typename _IteratorR >
  bool **operator>=** (const move_iterator< _IteratorL > &__x, const move_iterator< _IteratorR > &__y)
- template<typename _IteratorL , typename _IteratorR >
  bool **operator>=** (const reverse_iterator< _IteratorL > &__x, const reverse_iterator< _IteratorR > &__y)
- template<typename _Iterator >
  bool **operator>=** (const reverse_iterator< _Iterator > &__x, const reverse_iterator< _Iterator > &__y)

- template<typename _Tp , typename _Alloc >
  bool operator>= (const deque< _Tp, _Alloc > &__x, const deque< _Tp, _Alloc > &__y)
- template<typename _Tp , typename _RefL , typename _PtrL , typename _RefR , typename _PtrR >
  bool **operator>=** (const _Deque_iterator< _Tp, _RefL, _PtrL > &__x, const _Deque_iterator< _Tp, _RefR, _PtrR > &__y)
- template<typename _Tp , typename _Ref , typename _Ptr >
  bool **operator>=** (const _Deque_iterator< _Tp, _Ref, _Ptr > &__x, const _Deque_iterator< _Tp, _Ref, _Ptr > &__y)
- template<typename _Tp , typename _Alloc >
  bool operator>= (const forward_list< _Tp, _Alloc > &__lx, const forward_list< _Tp, _Alloc > &__ly)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool operator>= (const _CharT *__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool operator>= (const basic_string< _CharT, _Traits, _Alloc > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool operator>= (const basic_string< _CharT, _Traits, _Alloc > &__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _Bi_iter >
  bool operator>= (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const &__rhs)
- template<typename _Bi_iter >
  bool operator>= (typename iterator_traits< _Bi_iter >::value_type const &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter >
  bool operator>= (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const *__rhs)
- template<typename _Bi_iter >
  bool operator>= (typename iterator_traits< _Bi_iter >::value_type const *__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter , class _Ch_traits , class _Ch_alloc >
  bool operator>= (const sub_match< _Bi_iter > &__lhs, const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__rhs)
- template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc >
  bool operator>= (const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _BiIter >
  bool operator>= (const sub_match< _BiIter > &__lhs, const sub_match< _BiIter > &__rhs)

- template<typename _Tp , std::size_t _Nm>
  bool **operator**>= (const array< _Tp, _Nm > &__one, const array< _Tp, _Nm > &__two)
- template<typename _Tp >
  _Expr< _BinClos< __greater_equal, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __greater_equal, _Tp >::result_type > **operator**>= (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __greater_equal, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __greater_equal, _Tp >::result_type > **operator**>= (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __greater_equal, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __greater_equal, _Tp >::result_type > **operator**>= (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<typename... _TElements, typename... _UElements>
  bool **operator**>= (const tuple< _TElements...> &__t, const tuple< _UElements...> &__u)
- bool **operator**>= (thread::id __x, thread::id __y)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  basic_istream< _CharT, _Traits > & operator>> (basic_istream< _CharT, _Traits > &__is, __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base > &__str)
- template<class _Dom >
  _Expr< _BinClos< __shift_right, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __shift_right, typename _Dom::value_type >::result_type > **operator**>> (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __shift_right, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __shift_right, typename _Dom::value_type >::result_type > **operator**>> (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __shift_right, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __shift_right, typename _Dom::value_type >::result_type > **operator**>> (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __shift_right, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __shift_right, typename _Dom::value_type >::result_type > **operator**>> (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)

- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __shift_right, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __shift_right, typename _Dom1::value_type >::result_type > **operator**>> (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **operator**>> (std::basic_istream< _CharT, _Traits > &__is, piecewise_linear_distribution< _RealType > &__x)
- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **operator**>> (std::basic_istream< _CharT, _Traits > &__is, piecewise_constant_distribution< _RealType > &__x)

- template<typename _IntType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **operator**>> (std::basic_istream< _CharT, _Traits > &__is, discrete_distribution< _IntType > &__x)
- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **operator**>> (std::basic_istream< _CharT, _Traits > &__is, gamma_distribution< _RealType > &__x)
- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **operator**>> (std::basic_istream< _CharT, _Traits > &__is, student_t_distribution< _RealType > &__x)
- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **operator**>> (std::basic_istream< _CharT, _Traits > &__is, fisher_f_distribution< _RealType > &__x)
- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **operator**>> (std::basic_istream< _CharT, _Traits > &__is, chi_squared_distribution< _RealType > &__x)
- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **operator**>> (std::basic_istream< _CharT, _Traits > &__is, lognormal_distribution< _RealType > &__x)
- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **operator**>> (std::basic_istream< _CharT, _Traits > &__is, normal_distribution< _RealType > &__x)
- template<typename _IntType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **operator**>> (std::basic_istream< _CharT, _Traits > &__is, binomial_distribution< _IntType > &__x)
- template<typename _IntType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **operator**>> (std::basic_istream< _CharT, _Traits > &__is, poisson_distribution< _IntType > &__x)
- template<typename _IntType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **operator**>> (std::basic_istream< _CharT, _Traits > &__is, negative_binomial_distribution< _IntType > &__x)
- template<typename _RandomNumberEngine , size_t __k, typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **operator**>> (std::basic_istream< _CharT, _Traits > &__is, shuffle_order_engine< _RandomNumberEngine, __k > &__x)

- template<typename _RandomNumberEngine , size_t __p, size_t __r, typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **operator>>** (std::basic_istream< _CharT, _Traits > &__is, discard_block_engine< _RandomNumberEngine, __p, __r > &__x)
- template<typename _UIntType , size_t __w, size_t __s, size_t __r, typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **operator>>** (std::basic_istream< _CharT, _Traits > &__is, subtract_with_carry_engine< _UIntType, __w, __s, __r > &__x)
- template<typename _UIntType , size_t __w, size_t __n, size_t __m, size_t __r, _UIntType __a, size_t __u, _UIntType __d, size_t __s, _UIntType __b, size_t __t, _UIntType __c, size_t __l, _UIntType __f, typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **operator>>** (std::basic_istream< _CharT, _Traits > &__is, mersenne_twister_engine< _UIntType, __w, __n, __m, __r, __a, __u, __d, __s, __b, __t, __c, __l, __f > &__x)
- template<typename _UIntType , _UIntType __a, _UIntType __c, _UIntType __m, typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **operator>>** (std::basic_istream< _CharT, _Traits > &__is, linear_congruential_engine< _UIntType, __a, __c, __m > &__lcr)
- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & operator>> (std::basic_istream< _CharT, _Traits > &, std::extreme_value_distribution< _RealType > &)
- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & operator>> (std::basic_istream< _CharT, _Traits > &, std::weibull_distribution< _RealType > &)
- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & operator>> (std::basic_istream< _CharT, _Traits > &, std::exponential_distribution< _RealType > &)
- template<typename _IntType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & operator>> (std::basic_istream< _CharT, _Traits > &, std::geometric_distribution< _IntType > &)
- template<typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & operator>> (std::basic_istream< _CharT, _Traits > &__is, std::bernoulli_distribution &__x)
- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & operator>> (std::basic_istream< _CharT, _Traits > &, std::cauchy_distribution< _RealType > &)
- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & operator>> (std::basic_istream< _CharT, _Traits > &, std::uniform_real_distribution< _RealType > &)
- template<typename _IntType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & operator>> (std::basic_istream< _CharT, _Traits > &, std::uniform_int_distribution< _IntType > &)

- template wistream & **operator**>> (wistream &, wchar_t *)
- template wistream & **operator**>> (wistream &, wchar_t &)
- template istream & **operator**>> (istream &, signed char *)
- template istream & **operator**>> (istream &, unsigned char *)
- template istream & **operator**>> (istream &, signed char &)
- template istream & **operator**>> (istream &, unsigned char &)
- template istream & **operator**>> (istream &, char *)
- template istream & **operator**>> (istream &, char &)
- template basic_istream< wchar_t > & **operator**>> (basic_istream< wchar_t > &, wstring &)
- template basic_istream< char > & **operator**>> (basic_istream< char > &, string &)
- template<>
  basic_istream< char > & **operator**>> (basic_istream< char > &__is, basic_string< char > &__str)
- template<typename _CharT , typename _Traits , typename _Alloc >
  basic_istream< _CharT, _Traits > & operator>> (basic_istream< _CharT, _Traits > &__is, basic_string< _CharT, _Traits, _Alloc > &__str)
- template<typename _Tp >
  _Expr< _BinClos< __shift_right, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __shift_right, _Tp >::result_type > **operator**>> (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __shift_right, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __shift_right, _Tp >::result_type > **operator**>> (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __shift_right, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __shift_right, _Tp >::result_type > **operator**>> (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<typename _CharT , typename _Traits , typename _Tp >
  basic_istream< _CharT, _Traits > & operator>> (basic_istream< _CharT, _Traits > &&__is, _Tp &__x)
- template<typename _CharT , typename _Traits , typename _MoneyT >
  basic_istream< _CharT, _Traits > & **operator**>> (basic_istream< _CharT, _Traits > &__is, _Get_money< _MoneyT > __f)
- template<typename _CharT , typename _Traits >
  basic_istream< _CharT, _Traits > & **operator**>> (basic_istream< _CharT, _Traits > &__is, _Setw __f)
- template<typename _CharT , typename _Traits >
  basic_istream< _CharT, _Traits > & **operator**>> (basic_istream< _CharT, _Traits > &__is, _Setprecision __f)
- template<typename _CharT , typename _Traits >
  basic_istream< _CharT, _Traits > & **operator**>> (basic_istream< _CharT, _Traits > &__is, _Setfill< _CharT > __f)

- template<typename _CharT , typename _Traits >
  basic_istream< _CharT, _Traits > & **operator>>** (basic_istream< _CharT, _Traits > &__is, _Setbase __f)
- template<typename _CharT , typename _Traits >
  basic_istream< _CharT, _Traits > & **operator>>** (basic_istream< _CharT, _Traits > &__is, _Setiosflags __f)
- template<typename _CharT , typename _Traits >
  basic_istream< _CharT, _Traits > & **operator>>** (basic_istream< _CharT, _Traits > &__is, _Resetiosflags __f)
- template<typename _Tp , typename _CharT , class _Traits >
  basic_istream< _CharT, _Traits > & operator>> (basic_istream< _CharT, _Traits > &__is, complex< _Tp > &__x)
- template<class _Dom >
  _Expr< _BinClos< __bitwise_xor, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __bitwise_xor, typename _Dom::value_type >::result_type > **operator^** (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __bitwise_xor, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __bitwise_xor, typename _Dom::value_type >::result_type > **operator^** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __bitwise_xor, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __bitwise_xor, typename _Dom::value_type >::result_type > **operator^** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __bitwise_xor, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __bitwise_xor, typename _Dom::value_type >::result_type > **operator^** (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __bitwise_xor, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __bitwise_xor, typename _Dom1::value_type >::result_type > **operator^** (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- _Ios_Iostate **operator^** (_Ios_Iostate __a, _Ios_Iostate __b)
- _Ios_Openmode **operator^** (_Ios_Openmode __a, _Ios_Openmode __b)
- _Ios_Fmtflags **operator^** (_Ios_Fmtflags __a, _Ios_Fmtflags __b)
- template<typename _Tp >
  _Expr< _BinClos< __bitwise_xor, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __bitwise_xor, _Tp >::result_type > **operator^** (const _Tp &__t, const valarray< _Tp > &__v)

- template<typename _Tp >
  _Expr< _BinClos< __bitwise_xor, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __bitwise_xor, _Tp >::result_type > **operator^** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __bitwise_xor, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __bitwise_xor, _Tp >::result_type > **operator^** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- _Ios_Iostate & **operator^=** (_Ios_Iostate &__a, _Ios_Iostate __b)
- _Ios_Openmode & **operator^=** (_Ios_Openmode &__a, _Ios_Openmode __b)
- _Ios_Fmtflags & **operator^=** (_Ios_Fmtflags &__a, _Ios_Fmtflags __b)
- template<class _Dom >
  _Expr< _BinClos< __bitwise_or, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __bitwise_or, typename _Dom::value_type >::result_type > **operator|** (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __bitwise_or, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __bitwise_or, typename _Dom::value_type >::result_type > **operator|** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __bitwise_or, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __bitwise_or, typename _Dom::value_type >::result_type > **operator|** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __bitwise_or, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __bitwise_or, typename _Dom::value_type >::result_type > **operator|** (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __bitwise_or, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __bitwise_or, typename _Dom1::value_type >::result_type > **operator|** (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- _Ios_Iostate **operator|** (_Ios_Iostate __a, _Ios_Iostate __b)
- _Ios_Openmode **operator|** (_Ios_Openmode __a, _Ios_Openmode __b)
- _Ios_Fmtflags **operator|** (_Ios_Fmtflags __a, _Ios_Fmtflags __b)
- template<typename _Tp >
  _Expr< _BinClos< __bitwise_or, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __bitwise_or, _Tp >::result_type > **operator|** (const _Tp &__t, const valarray< _Tp > &__v)

- template<typename _Tp >
  _Expr< _BinClos< __bitwise_or, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __bitwise_or, _Tp >::result_type > **operator|** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __bitwise_or, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __bitwise_or, _Tp >::result_type > **operator|** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- _Ios_Iostate & **operator|=** (_Ios_Iostate &__a, _Ios_Iostate __b)
- _Ios_Openmode & **operator|=** (_Ios_Openmode &__a, _Ios_Openmode __b)
- _Ios_Fmtflags & **operator|=** (_Ios_Fmtflags &__a, _Ios_Fmtflags __b)
- template<class _Dom >
  _Expr< _BinClos< __logical_or, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __logical_or, typename _Dom::value_type >::result_type > **operator||** (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __logical_or, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __logical_or, typename _Dom::value_type >::result_type > **operator||** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __logical_or, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __logical_or, typename _Dom::value_type >::result_type > **operator||** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __logical_or, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __logical_or, typename _Dom::value_type >::result_type > **operator||** (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __logical_or, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __logical_or, typename _Dom1::value_type >::result_type > **operator||** (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- template<typename _Tp >
  _Expr< _BinClos< __logical_or, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __logical_or, _Tp >::result_type > **operator||** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __logical_or, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __logical_or, _Tp >::result_type > **operator||** (const valarray< _Tp > &__v, const _Tp &__t)

- template<typename _Tp >
  _Expr< _BinClos< __logical_or, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __logical_or, _Tp >::result_type > **operator**|| (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- _Ios_Iostate **operator**~ (_Ios_Iostate __a)
- _Ios_Openmode **operator**~ (_Ios_Openmode __a)
- _Ios_Fmtflags **operator**~ (_Ios_Fmtflags __a)
- template<typename _RandomAccessIterator , typename _Compare >
  void partial_sort (_RandomAccessIterator __first, _RandomAccessIterator __middle, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  void partial_sort (_RandomAccessIterator __first, _RandomAccessIterator __middle, _RandomAccessIterator __last)
- template<typename _RAIter , typename _Compare >
  void **partial_sort** (_RAIter, _RAIter, _RAIter, _Compare)
- template<typename _RAIter >
  void **partial_sort** (_RAIter, _RAIter, _RAIter)
- template<typename _InputIterator , typename _RandomAccessIterator , typename _Compare >
  _RandomAccessIterator partial_sort_copy (_InputIterator __first, _InputIterator __last, _RandomAccessIterator __result_first, _RandomAccessIterator __result_last, _Compare __comp)
- template<typename _InputIterator , typename _RandomAccessIterator >
  _RandomAccessIterator partial_sort_copy (_InputIterator __first, _InputIterator __last, _RandomAccessIterator __result_first, _RandomAccessIterator __result_last)
- template<typename _IIter , typename _RAIter , typename _Compare >
  _RAIter **partial_sort_copy** (_IIter, _IIter, _RAIter, _RAIter, _Compare)
- template<typename _IIter , typename _RAIter >
  _RAIter **partial_sort_copy** (_IIter, _IIter, _RAIter, _RAIter)
- template<typename _InputIterator , typename _OutputIterator , typename _BinaryOperation >
  _OutputIterator partial_sum (_InputIterator __first, _InputIterator __last, _OutputIterator __result, _BinaryOperation __binary_op)
- template<typename _InputIterator , typename _OutputIterator >
  _OutputIterator partial_sum (_InputIterator __first, _InputIterator __last, _OutputIterator __result)
- template<typename _ForwardIterator , typename _Predicate >
  _ForwardIterator partition (_ForwardIterator __first, _ForwardIterator __last, _Predicate __pred)
- template<typename _BIter , typename _Predicate >
  _BIter **partition** (_BIter, _BIter, _Predicate)
- template<typename _InputIterator , typename _OutputIterator1 , typename _OutputIterator2 , typename _Predicate >
  pair< _OutputIterator1, _OutputIterator2 > partition_copy (_InputIterator __first, _InputIterator __last, _OutputIterator1 __out_true, _OutputIterator2 __out_false, _Predicate __pred)

- template<typename _IIter , typename _OIter1 , typename _OIter2 , typename _Predicate >
pair< _OIter1, _OIter2 > **partition_copy** (_IIter, _IIter, _OIter1, _OIter2, _Predicate)
- template<typename _ForwardIterator , typename _Predicate >
_ForwardIterator partition_point (_ForwardIterator __first, _ForwardIterator __last, _Predicate __pred)
- template<typename _FIter , typename _Predicate >
_FIter **partition_point** (_FIter, _FIter, _Predicate)
- template<typename _Tp >
complex< _Tp > polar (const _Tp &, const _Tp &=0)
- template<typename _RandomAccessIterator , typename _Compare >
void pop_heap (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
void pop_heap (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _RAIter , typename _Compare >
void **pop_heap** (_RAIter, _RAIter, _Compare)
- template<typename _RAIter >
void **pop_heap** (_RAIter, _RAIter)
- template<typename _Tp >
_Expr< _BinClos< _Pow, _Constant, _ValArray, _Tp, _Tp >, _Tp > **pow** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
_Expr< _BinClos< _Pow, _ValArray, _Constant, _Tp, _Tp >, _Tp > **pow** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
_Expr< _BinClos< _Pow, _ValArray, _ValArray, _Tp, _Tp >, _Tp > **pow** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<class _Dom >
_Expr< _BinClos< _Pow, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename _Dom::value_type > **pow** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
_Expr< _BinClos< _Pow, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename _Dom::value_type > **pow** (const _Expr< _Dom, typename _Dom::value_type > &__e, const typename _Dom::value_type &__t)
- template<class _Dom >
_Expr< _BinClos< _Pow, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename _Dom::value_type > **pow** (const valarray< typename _Dom::valarray > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
_Expr< _BinClos< _Pow, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename _Dom::value_type > **pow** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)

- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< _Pow, _Expr, _Expr, _Dom1, _Dom2 >, typename _Dom1::value_type > **pow** (const _Expr< _Dom1, typename _Dom1::value_type > &__e1, const _Expr< _Dom2, typename _Dom2::value_type > &__e2)

- template<typename _Tp , typename _Up >
  std::complex< typename __gnu_cxx::__promote_2< _Tp, _Up >::__type > **pow** (const std::complex< _Tp > &__x, const std::complex< _Up > &__y)

- template<typename _Tp , typename _Up >
  std::complex< typename __gnu_cxx::__promote_2< _Tp, _Up >::__type > **pow** (const _Tp &__x, const std::complex< _Up > &__y)
- template<typename _Tp , typename _Up >
  std::complex< typename __gnu_cxx::__promote_2< _Tp, _Up >::__type > **pow** (const std::complex< _Tp > &__x, const _Up &__y)
- template<typename _Tp , typename _Up >
  __gnu_cxx::__promote_2< typename __gnu_cxx::__enable_if< __is_arithmetic< _Tp >::__value &&__is_arithmetic< _Up >::__value, _Tp >::__type, _Up >::__type **pow** (_Tp __x, _Up __y)
- long double **pow** (long double __x, long double __y)
- float **pow** (float __x, float __y)
- template<typename _Tp >
  complex< _Tp > pow (const _Tp &, const complex< _Tp > &)
- template<typename _Tp >
  complex< _Tp > pow (const complex< _Tp > &, const complex< _Tp > &)
- template<typename _Tp >
  complex< _Tp > pow (const complex< _Tp > &, const _Tp &)
- template<typename _BidirectionalIterator >
  _BidirectionalIterator **prev** (_BidirectionalIterator __x, typename iterator_traits< _BidirectionalIterator >::difference_type __n=1)
- template<typename _BidirectionalIterator , typename _Compare >
  bool prev_permutation (_BidirectionalIterator __first, _BidirectionalIterator __last, _Compare __comp)
- template<typename _BidirectionalIterator >
  bool prev_permutation (_BidirectionalIterator __first, _BidirectionalIterator __last)
- template<typename _BIter , typename _Compare >
  bool **prev_permutation** (_BIter, _BIter, _Compare)
- template<typename _BIter >
  bool **prev_permutation** (_BIter, _BIter)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type **proj** (_Tp __x)
- template<typename _Tp >
  std::complex< _Tp > **proj** (const std::complex< _Tp > &)

- template<typename _Arg1 , typename _Arg2 , typename _Result >
  pointer_to_binary_function< _Arg1, _Arg2, _Result > ptr_fun (_Result(*__x)(_Arg1, _Arg2))
- template<typename _Arg , typename _Result >
  pointer_to_unary_function< _Arg, _Result > ptr_fun (_Result(*__x)(_Arg))
- template<typename _RandomAccessIterator , typename _Compare >
  void push_heap (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  void push_heap (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _RAIter , typename _Compare >
  void **push_heap** (_RAIter, _RAIter, _Compare)
- template<typename _RAIter >
  void **push_heap** (_RAIter, _RAIter)
- template<typename _MoneyT >
  _Put_money< _MoneyT > put_money (const _MoneyT &__mon, bool __intl=false)
- template<typename _RandomAccessIterator , typename _RandomNumberGenerator >
  void random_shuffle (_RandomAccessIterator __first, _RandomAccessIterator __last, _RandomNumberGenerator &__rand)
- template<typename _RandomAccessIterator >
  void random_shuffle (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _RAIter , typename _Generator >
  void **random_shuffle** (_RAIter, _RAIter, _Generator &)
- template<typename _RAIter >
  void **random_shuffle** (_RAIter, _RAIter)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type **real** (_Tp __x)
- template<typename _Tp >
  _Tp **real** (const complex< _Tp > &__z)
- template<typename _ForwardIterator , typename _Tp >
  _ForwardIterator remove (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__value)
- template<typename _FIter , typename _Tp >
  _FIter **remove** (_FIter, _FIter, const _Tp &)
- template<typename _InputIterator , typename _OutputIterator , typename _Tp >
  _OutputIterator remove_copy (_InputIterator __first, _InputIterator __last, _OutputIterator __result, const _Tp &__value)
- template<typename _IIter , typename _OIter , typename _Tp >
  _OIter **remove_copy** (_IIter, _IIter, _OIter, const _Tp &)
- template<typename _InputIterator , typename _OutputIterator , typename _Predicate >
  _OutputIterator remove_copy_if (_InputIterator __first, _InputIterator __last, _OutputIterator __result, _Predicate __pred)

- template<typename _IIter , typename _OIter , typename _Predicate >
  _OIter **remove_copy_if** (_IIter, _IIter, _OIter, _Predicate)
- template<typename _ForwardIterator , typename _Predicate >
  _ForwardIterator remove_if (_ForwardIterator __first, _ForwardIterator __last, _Predicate __pred)
- template<typename _FIter , typename _Predicate >
  _FIter **remove_if** (_FIter, _FIter, _Predicate)
- template<typename _ForwardIterator , typename _Tp >
  void replace (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__old_value, const _Tp &__new_value)
- template<typename _FIter , typename _Tp >
  void **replace** (_FIter, _FIter, const _Tp &, const _Tp &)
- template<typename _InputIterator , typename _OutputIterator , typename _Tp >
  _OutputIterator replace_copy (_InputIterator __first, _InputIterator __last, _OutputIterator __result, const _Tp &__old_value, const _Tp &__new_value)
- template<typename _IIter , typename _OIter , typename _Tp >
  _OIter **replace_copy** (_IIter, _IIter, _OIter, const _Tp &, const _Tp &)
- template<typename _InputIterator , typename _OutputIterator , typename _Predicate , typename _Tp >
  _OutputIterator replace_copy_if (_InputIterator __first, _InputIterator __last, _OutputIterator __result, _Predicate __pred, const _Tp &__new_value)
- template<typename _Iter , typename _OIter , typename _Predicate , typename _Tp >
  _OIter **replace_copy_if** (_Iter, _Iter, _OIter, _Predicate, const _Tp &)
- template<typename _ForwardIterator , typename _Predicate , typename _Tp >
  void replace_if (_ForwardIterator __first, _ForwardIterator __last, _Predicate __pred, const _Tp &__new_value)
- template<typename _FIter , typename _Predicate , typename _Tp >
  void **replace_if** (_FIter, _FIter, _Predicate, const _Tp &)
- _Resetiosflags resetiosflags (ios_base::fmtflags __mask)
- void rethrow_exception (exception_ptr) __attribute__((__noreturn__))
- void rethrow_if_nested (const nested_exception &__ex)
- template<typename _Ex >
  void rethrow_if_nested (const _Ex &__ex)
- template<typename _Tp >
  void return_temporary_buffer (_Tp *__p)
- template<typename _BidirectionalIterator >
  void reverse (_BidirectionalIterator __first, _BidirectionalIterator __last)
- template<typename _BIter >
  void **reverse** (_BIter, _BIter)
- template<typename _BidirectionalIterator , typename _OutputIterator >
  _OutputIterator reverse_copy (_BidirectionalIterator __first, _BidirectionalIterator __last, _OutputIterator __result)
- template<typename _BIter , typename _OIter >
  _OIter **reverse_copy** (_BIter, _BIter, _OIter)

- ios_base & right (ios_base &__base)
- template<typename _ForwardIterator >
  void rotate (_ForwardIterator __first, _ForwardIterator __middle, _-ForwardIterator __last)
- template<typename _FIter >
  void **rotate** (_FIter, _FIter, _FIter)
- template<typename _ForwardIterator , typename _OutputIterator >
  _OutputIterator rotate_copy (_ForwardIterator __first, _ForwardIterator __-middle, _ForwardIterator __last, _OutputIterator __result)
- template<typename _FIter , typename _OIter >
  _OIter **rotate_copy** (_FIter, _FIter, _FIter, _OIter)
- ios_base & scientific (ios_base &__base)
- template<typename _ForwardIterator1 , typename _ForwardIterator2 , typename _BinaryPredicate >
  _ForwardIterator1 search (_ForwardIterator1 __first1, _ForwardIterator1 __-last1, _ForwardIterator2 __first2, _ForwardIterator2 __last2, _BinaryPredicate __predicate)
- template<typename _ForwardIterator1 , typename _ForwardIterator2 >
  _ForwardIterator1 search (_ForwardIterator1 __first1, _ForwardIterator1 __-last1, _ForwardIterator2 __first2, _ForwardIterator2 __last2)
- template<typename _FIter1 , typename _FIter2 , typename _BinaryPredicate >
  _FIter1 **search** (_FIter1, _FIter1, _FIter2, _FIter2, _BinaryPredicate)
- template<typename _FIter1 , typename _FIter2 >
  _FIter1 **search** (_FIter1, _FIter1, _FIter2, _FIter2)
- template<typename _ForwardIterator , typename _Integer , typename _Tp , typename _-BinaryPredicate >
  _ForwardIterator search_n (_ForwardIterator __first, _ForwardIterator __last, _-Integer __count, const _Tp &__val, _BinaryPredicate __binary_pred)
- template<typename _ForwardIterator , typename _Integer , typename _Tp >
  _ForwardIterator search_n (_ForwardIterator __first, _ForwardIterator __last, _-Integer __count, const _Tp &__val)
- template<typename _FIter , typename _Size , typename _Tp , typename _BinaryPredicate >
  _FIter **search_n** (_FIter, _FIter, _Size, const _Tp &, _BinaryPredicate)
- template<typename _FIter , typename _Size , typename _Tp >
  _FIter **search_n** (_FIter, _FIter, _Size, const _Tp &)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator , type-name _Compare >
  _OutputIterator set_difference (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result, _-Compare __comp)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator >
  _OutputIterator set_difference (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Compare >
  _OIter **set_difference** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Compare)

- template<typename _IIter1 , typename _IIter2 , typename _OIter >
  _OIter **set_difference** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator , typename _Compare >
  _OutputIterator set_intersection (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result, _Compare __comp)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator >
  _OutputIterator set_intersection (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Compare >
  _OIter **set_intersection** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Compare)
- template<typename _IIter1 , typename _IIter2 , typename _OIter >
  _OIter **set_intersection** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter)
- new_handler set_new_handler (new_handler) throw ()
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator , typename _Compare >
  _OutputIterator set_symmetric_difference (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result, _Compare __comp)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator >
  _OutputIterator set_symmetric_difference (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Compare >
  _OIter **set_symmetric_difference** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Compare)
- template<typename _IIter1 , typename _IIter2 , typename _OIter >
  _OIter **set_symmetric_difference** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter)
- terminate_handler set_terminate (terminate_handler) throw ()
- unexpected_handler set_unexpected (unexpected_handler) throw ()
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator , typename _Compare >
  _OutputIterator set_union (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result, _Compare __comp)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator >
  _OutputIterator set_union (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Compare >
  _OIter **set_union** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Compare)
- template<typename _IIter1 , typename _IIter2 , typename _OIter >
  _OIter **set_union** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter)
- _Setbase setbase (int __base)

- template<typename _CharT >
  _Setfill< _CharT > setfill (_CharT __c)
- _Setiosflags setiosflags (ios_base::fmtflags __mask)
- _Setprecision setprecision (int __n)
- _Setw setw (int __n)
- ios_base & showbase (ios_base &__base)
- ios_base & showpoint (ios_base &__base)
- ios_base & showpos (ios_base &__base)
- template<typename _Tp >
  _Expr< _UnClos< _Sin, _ValArray, _Tp >, _Tp > **sin** (const valarray< _Tp > &__v)
- template<class _Dom >
  _Expr< _UnClos< _Sin, _Expr, _Dom >, typename _Dom::value_type > **sin** (const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **sin** (_Tp __x)
- long double **sin** (long double __x)
- float **sin** (float __x)
- template<typename _Tp >
  complex< _Tp > sin (const complex< _Tp > &)
- template<typename _Tp >
  _Expr< _UnClos< _Sinh, _ValArray, _Tp >, _Tp > **sinh** (const valarray< _Tp > &__v)
- template<class _Dom >
  _Expr< _UnClos< _Sinh, _Expr, _Dom >, typename _Dom::value_type > **sinh** (const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **sinh** (_Tp __x)
- long double **sinh** (long double __x)
- float **sinh** (float __x)
- template<typename _Tp >
  complex< _Tp > sinh (const complex< _Tp > &)
- ios_base & skipws (ios_base &__base)
- template<typename _RandomAccessIterator , typename _Compare >
  void sort (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  void sort (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _RAIter , typename _Compare >
  void **sort** (_RAIter, _RAIter, _Compare)
- template<typename _RAIter >
  void **sort** (_RAIter, _RAIter)

- template<typename _RandomAccessIterator , typename _Compare >
  void sort_heap (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  void sort_heap (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _RAIter , typename _Compare >
  void **sort_heap** (_RAIter, _RAIter, _Compare)
- template<typename _RAIter >
  void **sort_heap** (_RAIter, _RAIter)
- template<typename _Tp >
  _Expr< _UnClos< _Sqrt, _ValArray, _Tp >, _Tp > **sqrt** (const valarray< _Tp > &__v)
- template<class _Dom >
  _Expr< _UnClos< _Sqrt, _Expr, _Dom >, typename _Dom::value_type > **sqrt** (const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **sqrt** (_Tp __x)
- long double **sqrt** (long double __x)
- float **sqrt** (float __x)
- template<typename _Tp >
  complex< _Tp > sqrt (const complex< _Tp > &)
- template<typename _ForwardIterator , typename _Predicate >
  _ForwardIterator stable_partition (_ForwardIterator __first, _ForwardIterator __last, _Predicate __pred)
- template<typename _BIter , typename _Predicate >
  _BIter **stable_partition** (_BIter, _BIter, _Predicate)
- template<typename _RandomAccessIterator , typename _Compare >
  void stable_sort (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  void stable_sort (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _RAIter , typename _Compare >
  void **stable_sort** (_RAIter, _RAIter, _Compare)
- template<typename _RAIter >
  void **stable_sort** (_RAIter, _RAIter)
- template<typename _Tp , typename _Tp1 >
  shared_ptr< _Tp > **static_pointer_cast** (const shared_ptr< _Tp1 > &__r)
- double **stod** (const string &__str, size_t *__idx=0)
- float **stof** (const string &__str, size_t *__idx=0)
- int **stoi** (const string &__str, size_t *__idx=0, int __base=10)
- long **stol** (const string &__str, size_t *__idx=0, int __base=10)
- long double **stold** (const string &__str, size_t *__idx=0)

- long long **stoll** (const string &__str, size_t *__idx=0, int __base=10)
- unsigned long **stoul** (const string &__str, size_t *__idx=0, int __base=10)
- unsigned long long **stoull** (const string &__str, size_t *__idx=0, int __base=10)
- char * **strchr** (char *__s, int __n)
- char * **strpbrk** (char *__s1, const char *__s2)
- char * **strrchr** (char *__s, int __n)
- char * **strstr** (char *__s1, const char *__s2)
- template<class _Value , class _Hash , class _Pred , class _Alloc >
  void **swap** (unordered_multiset< _Value, _Hash, _Pred, _Alloc > &__x, unordered_multiset< _Value, _Hash, _Pred, _Alloc > &__y)
- template<class _Value , class _Hash , class _Pred , class _Alloc >
  void **swap** (unordered_set< _Value, _Hash, _Pred, _Alloc > &__x, unordered_set< _Value, _Hash, _Pred, _Alloc > &__y)
- template<class _Value , class _Hash , class _Pred , class _Alloc , bool __cache_hash_code>
  void **swap** (__unordered_multiset< _Value, _Hash, _Pred, _Alloc, __cache_hash_code > &__x, __unordered_multiset< _Value, _Hash, _Pred, _Alloc, __cache_hash_code > &__y)
- template<class _Value , class _Hash , class _Pred , class _Alloc , bool __cache_hash_code>
  void **swap** (__unordered_set< _Value, _Hash, _Pred, _Alloc, __cache_hash_code > &__x, __unordered_set< _Value, _Hash, _Pred, _Alloc, __cache_hash_code > &__y)
- template<class _Key , class _Tp , class _Hash , class _Pred , class _Alloc >
  void **swap** (unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc > &__x, unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc > &__y)
- template<class _Key , class _Tp , class _Hash , class _Pred , class _Alloc >
  void **swap** (unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc > &__x, unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc > &__y)
- template<class _Key , class _Tp , class _Hash , class _Pred , class _Alloc , bool __cache_hash_code>
  void **swap** (__unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc, __cache_hash_code > &__x, __unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc, __cache_hash_code > &__y)
- template<class _Key , class _Tp , class _Hash , class _Pred , class _Alloc , bool __cache_hash_code>
  void **swap** (__unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc, __cache_hash_code > &__x, __unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc, __cache_hash_code > &__y)
- template<typename _Tp , typename _Tp_Deleter >
  void **swap** (unique_ptr< _Tp, _Tp_Deleter > &__x, unique_ptr< _Tp, _Tp_Deleter > &__y)
- template<typename _Tp , typename _Alloc >
  void swap (vector< _Tp, _Alloc > &__x, vector< _Tp, _Alloc > &__y)
- template<typename _Key , typename _Val , typename _KeyOfValue , typename _Compare , typename _Alloc >

void **swap** (_Rb_tree< _Key, _Val, _KeyOfValue, _Compare, _Alloc > &__x, _Rb_tree< _Key, _Val, _KeyOfValue, _Compare, _Alloc > &__y)

- template<typename _Tp , typename _Seq >
  void **swap** (stack< _Tp, _Seq > &__x, stack< _Tp, _Seq > &__y)
- template<typename _Key , typename _Compare , typename _Alloc >
  void swap (set< _Key, _Compare, _Alloc > &__x, set< _Key, _Compare, _Alloc > &__y)
- template<typename _Tp , typename _Sequence , typename _Compare >
  void **swap** (priority_queue< _Tp, _Sequence, _Compare > &__x, priority_queue< _Tp, _Sequence, _Compare > &__y)
- template<typename _Tp , typename _Seq >
  void **swap** (queue< _Tp, _Seq > &__x, queue< _Tp, _Seq > &__y)
- template<class _T1 , class _T2 >
  void swap (pair< _T1, _T2 > &__x, pair< _T1, _T2 > &__y)
- template<typename _Key , typename _Compare , typename _Alloc >
  void swap (multiset< _Key, _Compare, _Alloc > &__x, multiset< _Key, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Compare , typename _Alloc >
  void swap (multimap< _Key, _Tp, _Compare, _Alloc > &__x, multimap< _Key, _Tp, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Compare , typename _Alloc >
  void swap (map< _Key, _Tp, _Compare, _Alloc > &__x, map< _Key, _Tp, _Compare, _Alloc > &__y)
- template<typename _Tp , typename _Alloc >
  void swap (list< _Tp, _Alloc > &__x, list< _Tp, _Alloc > &__y)
- template<typename _Tp , typename _Alloc >
  void swap (deque< _Tp, _Alloc > &__x, deque< _Tp, _Alloc > &__y)
- template<typename _Tp >
  void **swap** (weak_ptr< _Tp > &__a, weak_ptr< _Tp > &__b)
- template<typename _Tp >
  void **swap** (shared_ptr< _Tp > &__a, shared_ptr< _Tp > &__b)
- template<typename _Tp , typename _Alloc >
  void swap (forward_list< _Tp, _Alloc > &__lx, forward_list< _Tp, _Alloc > &__ly)
- template<typename _CharT , typename _Traits , typename _Alloc >
  void swap (basic_string< _CharT, _Traits, _Alloc > &__lhs, basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _Tp , size_t _Nm>
  void **swap** (_Tp(&)[_Nm], _Tp(&)[_Nm])
- template<typename _Tp >
  void swap (_Tp &__a, _Tp &__b)
- template<typename _Bi_iter , typename _Allocator >
  void swap (match_results< _Bi_iter, _Allocator > &__lhs, match_results< _Bi_iter, _Allocator > &__rhs)

- template<typename _Ch_type , typename _Rx_traits >
  void swap (basic_regex< _Ch_type, _Rx_traits > &__lhs, basic_regex< _Ch_type, _Rx_traits > &__rhs)
- template<typename _Tp , std::size_t _Nm>
  void **swap** (array< _Tp, _Nm > &__one, array< _Tp, _Nm > &__two)
- template<typename... _Elements>
  void **swap** (tuple< _Elements...> &__x, tuple< _Elements...> &__y)
- void **swap** (thread &__x, thread &__y)
- template<typename _Mutex >
  void **swap** (unique_lock< _Mutex > &__x, unique_lock< _Mutex > &__y)
- template<typename _Res , typename... _ArgTypes>
  void **swap** (packaged_task< _Res(_ArgTypes...)> &__x, packaged_task< _Res(_ArgTypes...)> &__y)
- template<typename _Res >
  void **swap** (promise< _Res > &__x, promise< _Res > &__y)
- template<typename _Res , typename... _Args>
  void swap (function< _Res(_Args...)> &__x, function< _Res(_Args...)> &__y)
- template<typename _ForwardIterator1 , typename _ForwardIterator2 >
  _ForwardIterator2 swap_ranges (_ForwardIterator1 __first1, _ForwardIterator1 __last1, _ForwardIterator2 __first2)
- template<typename _FIter1 , typename _FIter2 >
  _FIter2 **swap_ranges** (_FIter1, _FIter1, _FIter2)
- _GLIBCXX_CONST const error_category & **system_category** () throw ()
- template<typename _Tp >
  _Expr< _UnClos< _Tan, _ValArray, _Tp >, _Tp > **tan** (const valarray< _Tp > &__v)
- template<class _Dom >
  _Expr< _UnClos< _Tan, _Expr, _Dom >, typename _Dom::value_type > **tan** (const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **tan** (_Tp __x)
- long double **tan** (long double __x)
- float **tan** (float __x)
- template<typename _Tp >
  complex< _Tp > tan (const complex< _Tp > &)
- template<typename _Tp >
  _Expr< _UnClos< _Tanh, _ValArray, _Tp >, _Tp > **tanh** (const valarray< _Tp > &__v)
- template<class _Dom >
  _Expr< _UnClos< _Tanh, _Expr, _Dom >, typename _Dom::value_type > **tanh** (const _Expr< _Dom, typename _Dom::value_type > &__e)

- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **tanh** (_Tp __x)
- long double **tanh** (long double __x)
- float **tanh** (float __x)
- template<typename _Tp >
  complex< _Tp > tanh (const complex< _Tp > &)
- void terminate () __attribute__((__noreturn__)) throw ()
- size_t const string &__grouping_tmp **throw** ()
- template<typename _Ex >
  void throw_with_nested (_Ex __ex)
- template<typename... _Elements>
  tuple< _Elements &...> **tie** (_Elements &...__args)
- string **to_string** (long double __val)
- string **to_string** (double __val)
- string **to_string** (float __val)
- string **to_string** (unsigned long long __val)
- string **to_string** (long long __val)
- string **to_string** (unsigned long __val)
- string **to_string** (long __val)
- string **to_string** (unsigned __val)
- string **to_string** (int __val)
- wstring **to_wstring** (long double __val)
- wstring **to_wstring** (double __val)
- wstring **to_wstring** (float __val)
- wstring **to_wstring** (unsigned long long __val)
- wstring **to_wstring** (long long __val)
- wstring **to_wstring** (unsigned long __val)
- wstring **to_wstring** (long __val)
- wstring **to_wstring** (unsigned __val)
- wstring **to_wstring** (int __val)
- template<typename _CharT >
  _CharT tolower (_CharT __c, const locale &__loc)
- template<typename _CharT >
  _CharT toupper (_CharT __c, const locale &__loc)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator , typename _BinaryOperation >
  _OutputIterator transform (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _OutputIterator __result, _BinaryOperation __binary_op)
- template<typename _InputIterator , typename _OutputIterator , typename _UnaryOperation >
  _OutputIterator transform (_InputIterator __first, _InputIterator __last, _OutputIterator __result, _UnaryOperation __unary_op)

- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _BinaryOperation >
  _OIter **transform** (_IIter1, _IIter1, _IIter2, _OIter, _BinaryOperation)
- template<typename _IIter , typename _OIter , typename _UnaryOperation >
  _OIter **transform** (_IIter, _IIter, _OIter, _UnaryOperation)
- template<typename _Lock1 , typename _Lock2 , typename... _Lock3>
  int try_lock (_Lock1 &__l1, _Lock2 &__l2, _Lock3 &..__l3)
- template<typename... _TElements, typename... _UElements>
  tuple< _TElements..., _UElements...> **tuple_cat** (tuple< _TElements...> &&__t, tuple< _UElements...> &&__u)
- template<typename... _TElements, typename... _UElements>
  tuple< _TElements..., _UElements...> **tuple_cat** (const tuple< _TElements...> &__t, tuple< _UElements...> &&__u)
- template<typename... _TElements, typename... _UElements>
  tuple< _TElements..., _UElements...> **tuple_cat** (tuple< _TElements...> &&__t, const tuple< _UElements...> &__u)
- template<typename... _TElements, typename... _UElements>
  tuple< _TElements..., _UElements...> **tuple_cat** (const tuple< _TElements...> &__t, const tuple< _UElements...> &__u)
- bool uncaught_exception () __attribute__((__pure__)) throw ()
- void unexpected () __attribute__((__noreturn__))
- template<typename _InputIterator , typename _ForwardIterator >
  _ForwardIterator uninitialized_copy (_InputIterator __first, _InputIterator __-last, _ForwardIterator __result)
- template<typename _InputIterator , typename _Size , typename _ForwardIterator >
  _ForwardIterator uninitialized_copy_n (_InputIterator __first, _Size __n, _-ForwardIterator __result)
- template<typename _ForwardIterator , typename _Tp >
  void uninitialized_fill (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__x)
- template<typename _ForwardIterator , typename _Size , typename _Tp >
  void uninitialized_fill_n (_ForwardIterator __first, _Size __n, const _Tp &__x)
- template<typename _ForwardIterator , typename _BinaryPredicate >
  _ForwardIterator unique (_ForwardIterator __first, _ForwardIterator __last, _-BinaryPredicate __binary_pred)
- template<typename _ForwardIterator >
  _ForwardIterator unique (_ForwardIterator __first, _ForwardIterator __last)
- template<typename _FIter , typename _BinaryPredicate >
  _FIter **unique** (_FIter, _FIter, _BinaryPredicate)
- template<typename _FIter >
  _FIter **unique** (_FIter, _FIter)
- template<typename _InputIterator , typename _OutputIterator , typename _BinaryPredicate >
  _OutputIterator unique_copy (_InputIterator __first, _InputIterator __last, _-OutputIterator __result, _BinaryPredicate __binary_pred)

- template<typename _InputIterator , typename _OutputIterator >
  _OutputIterator unique_copy (_InputIterator __first, _InputIterator __last, _OutputIterator __result)
- template<typename _IIter , typename _OIter , typename _BinaryPredicate >
  _OIter **unique_copy** (_IIter, _IIter, _OIter, _BinaryPredicate)
- template<typename _IIter , typename _OIter >
  _OIter **unique_copy** (_IIter, _IIter, _OIter)
- ios_base & unitbuf (ios_base &__base)
- template<typename _ForwardIterator , typename _Tp , typename _Compare >
  _ForwardIterator upper_bound (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__val, _Compare __comp)
- template<typename _ForwardIterator , typename _Tp >
  _ForwardIterator upper_bound (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__val)
- template<typename _FIter , typename _Tp , typename _Compare >
  _FIter **upper_bound** (_FIter, _FIter, const _Tp &, _Compare)
- template<typename _FIter , typename _Tp >
  _FIter **upper_bound** (_FIter, _FIter, const _Tp &)
- ios_base & uppercase (ios_base &__base)
- template<typename _Facet >
  const _Facet & use_facet (const locale &__loc)
- template const __timepunct< char > & **use_facet**< **__timepunct**< **char** > > (const locale &)
- template const __timepunct< wchar_t > & **use_facet**< **__timepunct**< **wchar_t** > > (const locale &)
- template const codecvt< char, char, mbstate_t > & **use_facet**< **codecvt**< **char, char, mbstate_t** > > (const locale &)
- template const codecvt< wchar_t, char, mbstate_t > & **use_facet**< **codecvt**< **wchar_t, char, mbstate_t** > > (const locale &)
- template const collate< char > & **use_facet**< **collate**< **char** > > (const locale &)
- template const collate< wchar_t > & **use_facet**< **collate**< **wchar_t** > > (const locale &)
- template const ctype< char > & **use_facet**< **ctype**< **char** > > (const locale &)
- template const ctype< wchar_t > & **use_facet**< **ctype**< **wchar_t** > > (const locale &)
- template const messages< char > & **use_facet**< **messages**< **char** > > (const locale &)
- template const messages< wchar_t > & **use_facet**< **messages**< **wchar_t** > > (const locale &)
- template const money_get< char > & **use_facet**< **money_get**< **char** > > (const locale &)

- template const money_get< wchar_t > & **use_facet**< **money_get**< **wchar_t** > > (const locale &)
- template const money_put< char > & **use_facet**< **money_put**< **char** > > (const locale &)
- template const money_put< wchar_t > & **use_facet**< **money_put**< **wchar_t** > > (const locale &)
- template const moneypunct< char, false > & **use_facet**< **moneypunct**< **char, false** > > (const locale &)
- template const moneypunct< char, true > & **use_facet**< **moneypunct**< **char, true** > > (const locale &)
- template const moneypunct< wchar_t, false > & **use_facet**< **moneypunct**< **wchar_t, false** > > (const locale &)
- template const moneypunct< wchar_t, true > & **use_facet**< **moneypunct**< **wchar_t, true** > > (const locale &)
- template const num_get< char > & **use_facet**< **num_get**< **char** > > (const locale &)
- template const num_get< wchar_t > & **use_facet**< **num_get**< **wchar_t** > > (const locale &)
- template const num_put< char > & **use_facet**< **num_put**< **char** > > (const locale &)
- template const num_put< wchar_t > & **use_facet**< **num_put**< **wchar_t** > > (const locale &)
- template const numpunct< char > & **use_facet**< **numpunct**< **char** > > (const locale &)
- template const numpunct< wchar_t > & **use_facet**< **numpunct**< **wchar_t** > > (const locale &)
- template const time_get< char > & **use_facet**< **time_get**< **char** > > (const locale &)
- template const time_get< wchar_t > & **use_facet**< **time_get**< **wchar_t** > > (const locale &)
- template const time_put< char > & **use_facet**< **time_put**< **char** > > (const locale &)
- template const time_put< wchar_t > & **use_facet**< **time_put**< **wchar_t** > > (const locale &)
- wchar_t * **wcschr** (wchar_t *__p, wchar_t __c)
- wchar_t * **wcspbrk** (wchar_t *__s1, const wchar_t *__s2)
- wchar_t * **wcsrchr** (wchar_t *__p, wchar_t __c)
- wchar_t * **wcsstr** (wchar_t *__s1, const wchar_t *__s2)
- wchar_t * **wmemchr** (wchar_t *__p, wchar_t __c, size_t __n)
- template istream & **ws** (istream &)
- template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & ws (basic_istream< _CharT, _Traits > &__is)

- template<typename _Tp >
  reference_wrapper< const _Tp > cref (reference_wrapper< _Tp > __t)
- template<typename _Tp >
  reference_wrapper< const _Tp > cref (const _Tp &__t)
- template<typename _Tp >
  bool operator!= (const _Tp &__x, const complex< _Tp > &__y)
- template<typename _Tp >
  bool operator!= (const complex< _Tp > &__x, const _Tp &__y)
- template<typename _Tp >
  bool operator!= (const complex< _Tp > &__x, const complex< _Tp > &_-
  _y)
- template<size_t _Nb>
  bitset< _Nb > operator& (const bitset< _Nb > &__x, const bitset< _Nb >
  &__y)
- template<typename _Tp >
  complex< _Tp > operator* (const _Tp &__x, const complex< _Tp > &__y)
- template<typename _Tp >
  complex< _Tp > operator* (const complex< _Tp > &__x, const _Tp &__y)
- template<typename _Tp >
  complex< _Tp > operator* (const complex< _Tp > &__x, const complex<
  _Tp > &__y)
- template<typename _Tp >
  complex< _Tp > operator+ (const _Tp &__x, const complex< _Tp > &__y)
- template<typename _Tp >
  complex< _Tp > operator+ (const complex< _Tp > &__x, const _Tp &__y)
- template<typename _Tp >
  complex< _Tp > operator+ (const complex< _Tp > &__x, const complex<
  _Tp > &__y)
- template<typename _Tp >
  complex< _Tp > operator- (const _Tp &__x, const complex< _Tp > &__y)
- template<typename _Tp >
  complex< _Tp > operator- (const complex< _Tp > &__x, const _Tp &__y)
- template<typename _Tp >
  complex< _Tp > operator- (const complex< _Tp > &__x, const complex<
  _Tp > &__y)
- template<typename _Tp >
  complex< _Tp > operator/ (const _Tp &__x, const complex< _Tp > &__y)
- template<typename _Tp >
  complex< _Tp > operator/ (const complex< _Tp > &__x, const _Tp &__y)
- template<typename _Tp >
  complex< _Tp > operator/ (const complex< _Tp > &__x, const complex<
  _Tp > &__y)
- template<class _Traits >
  basic_ostream< char, _Traits > & operator<< (basic_ostream< char, _Traits
  > &__out, const unsigned char *__s)
- template<class _Traits >
  basic_ostream< char, _Traits > & operator<< (basic_ostream< char, _Traits
  > &__out, const signed char *__s)

- template<class _Traits >
  basic_ostream< char, _Traits > & operator<< (basic_ostream< char, _Traits > &__out, const char *__s)
- template<typename _CharT , typename _Traits >
  basic_ostream< _CharT, _Traits > & operator<< (basic_ostream< _CharT, _Traits > &__out, const char *__s)
- template<typename _CharT , typename _Traits >
  basic_ostream< _CharT, _Traits > & operator<< (basic_ostream< _CharT, _Traits > &__out, const _CharT *__s)
- template<class _Traits >
  basic_ostream< char, _Traits > & operator<< (basic_ostream< char, _Traits > &__out, unsigned char __c)
- template<class _Traits >
  basic_ostream< char, _Traits > & operator<< (basic_ostream< char, _Traits > &__out, signed char __c)
- template<class _Traits >
  basic_ostream< char, _Traits > & operator<< (basic_ostream< char, _Traits > &__out, char __c)
- template<typename _CharT , typename _Traits >
  basic_ostream< _CharT, _Traits > & operator<< (basic_ostream< _CharT, _Traits > &__out, char __c)
- template<typename _CharT , typename _Traits >
  basic_ostream< _CharT, _Traits > & operator<< (basic_ostream< _CharT, _Traits > &__out, _CharT __c)
- template<class _CharT , class _Traits , size_t _Nb>
  std::basic_ostream< _CharT, _Traits > & operator<< (std::basic_ostream< _CharT, _Traits > &__os, const bitset< _Nb > &__x)
- template<typename _Tp >
  bool operator== (const _Tp &__x, const complex< _Tp > &__y)
- template<typename _Tp >
  bool operator== (const complex< _Tp > &__x, const _Tp &__y)
- template<typename _Tp >
  bool operator== (const complex< _Tp > &__x, const complex< _Tp > &_-
  _y)
- template<class _Traits >
  basic_istream< char, _Traits > & operator>> (basic_istream< char, _Traits > &__in, signed char *__s)
- template<class _Traits >
  basic_istream< char, _Traits > & operator>> (basic_istream< char, _Traits > &__in, unsigned char *__s)
- template<>
  basic_istream< char > & operator>> (basic_istream< char > &__in, char *__s)
- template<typename _CharT , typename _Traits >
  basic_istream< _CharT, _Traits > & operator>> (basic_istream< _CharT, _Traits > &__in, _CharT *__s)

- template<class _Traits >
  basic_istream< char, _Traits > & operator>> (basic_istream< char, _Traits > &__in, signed char &__c)
- template<class _Traits >
  basic_istream< char, _Traits > & operator>> (basic_istream< char, _Traits > &__in, unsigned char &__c)
- template<typename _CharT , typename _Traits >
  basic_istream< _CharT, _Traits > & operator>> (basic_istream< _CharT, _Traits > &__in, _CharT &__c)
- template<class _CharT , class _Traits , size_t _Nb>
  std::basic_istream< _CharT, _Traits > & operator>> (std::basic_istream< _CharT, _Traits > &__is, bitset< _Nb > &__x)
- template<size_t _Nb>
  bitset< _Nb > operator^ (const bitset< _Nb > &__x, const bitset< _Nb > &__y)
- template<size_t _Nb>
  bitset< _Nb > operator| (const bitset< _Nb > &__x, const bitset< _Nb > &__y)
- template<typename _Tp >
  reference_wrapper< _Tp > ref (reference_wrapper< _Tp > __t)
- template<typename _Tp >
  reference_wrapper< _Tp > ref (_Tp &__t)

Matching, Searching, and Replacing

- template<typename _Ch_traits , typename _Str_allocator , typename _Ch_type , typename _Rx_traits >
  bool regex_match (const basic_string< _Ch_type, _Ch_traits, _Str_allocator > &__s, const basic_regex< _Ch_type, _Rx_traits > &__re, regex_constants::match_flag_type __flags=regex_constants::match_default)
- template<typename _Ch_type , class _Rx_traits >
  bool regex_match (const _Ch_type *__s, const basic_regex< _Ch_type, _Rx_traits > &__re, regex_constants::match_flag_type __f=regex_constants::match_default)
- template<typename _Ch_traits , typename _Ch_alloc , typename _Allocator , typename _Ch_type , typename _Rx_traits >
  bool regex_match (const basic_string< _Ch_type, _Ch_traits, _Ch_alloc > &__s, match_results< typename basic_string< _Ch_type, _Ch_traits, _Ch_alloc >::const_iterator, _Allocator > &__m, const basic_regex< _Ch_type, _Rx_traits > &__re, regex_constants::match_flag_type __flags=regex_constants::match_default)
- template<typename _Ch_type , typename _Allocator , typename _Rx_traits >
  bool regex_match (const _Ch_type *__s, match_results< const _Ch_type *, _Allocator > &__m, const basic_regex< _Ch_type, _Rx_traits > &__re, regex_constants::match_flag_type __f=regex_constants::match_default)
- template<typename _Bi_iter , typename _Ch_type , typename _Rx_traits >
  bool regex_match (_Bi_iter __first, _Bi_iter __last, const basic_regex<

_Ch_type, _Rx_traits > &__re, regex_constants::match_flag_type __flags=regex_constants::match_default)

- template<typename _Bi_iter , typename _Allocator , typename _Ch_type , typename _Rx_traits >
  bool regex_match (_Bi_iter __first, _Bi_iter __last, match_results< _Bi_iter, _Allocator > &__m, const basic_regex< _Ch_type, _Rx_traits > &__re, regex_constants::match_flag_type __flags=regex_constants::match_default)
- template<typename _Rx_traits , typename _Ch_type >
  basic_string< _Ch_type > regex_replace (const basic_string< _Ch_type > &__s, const basic_regex< _Ch_type, _Rx_traits > &__e, const basic_string< _Ch_type > &__fmt, regex_constants::match_flag_type __flags=regex_constants::match_default)
- template<typename _Out_iter , typename _Bi_iter , typename _Rx_traits , typename _Ch_type >
  _Out_iter regex_replace (_Out_iter __out, _Bi_iter __first, _Bi_iter __last, const basic_regex< _Ch_type, _Rx_traits > &__e, const basic_string< _Ch_type > &__fmt, regex_constants::match_flag_type __flags=regex_constants::match_default)
- template<typename _Ch_traits , typename _Ch_alloc , typename _Allocator , typename _Ch_type , typename _Rx_traits >
  bool regex_search (const basic_string< _Ch_type, _Ch_traits, _Ch_alloc > &__s, match_results< typename basic_string< _Ch_type, _Ch_traits, _Ch_alloc >::const_iterator, _Allocator > &__m, const basic_regex< _Ch_type, _Rx_traits > &__e, regex_constants::match_flag_type __f=regex_constants::match_default)
- template<typename _Ch_traits , typename _String_allocator , typename _Ch_type , typename _Rx_traits >
  bool regex_search (const basic_string< _Ch_type, _Ch_traits, _String_allocator > &__s, const basic_regex< _Ch_type, _Rx_traits > &__e, regex_constants::match_flag_type __flags=regex_constants::match_default)
- template<typename _Ch_type , typename _Rx_traits >
  bool regex_search (const _Ch_type *__s, const basic_regex< _Ch_type, _Rx_traits > &__e, regex_constants::match_flag_type __f=regex_constants::match_default)
- template<typename _Ch_type , class _Allocator , class _Rx_traits >
  bool regex_search (const _Ch_type *__s, match_results< const _Ch_type *, _Allocator > &__m, const basic_regex< _Ch_type, _Rx_traits > &__e, regex_constants::match_flag_type __f=regex_constants::match_default)
- template<typename _Bi_iter , typename _Ch_type , typename _Rx_traits >
  bool regex_search (_Bi_iter __first, _Bi_iter __last, const basic_regex< _Ch_type, _Rx_traits > &__re, regex_constants::match_flag_type __flags=regex_constants::match_default)
- template<typename _Bi_iter , typename _Allocator , typename _Ch_type , typename _Rx_traits >
  bool regex_search (_Bi_iter __first, _Bi_iter __last, match_results< _Bi_iter, _Allocator > &__m, const basic_regex< _Ch_type, _Rx_traits > &__re, regex_constants::match_flag_type __flags=regex_constants::match_default)

Variables

- size_t **__grouping_size**
- static ios_base::Init **__ioinit**
- function< void()> **__once_functor**
- const adopt_lock_t **adopt_lock**
- const defer_lock_t **defer_lock**
- const error_category *const future_category
- error_code **make_error_code** (errc)
- error_condition **make_error_condition** (errc)
- const nothrow_t **nothrow**
- const try_to_lock_t **try_to_lock**

Standard Stream Objects

The <iostream> header declares the eight standard stream objects. For other declarations, see http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch24.html *and the I/O forward declarations*

They are required by default to cooperate with the global C library's `FILE` *streams, and to be available during program startup and termination. For more information, see the HOWTO linked to above.*

- ostream cerr
- istream cin
- ostream clog
- ostream cout
- wostream wcerr
- wistream wcin
- wostream wclog
- wostream wcout

4.11.1 Detailed Description

ISO C++ entities toplevel namespace is std.

4.11.2 Typedef Documentation

4.11.2.1 typedef void(* std::new_handler)()

If you write your own error handler to be called by `new`, it must be of this type.

Definition at line 75 of file new.

4.11.2.2 typedef long std::streamoff

Type used by fpos, char_traits<char>, and char_traits<wchar_t>. In clauses 21.1.3.1 and 27.4.1 streamoff is described as an implementation defined type. Note: In versions of GCC up to and including GCC 3.3, streamoff was typedef long.

Definition at line 88 of file postypes.h.

4.11.2.3 typedef fpos<mbstate_t> std::streampos

File position for char streams.

Definition at line 228 of file postypes.h.

4.11.2.4 typedef ptrdiff_t std::streamsize

Integral type for I/O operation counts and buffer sizes.

Definition at line 98 of file postypes.h.

4.11.2.5 typedef fpos<mbstate_t> std::u16streampos

File position for char16_t streams.

Definition at line 234 of file postypes.h.

4.11.2.6 typedef fpos<mbstate_t> std::u32streampos

File position for char32_t streams.

Definition at line 236 of file postypes.h.

4.11.2.7 typedef fpos<mbstate_t> std::wstreampos

File position for wchar_t streams.

Definition at line 230 of file postypes.h.

4.11.3 Enumeration Type Documentation

4.11.3.1 anonymous enum

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg0000 for more. This controls some aspect of the sort routines.

Definition at line 2163 of file stl_algo.h.

4.11.3.2 enum std::float_denorm_style

Describes the denormalization for floating-point types. These values represent the presence or absence of a variable number of exponent bits. This type is used in the std::numeric_limits class.

Enumerator:

denorm_indeterminate Indeterminate at compile time whether denormalized values are allowed.

denorm_absent The type does not allow denormalized values.

denorm_present The type allows denormalized values.

Definition at line 170 of file limits.

4.11.3.3 enum std::float_round_style

Describes the rounding style for floating-point types. This is used in the std::numeric_limits class.

Enumerator:

round_indeterminate Self-explanatory.

round_toward_zero Self-explanatory.

round_to_nearest To the nearest representable value.

round_toward_infinity Self-explanatory.

round_toward_neg_infinity Self-explanatory.

Definition at line 155 of file limits.

4.11.4 Function Documentation

4.11.4.1 template<typename _RandomAccessIterator , typename _Compare > void std::__final_insertion_sort (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*, _Compare *__comp*) [inline]

This is a helper function for the sort routine.

Definition at line 2183 of file stl_algo.h.

References __insertion_sort(), and __unguarded_insertion_sort().

4.11.4.2 template<typename _RandomAccessIterator > void std::__final_insertion_sort (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*) [inline]

This is a helper function for the sort routine.

Definition at line 2168 of file stl_algo.h.

References __insertion_sort(), and __unguarded_insertion_sort().

Referenced by sort().

4.11.4.3 template<typename _RandomAccessIterator , typename _Tp > _RandomAccessIterator std::__find (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*, const _Tp & *__val*, random_access_iterator_tag) [inline]

This is an overload used by find() for the RAI case.

Definition at line 146 of file stl_algo.h.

4.11.4.4 template<typename _InputIterator , typename _Tp > _InputIterator std::__find (_InputIterator *__first*, _InputIterator *__last*, const _Tp & *__val*, input_iterator_tag) [inline]

This is an overload used by find() for the Input Iterator case.

Definition at line 124 of file stl_algo.h.

Referenced by find().

4.11.4.5 template<typename _RandomAccessIterator , typename _Predicate > _RandomAccessIterator std::__find_if (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*, _Predicate *__pred*, random_access_iterator_tag) [inline]

This is an overload used by find_if() for the RAI case.

Definition at line 194 of file stl_algo.h.

4.11.4.6 template<typename _InputIterator , typename _Predicate > _InputIterator std::__find_if (_InputIterator *__first*, _InputIterator *__last*, _Predicate *__pred*, input_iterator_tag) [inline]

This is an overload used by find_if() for the Input Iterator case.

Definition at line 135 of file stl_algo.h.

Referenced by find_if().

4.11.4.7 template<typename _RandomAccessIterator , typename _Predicate > _RandomAccessIterator std::__find_if_not (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*, _Predicate *__pred*, random_access_iterator_tag) [inline]

This is an overload used by find_if_not() for the RAI case.

Definition at line 254 of file stl_algo.h.

4.11.4.8 template<typename _InputIterator , typename _Predicate > _InputIterator std::__find_if_not (_InputIterator *__first*, _InputIterator *__last*, _Predicate *__pred*, input_iterator_tag) [inline]

This is an overload used by find_if_not() for the Input Iterator case.

Definition at line 243 of file stl_algo.h.

Referenced by find_if_not().

4.11.4.9 template<typename _EuclideanRingElement > _EuclideanRingElement std::__gcd (_EuclideanRingElement *__m*, _EuclideanRingElement *__n*) [inline]

This is a helper function for the rotate algorithm specialized on RAIs. It returns the greatest common divisor of two integer values.

Definition at line 1483 of file stl_algo.h.

4.11.4.10 template<typename _RandomAccessIterator , typename _Compare > void std::__heap_select (_RandomAccessIterator *__first*, _RandomAccessIterator *__middle*, _RandomAccessIterator *__last*, _Compare *__comp*) [inline]

This is a helper function for the sort routines.

Definition at line 1904 of file stl_algo.h.

References make_heap().

4.11.4.11 template<typename _RandomAccessIterator > void std::__heap_select (_RandomAccessIterator *__first*, _RandomAccessIterator *__middle*, _RandomAccessIterator *__last*) [inline]

This is a helper function for the sort routines.

Definition at line 1891 of file stl_algo.h.

References make_heap().

Referenced by partial_sort().

4.11.4.12 template<typename _ForwardIterator , typename _Predicate , typename _Distance > _ForwardIterator std::__inplace_stable_partition (_ForwardIterator *__first*, _ForwardIterator *__last*, _Predicate *__pred*, _Distance *__len*) [inline]

This is a helper function...

Definition at line 1768 of file stl_algo.h.

References advance(), distance(), and rotate().

Referenced by stable_partition().

4.11.4.13 template<typename _RandomAccessIterator , typename _Compare > void std::__inplace_stable_sort (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*, _Compare *__comp*) [inline]

This is a helper function for the stable sorting routines.

Definition at line 3436 of file stl_algo.h.

References __inplace_stable_sort(), __insertion_sort(), and __merge_without_buffer().

4.11.4.14 template<typename _RandomAccessIterator > void std::__inplace_stable_sort (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*) [inline]

This is a helper function for the stable sorting routines.

Definition at line 3417 of file stl_algo.h.

References __insertion_sort(), and __merge_without_buffer().

Referenced by __inplace_stable_sort(), and stable_sort().

4.11.4.15 template<typename _RandomAccessIterator , typename _Compare > void std::__insertion_sort (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*, _Compare *__comp*) [inline]

This is a helper function for the sort routine.

Definition at line 2114 of file stl_algo.h.

References __unguarded_linear_insert().

4.11.4.16 template<typename _RandomAccessIterator > void std::__insertion_sort (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*) [inline]

This is a helper function for the sort routine.

Definition at line 2091 of file stl_algo.h.

References __unguarded_linear_insert().

Referenced by __final_insertion_sort(), and __inplace_stable_sort().

4.11.4.17 template<typename _RandomAccessIterator , typename _Size , typename _Compare > void std::__introsort_loop (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*, _Size *__depth_limit*, _Compare *__comp*) [inline]

This is a helper function for the sort routine.

Definition at line 2285 of file stl_algo.h.

References __introsort_loop(), and __unguarded_partition_pivot().

4.11.4.18 template<typename _RandomAccessIterator , typename _Size > void std::__introsort_loop (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*, _Size *__depth_limit*) [inline]

This is a helper function for the sort routine.

Definition at line 2263 of file stl_algo.h.

References __unguarded_partition_pivot().

Referenced by __introsort_loop(), and sort().

4.11.4.19 template<typename _Functor , typename... _Args> enable_if< (!is_member_pointer<_Functor>::value && !is_function<_Functor>::value && !is_function<typename remove_pointer<_Functor>::type>::value), typename result_of<_Functor(_Args...)>::type >::type std::__invoke (_Functor & *__f*, _Args &&... *__args*) [inline]

Invoke a function object, which may be either a member pointer or a function object. The first parameter will tell which.

Definition at line 240 of file functional.

4.11.4.20 template<typename _Size > _Size std::__lg (_Size *__n*) [inline]

This is a helper function for the sort routines. Precondition: __n > 0.

Definition at line 2307 of file stl_algo.h.

Referenced by nth_element(), std::linear_congruential_engine< _UIntType, __a, __c, __m >::seed(), and sort().

4.11.4.21 template<typename _BidirectionalIterator , typename _Distance , typename _Pointer , typename _Compare > void std::__merge_adaptive (_BidirectionalIterator *__first*, _BidirectionalIterator *__middle*, _BidirectionalIterator *__last*, _Distance *__len1*, _Distance *__len2*, _Pointer *__buffer*, _Distance *__buffer_size*, _Compare *__comp*) [inline]

This is a helper function for the merge routines.

Definition at line 2955 of file stl_algo.h.

References __merge_adaptive(), __merge_backward(), __rotate_adaptive(), advance(), distance(), lower_bound(), and upper_bound().

4.11.4.22 template<typename _BidirectionalIterator , typename _Distance , typename _Pointer > void std::__merge_adaptive (_BidirectionalIterator *__first*, _BidirectionalIterator *__middle*, _BidirectionalIterator *__last*, _Distance *__len1*, _Distance *__len2*, _Pointer *__buffer*, _Distance *__buffer_size*) [inline]

This is a helper function for the merge routines.

Definition at line 2893 of file stl_algo.h.

References __merge_backward(), __rotate_adaptive(), advance(), distance(), lower_bound(), and upper_bound().

Referenced by __merge_adaptive(), and inplace_merge().

4.11.4.23 template<typename _BidirectionalIterator1 , typename _BidirectionalIterator2 , typename _BidirectionalIterator3 , typename _Compare > _BidirectionalIterator3 std::__merge_backward (_BidirectionalIterator1 *__first1*, _BidirectionalIterator1 *__last1*, _BidirectionalIterator2 *__first2*, _BidirectionalIterator2 *__last2*, _BidirectionalIterator3 *__result*, _Compare *__comp*) [inline]

This is a helper function for the merge routines.

Definition at line 2825 of file stl_algo.h.

4.11.4.24 template<typename _BidirectionalIterator1 , typename _BidirectionalIterator2 , typename _BidirectionalIterator3 > _BidirectionalIterator3 std::__merge_backward (_BidirectionalIterator1 *__first1*, _BidirectionalIterator1 *__last1*, _BidirectionalIterator2 *__first2*, _BidirectionalIterator2 *__last2*, _BidirectionalIterator3 *__result*) [inline]

This is a helper function for the merge routines.

Definition at line 2790 of file stl_algo.h.

Referenced by __merge_adaptive().

4.11.4.25 template<typename _BidirectionalIterator , typename _Distance , typename _Compare > void std::__merge_without_buffer (_BidirectionalIterator *__first*, _BidirectionalIterator *__middle*, _BidirectionalIterator *__last*, _Distance *__len1*, _Distance *__len2*, _Compare *__comp*) [inline]

This is a helper function for the merge routines.

Definition at line 3062 of file stl_algo.h.

References __merge_without_buffer(), advance(), distance(), iter_swap(), lower_bound(), rotate(), and upper_bound().

4.11.4.26 template<typename _BidirectionalIterator , typename _Distance > void std::__merge_without_buffer (_BidirectionalIterator *__first*, _BidirectionalIterator *__middle*, _BidirectionalIterator *__last*, _Distance *__len1*, _Distance *__len2*) [inline]

This is a helper function for the merge routines.

Definition at line 3018 of file stl_algo.h.

References advance(), distance(), iter_swap(), lower_bound(), rotate(), and upper_bound().

Referenced by __inplace_stable_sort(), __merge_without_buffer(), and inplace_merge().

4.11.4.27 template<typename _Iterator , typename _Compare > void std::__move_median_first (_Iterator *__a*, _Iterator *__b*, _Iterator *__c*, _Compare *__comp*) [inline]

Swaps the median value of *__a, *__b and *__c under __comp to *__a.

Definition at line 96 of file stl_algo.h.

References iter_swap().

4.11.4.28 template<typename _Iterator > void std::__move_median_first (_Iterator *__a*, _Iterator *__b*, _Iterator *__c*) [inline]

Swaps the median value of *__a, *__b and *__c to *__a.

Definition at line 72 of file stl_algo.h.

References iter_swap().

Referenced by __unguarded_partition_pivot().

4.11.4.29 template<typename _BidirectionalIterator , typename _Predicate > _BidirectionalIterator std::__partition (_BidirectionalIterator *__first*, _BidirectionalIterator *__last*, _Predicate *__pred*, bidirectional_iterator_tag) [inline]

This is a helper function...

Definition at line 1738 of file stl_algo.h.

References iter_swap().

4.11.4.30 template<typename _ForwardIterator , typename _Predicate > _ForwardIterator std::__partition (_ForwardIterator *__first*, _ForwardIterator *__last*, _Predicate *__pred*, forward_iterator_tag) [inline]

This is a helper function...

Definition at line 1713 of file stl_algo.h.

References iter_swap().

Referenced by partition().

4.11.4.31 template<typename _RandomAccessIterator > void std::__reverse (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*, random_access_iterator_tag) [inline]

This is an uglified reverse(_BidirectionalIterator, _BidirectionalIterator) overloaded for random access iterators.

Definition at line 1403 of file stl_algo.h.

References iter_swap().

4.11.4.32 template<typename _BidirectionalIterator > void std::__reverse (_BidirectionalIterator *__first*, _BidirectionalIterator *__last*, bidirectional_iterator_tag) [inline]

This is an uglified reverse(_BidirectionalIterator, _BidirectionalIterator) overloaded for bidirectional iterators.

Definition at line 1383 of file stl_algo.h.

References iter_swap().

Referenced by __rotate(), and reverse().

4.11.4.33 template<typename _RandomAccessIterator > void std::__rotate (_RandomAccessIterator *__first*, _RandomAccessIterator *__middle*, _RandomAccessIterator *__last*, random_access_iterator_tag) [inline]

This is a helper function for the rotate algorithm.

Definition at line 1563 of file stl_algo.h.

References iter_swap(), swap(), and swap_ranges().

4.11.4.34 template<typename _BidirectionalIterator > void std::__rotate (_BidirectionalIterator *__first*, _BidirectionalIterator *__middle*, _BidirectionalIterator *__last*, bidirectional_iterator_tag) [inline]

This is a helper function for the rotate algorithm.

Definition at line 1533 of file stl_algo.h.

References __reverse(), and iter_swap().

4.11.4.35 template<typename _ForwardIterator > void std::__rotate (_ForwardIterator *__first*, _ForwardIterator *__middle*, _ForwardIterator *__last*, forward_iterator_tag) [inline]

This is a helper function for the rotate algorithm.

Definition at line 1497 of file stl_algo.h.

References iter_swap().

Referenced by __gnu_cxx::bitmap_allocator< _Tp >::_M_deallocate_single_object(), and rotate().

4.11.4.36 template<typename _BidirectionalIterator1 , typename _BidirectionalIterator2 , typename _Distance > _BidirectionalIterator1 std::__rotate_adaptive (_BidirectionalIterator1 *__first*, _BidirectionalIterator1 *__middle*, _BidirectionalIterator1 *__last*, _Distance *__len1*, _Distance *__len2*, _BidirectionalIterator2 *__buffer*, _Distance *__buffer_size*) [inline]

This is a helper function for the merge routines.

Definition at line 2861 of file stl_algo.h.

References advance(), distance(), and rotate().

Referenced by __merge_adaptive().

4.11.4.37 template<typename _RandomAccessIter , typename _Integer , typename _Tp , typename _BinaryPredicate > _RandomAccessIter std::__search_n (_RandomAccessIter *__first*, _RandomAccessIter *__last*, _Integer *__count*, const _Tp & *__val*, _BinaryPredicate *__binary_pred*, std::random_access_iterator_tag) [inline]

This is an uglified search_n(_ForwardIterator, _ForwardIterator, _Integer, const _Tp&, _BinaryPredicate) overloaded for random access iterators.

Definition at line 445 of file stl_algo.h.

4.11.4.38 template<typename _ForwardIterator , typename _Integer , typename _Tp , typename _BinaryPredicate > _ForwardIterator std::__search_n (_ForwardIterator *__first*, _ForwardIterator *__last*, _Integer *__count*, const _Tp & *__val*, _BinaryPredicate *__binary_pred*, std::forward_iterator_tag) [inline]

This is an uglified search_n(_ForwardIterator, _ForwardIterator, _Integer, const _Tp&, _BinaryPredicate) overloaded for forward iterators.

Definition at line 406 of file stl_algo.h.

4.11.4.39 template<typename _RandomAccessIter , typename _Integer , typename _Tp > _RandomAccessIter std::__search_n (_RandomAccessIter *__first*, _RandomAccessIter *__last*, _Integer *__count*, const _Tp & *__val*, std::random_access_iterator_tag) [inline]

This is an uglified search_n(_ForwardIterator, _ForwardIterator, _Integer, const _Tp&) overloaded for random access iterators.

Definition at line 352 of file stl_algo.h.

4.11.4.40 template<typename _ForwardIterator , typename _Integer , typename _Tp > _ForwardIterator std::__search_n (_ForwardIterator *__first*, _ForwardIterator *__last*, _Integer *__count*, const _Tp & *__val*, std::forward_iterator_tag) [inline]

This is an uglified search_n(_ForwardIterator, _ForwardIterator, _Integer, const _Tp&) overloaded for forward iterators.

Definition at line 320 of file stl_algo.h.

Referenced by search_n().

4.11.4.41 template<typename _ForwardIterator , typename _Pointer , typename _Predicate , typename _Distance > _ForwardIterator std::__stable_partition_adaptive (_ForwardIterator *__first*, _ForwardIterator *__last*, _Predicate *__pred*, _Distance *__len*, _Pointer *__buffer*, _Distance *__buffer_size*) [inline]

This is a helper function...

Definition at line 1793 of file stl_algo.h.

References advance(), distance(), and rotate().

Referenced by stable_partition().

4.11.4.42 template<typename _RandomAccessIterator , typename _Compare > void std::__unguarded_insertion_sort (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*, _Compare *__comp*) [inline]

This is a helper function for the sort routine.

Definition at line 2149 of file stl_algo.h.

References __unguarded_linear_insert().

4.11.4.43 template<typename _RandomAccessIterator > void std::__unguarded_insertion_sort (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*) [inline]

This is a helper function for the sort routine.

Definition at line 2136 of file stl_algo.h.

References __unguarded_linear_insert().

Referenced by __final_insertion_sort().

4.11.4.44 template<typename _RandomAccessIterator , typename _Compare > void std::__unguarded_linear_insert (_RandomAccessIterator *__last*, _Compare *__comp*) [inline]

This is a helper function for the sort routine.

Definition at line 2072 of file stl_algo.h.

4.11.4.45 template<typename _RandomAccessIterator > void std::__unguarded_linear_insert (_RandomAccessIterator *__last*) [inline]

This is a helper function for the sort routine.

Definition at line 2054 of file stl_algo.h.

Referenced by __insertion_sort(), and __unguarded_insertion_sort().

4.11.4.46 template<typename _RandomAccessIterator , typename _Tp , typename _Compare > _RandomAccessIterator std::__unguarded_partition (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*, const _Tp & *__pivot*, _Compare *__comp*) [inline]

This is a helper function...

Definition at line 2219 of file stl_algo.h.

References iter_swap().

4.11.4.47 template<typename _RandomAccessIterator , typename _Tp > _RandomAccessIterator std::__unguarded_partition (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*, const _Tp & *__pivot*) [inline]

This is a helper function...

Definition at line 2199 of file stl_algo.h.

References iter_swap().

Referenced by __unguarded_partition_pivot().

4.11.4.48 template<typename _RandomAccessIterator , typename _Compare > _RandomAccessIterator std::__unguarded_partition_pivot (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*, _Compare *__comp*) [inline]

This is a helper function...

Definition at line 2252 of file stl_algo.h.

References __move_median_first(), and __unguarded_partition().

4.11.4.49 template<typename _RandomAccessIterator > _RandomAccessIterator std::__unguarded_partition_pivot (_RandomAccessIterator *__first*, _RandomAccessIterator *__last*) [inline]

This is a helper function...

Definition at line 2240 of file stl_algo.h.

References __move_median_first(), and __unguarded_partition().

Referenced by __introsort_loop().

4.11.4.50 template<typename _InputIterator , typename _ForwardIterator , typename _BinaryPredicate > _ForwardIterator std::__unique_copy (_InputIterator *__first*, _InputIterator *__last*, _ForwardIterator *__result*, _BinaryPredicate *__binary_pred*, input_iterator_tag, forward_iterator_tag) [inline]

This is an uglified unique_copy(_InputIterator, _InputIterator, _OutputIterator, _BinaryPredicate) overloaded for input iterators and forward iterator as result.

Definition at line 1360 of file stl_algo.h.

4.11.4.51 template<typename _InputIterator , typename _OutputIterator , typename _BinaryPredicate > _OutputIterator std::__unique_copy (_InputIterator *__first*, _InputIterator *__last*, _OutputIterator *__result*, _BinaryPredicate *__binary_pred*, input_iterator_tag, output_iterator_tag) [inline]

This is an uglified unique_copy(_InputIterator, _InputIterator, _OutputIterator, _BinaryPredicate) overloaded for input iterators and output iterator as result.

Definition at line 1331 of file stl_algo.h.

4.11.4.52 template<typename _ForwardIterator , typename _OutputIterator , typename _BinaryPredicate > _OutputIterator std::__unique_copy (_ForwardIterator *__first*, _ForwardIterator *__last*, _OutputIterator *__result*, _BinaryPredicate *__binary_pred*, forward_iterator_tag, output_iterator_tag) [inline]

This is an uglified unique_copy(_InputIterator, _InputIterator, _OutputIterator, _BinaryPredicate) overloaded for forward iterators and output iterator as result.

Definition at line 1302 of file stl_algo.h.

4.11.4.53 template<typename _InputIterator , typename _ForwardIterator > _ForwardIterator std::__unique_copy (_InputIterator *__first*, _InputIterator *__last*, _ForwardIterator *__result*, input_iterator_tag, forward_iterator_tag) [inline]

This is an uglified unique_copy(_InputIterator, _InputIterator, _OutputIterator) overloaded for input iterators and forward iterator as result.

Definition at line 1281 of file stl_algo.h.

4.11.4.54 template<typename _InputIterator , typename _OutputIterator > _OutputIterator std::__unique_copy (_InputIterator *__first*, _InputIterator *__last*, _OutputIterator *__result*, input_iterator_tag, output_iterator_tag) [inline]

This is an uglified unique_copy(_InputIterator, _InputIterator, _OutputIterator) overloaded for input iterators and output iterator as result.

Definition at line 1258 of file stl_algo.h.

4.11.4.55 template<typename _ForwardIterator , typename _OutputIterator > _OutputIterator std::__unique_copy (_ForwardIterator *__first*, _ForwardIterator *__last*, _OutputIterator *__result*, forward_iterator_tag, output_iterator_tag) [inline]

This is an uglified unique_copy(_InputIterator, _InputIterator, _OutputIterator) overloaded for forward iterators and output iterator as result.

Definition at line 1235 of file stl_algo.h.

Referenced by unique_copy().

4.11.4.56 template<typename _T1 , typename _T2 > void std::_Construct (_T1 * *__p*, _T2 && *__value*) [inline]

Constructs an object in existing memory by invoking an allocated object's constructor with an initializer.

Definition at line 73 of file stl_construct.h.

4.11.4.57 template<typename _ForwardIterator > void std::_Destroy (_ForwardIterator *__first*, _ForwardIterator *__last*) [inline]

Destroy a range of objects. If the value_type of the object has a trivial destructor, the compiler should optimize all of this away, otherwise the objects' destructors must be

invoked.

Definition at line 118 of file stl_construct.h.

4.11.4.58 template<typename _Tp > void std::_Destroy (_Tp * *__pointer*) [inline]

Destroy the object pointed to by a pointer type.

Definition at line 88 of file stl_construct.h.

Referenced by std::deque< _Tp, _Alloc >::_M_fill_initialize(), std::deque< _Tp, _Alloc >::_M_range_initialize(), std::vector< _Tp, _Alloc >::operator=(), std::vector< _Tp, _Alloc >::reserve(), and std::vector< result_type >::~vector().

4.11.4.59 template<typename _InputIterator , typename _Tp , typename _BinaryOperation > _Tp std::accumulate (_InputIterator *__first*, _InputIterator *__last*, _Tp *__init*, _BinaryOperation *__binary_op*) [inline]

Accumulate values in a range with operation. Accumulates the values in the range [first,last) using the function object *binary_op*. The initial value is *init*. The values are processed in order.

Parameters:

first Start of range.

last End of range.

init Starting value to add other values to.

binary_op Function object to accumulate with.

Returns:

The final sum.

Definition at line 142 of file stl_numeric.h.

4.11.4.60 template<typename _InputIterator , typename _Tp > _Tp std::accumulate (_InputIterator *__first*, _InputIterator *__last*, _Tp *__init*) [inline]

Accumulate values in a range. Accumulates the values in the range [first,last) using operator+(). The initial value is *init*. The values are processed in order.

Parameters:

first Start of range.

last End of range.

init Starting value to add other values to.

Returns:

The final sum.

Definition at line 116 of file stl_numeric.h.

Referenced by __gnu_parallel::__parallel_partial_sum_linear().

4.11.4.61 template<typename _InputIterator , typename _OutputIterator , typename _BinaryOperation > _OutputIterator std::adjacent_difference (_InputIterator *__first*, _InputIterator *__last*, _OutputIterator *__result*, _BinaryOperation *__binary_op*) [inline]

Return differences between adjacent values. Computes the difference between adjacent values in the range [first,last) using the function object *binary_op* and writes the result to *result*.

Parameters:

first Start of input range.

last End of input range.

result Output to write sums to.

Returns:

Iterator pointing just beyond the values written to result.

_GLIBCXX_RESOLVE_LIB_DEFECTS DR 539. partial_sum and adjacent_-difference should mention requirements

Definition at line 354 of file stl_numeric.h.

4.11.4.62 template<typename _InputIterator , typename _OutputIterator > _OutputIterator std::adjacent_difference (_InputIterator *__first*, _InputIterator *__last*, _OutputIterator *__result*) [inline]

Return differences between adjacent values. Computes the difference between adjacent values in the range [first,last) using operator-() and writes the result to *result*.

Parameters:

first Start of input range.

last End of input range.

result Output to write sums to.

Returns:

Iterator pointing just beyond the values written to result.

_GLIBCXX_RESOLVE_LIB_DEFECTS DR 539. partial_sum and adjacent_difference should mention requirements

Definition at line 312 of file stl_numeric.h.

4.11.4.63 template<typename _InputIterator , typename _Distance > void std::advance (_InputIterator & *__i*, _Distance *__n*) [inline]

A generalization of pointer arithmetic.

Parameters:

i An input iterator.

n The *delta* by which to change `i`.

Returns:

Nothing.

This increments `i` by `n`. For bidirectional and random access iterators, `n` may be negative, in which case `i` is decremented.

For random access iterators, this uses their + and − operations and are constant time. For other iterator classes they are linear time.

Definition at line 168 of file stl_iterator_base_funcs.h.

References __iterator_category().

Referenced by __inplace_stable_partition(), __merge_adaptive(), __merge_without_buffer(), __rotate_adaptive(), __stable_partition_adaptive(), std::deque< _Tp, _Alloc >::_M_range_initialize(), equal_range(), lower_bound(), partition_point(), and upper_bound().

4.11.4.64 template<typename _Result , typename _Functor , typename... _ArgTypes> _Bind_result<_Result, typename _Maybe_wrap_member_pointer<_Functor>::type (_ArgTypes...)> std::bind (_Functor *__f*, _ArgTypes... *__args*) [inline]

Function template for std::bind.

Definition at line 1390 of file functional.

4.11.4.65 ios_base& std::boolalpha (ios_base & *__base*) [inline]

Calls base.setf(ios_base::boolalpha).

Definition at line 794 of file ios_base.h.

References std::ios_base::setf().

Referenced by noboolalpha().

4.11.4.66 template<typename _Tp > reference_wrapper<const _Tp> std::cref (reference_wrapper< _Tp > *__t*) [inline]

Partial specialization.

Definition at line 457 of file functional.

References cref().

4.11.4.67 template<typename _Tp > reference_wrapper<const _Tp> std::cref (const _Tp & *__t*) [inline]

Denotes a const reference should be taken to a variable.

Definition at line 445 of file functional.

Referenced by cref().

4.11.4.68 ios_base& std::dec (ios_base & *__base*) [inline]

Calls base.setf(ios_base::dec, ios_base::basefield).

Definition at line 932 of file ios_base.h.

References std::ios_base::setf().

Referenced by operator>>().

4.11.4.69 template<typename _InputIterator > iterator_traits<_-InputIterator>::difference_type std::distance (_InputIterator *__first*, _InputIterator *__last*) [inline]

A generalization of pointer arithmetic.

Parameters:

first An input iterator.

last An input iterator.

Returns:

The distance between them.

Returns `n` such that first + n == last. This requires that `last` must be reachable from `first`. Note that `n` may be negative.

For random access iterators, this uses their + and − operations and are constant time. For other iterator classes they are linear time.

Definition at line 110 of file stl_iterator_base_funcs.h.

References __iterator_category().

Referenced by __inplace_stable_partition(), __merge_adaptive(), __merge_without_buffer(), __rotate_adaptive(), __stable_partition_adaptive(), std::deque< _Tp, _Alloc >::_M_range_initialize(), equal_range(), inplace_merge(), is_heap_until(), std::sub_match< _Bi_iter >::length(), lower_bound(), __gnu_parallel::multiseq_partition(), __gnu_parallel::multiseq_selection(), partition_point(), std::match_results< _Bi_iter >::position(), __gnu_cxx::random_sample_n(), and upper_bound().

4.11.4.70 template<typename _CharT , typename _Traits > basic_ostream<_CharT, _Traits>& std::endl (basic_ostream< _CharT, _Traits > & *__os*) [inline]

Write a newline and flush the stream. This manipulator is often mistakenly used when a simple newline is desired, leading to poor buffering performance. See http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch25s02.html for more on this subject.

Definition at line 541 of file ostream.

References flush(), std::basic_ostream< _CharT, _Traits >::put(), and std::basic_ios< _CharT, _Traits >::widen().

4.11.4.71 template<typename _CharT , typename _Traits > basic_ostream<_CharT, _Traits>& std::ends (basic_ostream< _CharT, _Traits > & *__os*) [inline]

Write a null character into the output sequence. *Null character* is `CharT()` by definition. For CharT of `char`, this correctly writes the ASCII `NUL` character string terminator.

Definition at line 552 of file ostream.

References std::basic_ostream< _CharT, _Traits >::put().

4.11.4.72 ios_base& std::fixed (ios_base & *__base*) [inline]

Calls base.setf(ios_base::fixed, ios_base::floatfield).

Definition at line 957 of file ios_base.h.

References std::ios_base::setf().

4.11.4.73 template<typename _CharT , typename _Traits > basic_ostream<_CharT, _Traits>& std::flush (basic_ostream< _CharT, _Traits > & *__os*) [inline]

Flushes the output stream. This manipulator simply calls the stream's `flush()` member function.

Definition at line 562 of file ostream.

References std::basic_ostream< _CharT, _Traits >::flush().

Referenced by endl().

4.11.4.74 template<typename _Tp > enable_if<!is_lvalue_reference<_Tp>::value, _Tp&&>::type std::forward (typename std::identity< _Tp >::type && *__t*) [inline]

Forward rvalues as rvalues.

Definition at line 59 of file move.h.

4.11.4.75 template<typename _Tp > enable_if<!is_lvalue_reference<_Tp>::value, _Tp&&>::type std::forward (typename std::identity< _Tp >::type & *__t*) [inline]

forward (as per N2835) Forward lvalues as rvalues.

Definition at line 53 of file move.h.

4.11.4.76 template<typename _MoneyT > _Get_money<_MoneyT> std::get_money (_MoneyT & *__mon*, bool *__intl* = false) [inline]

Extended manipulator for extracting money.

Parameters:

mon Either long double or a specialization of `basic_string`.

intl A bool indicating whether international format is to be used.

Sent to a stream object, this manipulator extracts *mon*.

Definition at line 256 of file iomanip.

4.11.4.77 template<typename _Tp > pair<_Tp*, ptrdiff_t> std::get_temporary_buffer (ptrdiff_t *__len*) [inline]

Allocates a temporary buffer.

Parameters:

len The number of objects of type Tp.

Returns:

See full description.

Reinventing the wheel, but this time with prettier spokes!

This function tries to obtain storage for `len` adjacent Tp objects. The objects themselves are not constructed, of course. A pair<> is returned containing *the buffer s address and capacity (in the units of sizeof(Tp)), or a pair of 0 values if no storage can be obtained.* Note that the capacity obtained may be less than that requested if the memory is unavailable; you should compare len with the .second return value.

Provides the nothrow exception guarantee.

Definition at line 85 of file stl_tempbuf.h.

Referenced by std::_Temporary_buffer< _ForwardIterator, _Tp >::_Temporary_buffer().

4.11.4.78 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> basic_istream<_CharT, _Traits>& std::getline (basic_istream< _CharT, _Traits > & *__is*, __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base > & *__str*) [inline]

Read a line from stream into a string.

Parameters:

__is Input stream.

__str Buffer to store into.

Returns:

Reference to the input stream.

Stores characters from is into *__str* until ’

’ is found, the end of the stream is encountered, or str.max_size() is reached. If is.width() is non-zero, that is the limit on the number of characters stored into *__str*. Any previous contents of *__str* are erased. If end of line was encountered, it is extracted but not stored into *__str*.

Definition at line 2448 of file vstring.h.

References std::basic_ios< _CharT, _Traits >::widen().

4.11.4.79 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> basic_istream< _CharT, _Traits > & std::getline (basic_istream< _CharT, _Traits > & *__is*, __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base > & *__str*, _CharT *__delim*) [inline]

Read a line from stream into a string.

Parameters:

__is Input stream.

__str Buffer to store into.

__delim Character marking end of line.

Returns:

Reference to the input stream.

Stores characters from *__is* into *__str* until *__delim* is found, the end of the stream is encountered, or str.max_size() is reached. If is.width() is non-zero, that is the limit on the number of characters stored into *__str*. Any previous contents of *__str* are erased. If *delim* was encountered, it is extracted but not stored into *__str*.

Definition at line 622 of file vstring.tcc.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::append(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::erase(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::max_size(), std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

4.11.4.80 template<typename _CharT , typename _Traits , typename _Alloc > basic_istream<_CharT, _Traits>& std::getline (basic_istream< _CharT, _Traits > & *__is*, basic_string< _CharT, _Traits, _Alloc > & *__str*) [inline]

Read a line from stream into a string.

Parameters:

is Input stream.

str Buffer to store into.

Returns:

Reference to the input stream.

Stores characters from is into *str* until '

' is found, the end of the stream is encountered, or str.max_size() is reached. If is.width() is non-zero, that is the limit on the number of characters stored into *str*. Any previous contents of *str* are erased. If end of line was encountered, it is extracted but not stored into *str*.

Definition at line 2640 of file basic_string.h.

References std::basic_ios< _CharT, _Traits >::widen().

4.11.4.81 template<typename _CharT , typename _Traits , typename _Alloc > basic_istream< _CharT, _Traits > & std::getline (basic_istream< _CharT, _Traits > & *__is*, basic_string< _CharT, _Traits, _Alloc > & *__str*, _CharT *__delim*) [inline]

Read a line from stream into a string.

Parameters:

is Input stream.

str Buffer to store into.

delim Character marking end of line.

Returns:

Reference to the input stream.

Stores characters from *is* into *str* until *delim* is found, the end of the stream is encountered, or str.max_size() is reached. If is.width() is non-zero, that is the limit on the number of characters stored into *str*. Any previous contents of *str* are erased. If *delim* was encountered, it is extracted but not stored into *str*.

Definition at line 1068 of file basic_string.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::erase(), std::basic_string< _CharT, _Traits, _Alloc >::max_size(), std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

4.11.4.82 template<typename _Facet > bool std::has_facet (const locale & *__loc*) throw () [inline]

Test for the presence of a facet. has_facet tests the locale argument for the presence of the facet type provided as the template parameter. Facets derived from the facet parameter will also return true.

Parameters:

Facet The facet type to test the presence of.

locale The locale to test.

Returns:

true if locale contains a facet of type Facet, else false.

Definition at line 91 of file locale_classes.tcc.

4.11.4.83 ios_base& std::hex (ios_base & *__base*) [inline]

Calls base.setf(ios_base::hex, ios_base::basefield).

Definition at line 940 of file ios_base.h.

References std::ios_base::setf().

Referenced by std::regex_traits< _Ch_type >::value().

4.11.4.84 template<typename _InputIterator1 , typename _InputIterator2 , typename _Tp , typename _BinaryOperation1 , typename _BinaryOperation2 > _Tp std::inner_product (_InputIterator1 *__first1*, _InputIterator1 *__last1*, _InputIterator2 *__first2*, _Tp *__init*, _BinaryOperation1 *__binary_op1*, _BinaryOperation2 *__binary_op2*) [inline]

Compute inner product of two ranges. Starting with an initial value of *init*, applies *binary_op2* to successive elements from the two ranges and accumulates each result into the accumulated value using *binary_op1*. The values in the ranges are processed in order.

Parameters:

first1 Start of range 1.

last1 End of range 1.

first2 Start of range 2.

init Starting value to add other values to.

binary_op1 Function object to accumulate with.

binary_op2 Function object to apply to pairs of input values.

Returns:

The final inner product.

Definition at line 202 of file stl_numeric.h.

4.11.4.85 template<typename _InputIterator1 , typename _InputIterator2 , typename _Tp > _Tp std::inner_product (_InputIterator1 *__first1*, _InputIterator1 *__last1*, _InputIterator2 *__first2*, _Tp *__init*) [inline]

Compute inner product of two ranges. Starting with an initial value of *init*, multiplies successive elements from the two ranges and adds each product into the accumulated value using operator+(). The values in the ranges are processed in order.

Parameters:

first1 Start of range 1.

last1 End of range 1.

first2 Start of range 2.

init Starting value to add other values to.

Returns:

The final inner product.

Definition at line 170 of file stl_numeric.h.

4.11.4.86 ios_base& std::internal (ios_base & *__base*) [inline]

Calls base.setf(ios_base::internal, ios_base::adjustfield).

Definition at line 907 of file ios_base.h.

References std::ios_base::setf().

4.11.4.87 template<typename _ForwardIterator , typename _Tp > void std::iota (_ForwardIterator *__first*, _ForwardIterator *__last*, _Tp *__value*) [inline]

Create a range of sequentially increasing values. For each element in the range [first,last) assigns `value` and increments `value` as if by `++value`.

Parameters:

first Start of range.

last End of range.

value Starting value.

Returns:

Nothing.

Definition at line 81 of file stl_numeric.h.

4.11.4.88 template<typename _CharT > bool std::isalnum (_CharT *__c*, const locale & *__loc*) [inline]

Convenience interface to ctype.is(ctype_base::alnum, __c).

4.11.4.89 template<typename _CharT > bool std::isalpha (_CharT *__c*, const locale & *__loc*) [inline]

Convenience interface to ctype.is(ctype_base::alpha, __c).

4.11.4.90 template<typename _CharT > bool std::iscntrl (_CharT *__c*, const locale & *__loc*) [inline]

Convenience interface to ctype.is(ctype_base::cntrl, __c).

4.11.4.91 template<typename _CharT > bool std::isdigit (_CharT *__c*, const locale & *__loc*) [inline]

Convenience interface to ctype.is(ctype_base::digit, __c).

4.11.4.92 template<typename _CharT > bool std::isgraph (_CharT *__c*, const locale & *__loc*) [inline]

Convenience interface to ctype.is(ctype_base::graph, __c).

4.11.4.93 template<typename _CharT > bool std::islower (_CharT __c, const locale & __loc) [inline]

Convenience interface to ctype.is(ctype_base::lower, __c).

4.11.4.94 template<typename _CharT > bool std::isprint (_CharT __c, const locale & __loc) [inline]

Convenience interface to ctype.is(ctype_base::print, __c).

4.11.4.95 template<typename _CharT > bool std::ispunct (_CharT __c, const locale & __loc) [inline]

Convenience interface to ctype.is(ctype_base::punct, __c).

4.11.4.96 template<typename _CharT > bool std::isspace (_CharT __c, const locale & __loc) [inline]

Convenience interface to ctype.is(ctype_base::space, __c).

4.11.4.97 template<typename _CharT > bool std::isupper (_CharT __c, const locale & __loc) [inline]

Convenience interface to ctype.is(ctype_base::upper, __c).

4.11.4.98 template<typename _CharT > bool std::isxdigit (_CharT __c, const locale & __loc) [inline]

Convenience interface to ctype.is(ctype_base::xdigit, __c).

4.11.4.99 ios_base& std::left (ios_base & __base) [inline]

Calls base.setf(ios_base::left, ios_base::adjustfield).

Definition at line 915 of file ios_base.h.

References std::ios_base::setf().

Referenced by operator<<().

4.11.4.100 ios_base& std::noboolalpha (ios_base & *__base*) [inline]

Calls base.unsetf(ios_base::boolalpha).

Definition at line 802 of file ios_base.h.

References boolalpha(), and std::ios_base::unsetf().

4.11.4.101 ios_base& std::noshowbase (ios_base & *__base*) [inline]

Calls base.unsetf(ios_base::showbase).

Definition at line 818 of file ios_base.h.

References showbase(), and std::ios_base::unsetf().

4.11.4.102 ios_base& std::noshowpoint (ios_base & *__base*) [inline]

Calls base.unsetf(ios_base::showpoint).

Definition at line 834 of file ios_base.h.

References showpoint(), and std::ios_base::unsetf().

4.11.4.103 ios_base& std::noshowpos (ios_base & *__base*) [inline]

Calls base.unsetf(ios_base::showpos).

Definition at line 850 of file ios_base.h.

References showpos(), and std::ios_base::unsetf().

4.11.4.104 ios_base& std::noskipws (ios_base & *__base*) [inline]

Calls base.unsetf(ios_base::skipws).

Definition at line 866 of file ios_base.h.

References skipws(), and std::ios_base::unsetf().

4.11.4.105 ios_base& std::nounitbuf (ios_base & *__base*) [inline]

Calls base.unsetf(ios_base::unitbuf).

Definition at line 898 of file ios_base.h.

References unitbuf(), and std::ios_base::unsetf().

4.11.4.106 ios_base& std::nouppercase (ios_base & *__base*) [inline]

Calls base.unsetf(ios_base::uppercase).

Definition at line 882 of file ios_base.h.

References std::ios_base::unsetf(), and uppercase().

4.11.4.107 ios_base& std::oct (ios_base & *__base*) [inline]

Calls base.setf(ios_base::oct, ios_base::basefield).

Definition at line 948 of file ios_base.h.

References std::ios_base::setf().

Referenced by std::regex_traits< _Ch_type >::value().

4.11.4.108 template<typename _Tp , typename _Alloc > bool std::operator!= (const vector< _Tp, _Alloc > & *__x*, const vector< _Tp, _Alloc > & *__y*) [inline]

Based on operator==.

Definition at line 1196 of file stl_vector.h.

4.11.4.109 template<typename _Tp , typename _Seq > bool std::operator!= (const stack< _Tp, _Seq > & *__x*, const stack< _Tp, _Seq > & *__y*) [inline]

Based on operator==.

Definition at line 259 of file stl_stack.h.

4.11.4.110 template<typename _Key , typename _Compare , typename _Alloc > bool std::operator!= (const set< _Key, _Compare, _Alloc > & *__x*, const set< _Key, _Compare, _Alloc > & *__y*) [inline]

Returns !(x == y).

Definition at line 700 of file stl_set.h.

4.11.4.111 template<typename _Tp , typename _Seq > bool std::operator!= (const queue< _Tp, _Seq > & __x, const queue< _Tp, _Seq > & __y) [inline]

Based on operator==.

Definition at line 294 of file stl_queue.h.

4.11.4.112 template<class _T1 , class _T2 > bool std::operator!= (const pair< _T1, _T2 > & __x, const pair< _T1, _T2 > & __y) [inline]

Uses `operator==` to find the result.

Definition at line 171 of file stl_pair.h.

4.11.4.113 template<typename _Key , typename _Compare , typename _Alloc > bool std::operator!= (const multiset< _Key, _Compare, _Alloc > & __x, const multiset< _Key, _Compare, _Alloc > & __y) [inline]

Returns !(x == y).

Definition at line 687 of file stl_multiset.h.

4.11.4.114 template<typename _Key , typename _Tp , typename _Compare , typename _Alloc > bool std::operator!= (const multimap< _Key, _Tp, _Compare, _Alloc > & __x, const multimap< _Key, _Tp, _Compare, _Alloc > & __y) [inline]

Based on operator==.

Definition at line 792 of file stl_multimap.h.

4.11.4.115 template<typename _Key , typename _Tp , typename _Compare , typename _Alloc > bool std::operator!= (const map< _Key, _Tp, _Compare, _Alloc > & __x, const map< _Key, _Tp, _Compare, _Alloc > & __y) [inline]

Based on operator==.

Definition at line 861 of file stl_map.h.

4.11.4.116 template<typename _Tp , typename _Alloc > bool std::operator!= (const list< _Tp, _Alloc > & *__x*, const list< _Tp, _Alloc > & *__y*) [inline]

Based on operator==.

Definition at line 1519 of file stl_list.h.

4.11.4.117 template<typename _Tp , typename _Alloc > bool std::operator!= (const deque< _Tp, _Alloc > & *__x*, const deque< _Tp, _Alloc > & *__y*) [inline]

Based on operator==.

Definition at line 1853 of file stl_deque.h.

4.11.4.118 template<typename _Tp , typename _Alloc > bool std::operator!= (const forward_list< _Tp, _Alloc > & *__lx*, const forward_list< _Tp, _Alloc > & *__ly*) [inline]

Based on operator==.

Definition at line 1247 of file forward_list.h.

4.11.4.119 template<typename _Tp , typename _Alloc > bool std::operator!= (const _Fwd_list_iterator< _Tp, _Alloc > & *__x*, const _Fwd_list_const_iterator< _Tp, _Alloc > & *__y*) [inline]

Forward list iterator inequality comparison.

Definition at line 246 of file forward_list.h.

4.11.4.120 template<typename _CharT , typename _Traits , typename _Alloc > bool std::operator!= (const basic_string< _CharT, _Traits, _Alloc > & *__lhs*, const _CharT * *__rhs*) [inline]

Test difference of string and C string.

Parameters:

lhs String.

rhs C string.

Returns:

True if *lhs.compare*(*rhs*) != 0. False otherwise.

Definition at line 2403 of file basic_string.h.

4.11.4.121 template<typename _CharT , typename _Traits , typename _Alloc > bool std::operator!= (const _CharT * *__lhs*, const basic_string< _CharT, _Traits, _Alloc > & *__rhs*) [inline]

Test difference of C string and string.

Parameters:

lhs C string.

rhs String.

Returns:

True if *rhs.compare*(*lhs*) != 0. False otherwise.

Definition at line 2391 of file basic_string.h.

4.11.4.122 template<typename _CharT , typename _Traits , typename _Alloc > bool std::operator!= (const basic_string< _CharT, _Traits, _Alloc > & *__lhs*, const basic_string< _CharT, _Traits, _Alloc > & *__rhs*) [inline]

Test difference of two strings.

Parameters:

lhs First string.

rhs Second string.

Returns:

True if *lhs.compare*(*rhs*) != 0. False otherwise.

Definition at line 2379 of file basic_string.h.

4.11.4.123 template<typename _Res , typename... _Args> bool std::operator!= (_M_clear_type *, const function< _Res(_Args...)> & *__f*) [inline]

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

Definition at line 2194 of file functional.

4.11.4.124 template<typename _Res , typename... _Args> bool std::operator!= (const function< _Res(_Args...)> & __f, _M_clear_type *) [inline]

Compares a polymorphic function object wrapper against 0 (the NULL pointer).

Returns:

`false` if the wrapper has no target, `true` otherwise

This function will not throw an exception.

Definition at line 2188 of file functional.

4.11.4.125 template<size_t _Nb> bitset<_Nb> std::operator& (const bitset< _Nb > & __x, const bitset< _Nb > & __y) [inline]

Global bitwise operations on bitsets.

Parameters:

x A bitset.

y A bitset of the same size as *x*.

Returns:

A new bitset.

These should be self-explanatory.

Definition at line 1366 of file bitset.

4.11.4.126 template<typename _CharT , typename _Traits , typename _Alloc > basic_string<_CharT, _Traits, _Alloc> std::operator+ (const basic_string< _CharT, _Traits, _Alloc > & *lhs*, _CharT *rhs*) [inline]

Concatenate string and character.

Parameters:

lhs First string.

rhs Last string.

Returns:

New string with *lhs* followed by *rhs*.

Definition at line 2315 of file basic_string.h.

4.11.4.127 template<typename _CharT , typename _Traits , typename _Alloc > basic_string<_CharT, _Traits, _Alloc> std::operator+ (const basic_string< _CharT, _Traits, _Alloc > & *__lhs*, const _CharT * *__rhs*) [inline]

Concatenate string and C string.

Parameters:

lhs First string.

rhs Last string.

Returns:

New string with *lhs* followed by *rhs*.

Definition at line 2299 of file basic_string.h.

References std::basic_string< _CharT, _Traits, _Alloc >::append().

4.11.4.128 template<typename _CharT , typename _Traits , typename _Alloc > basic_string< _CharT, _Traits, _Alloc > std::operator+ (_CharT *__lhs*, const basic_string< _CharT, _Traits, _Alloc > & *__rhs*) [inline]

Concatenate character and string.

Parameters:

lhs First string.

rhs Last string.

Returns:

New string with *lhs* followed by *rhs*.

Definition at line 708 of file basic_string.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::size().

4.11.4.129 template<typename _CharT , typename _Traits , typename _Alloc > basic_string< _CharT, _Traits, _Alloc > std::operator+ (const _CharT * *__lhs*, const basic_string< _CharT, _Traits, _Alloc > & *__rhs*) [inline]

Concatenate C string and string.

Parameters:

lhs First string.

rhs Last string.

Returns:

New string with value of *lhs* followed by *rhs*.

Definition at line 692 of file basic_string.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::size().

4.11.4.130 template<typename _CharT , typename _Traits , typename _Alloc > basic_string<_CharT, _Traits, _Alloc> std::operator+ (const basic_string< _CharT, _Traits, _Alloc > & *__lhs*, const basic_string< _CharT, _Traits, _Alloc > & *__rhs*) [inline]

Concatenate two strings.

Parameters:

lhs First string.

rhs Last string.

Returns:

New string with value of *lhs* followed by *rhs*.

Definition at line 2262 of file basic_string.h.

References std::basic_string< _CharT, _Traits, _Alloc >::append().

4.11.4.131 template<typename _Tp , typename _Alloc > bool std::operator< (const vector< _Tp, _Alloc > & *__x*, const vector< _Tp, _Alloc > & *__y*) [inline]

Vector ordering relation.

Parameters:

x A vector.

y A vector of the same type as *x*.

Returns:

True iff *x* is lexicographically less than *y*.

This is a total ordering relation. It is linear in the size of the vectors. The elements must be comparable with <.

See std::lexicographical_compare() for how the determination is made.

Definition at line 1189 of file stl_vector.h.

References lexicographical_compare().

4.11.4.132 template<typename _Tp , typename _Seq > bool std::operator< (const stack< _Tp, _Seq > & __x, const stack< _Tp, _Seq > & __y) [inline]

Stack ordering relation.

Parameters:

x A stack.

y A stack of the same type as *x*.

Returns:

True iff *x* is lexicographically less than *y*.

This is an total ordering relation. Complexity and semantics depend on the underlying sequence type, but the expected rules are: this relation is linear in the size of the sequences, the elements must be comparable with <, and std::lexicographical_compare() is usually used to make the determination.

Definition at line 253 of file stl_stack.h.

4.11.4.133 template<typename _Key , typename _Compare , typename _Alloc > bool std::operator< (const set< _Key, _Compare, _Alloc > & __x, const set< _Key, _Compare, _Alloc > & __y) [inline]

Set ordering relation.

Parameters:

x A set.

y A set of the same type as *x*.

Returns:

True iff *x* is lexicographically less than *y*.

This is a total ordering relation. It is linear in the size of the maps. The elements must be comparable with <.

See std::lexicographical_compare() for how the determination is made.

Definition at line 693 of file stl_set.h.

4.11.4.134 template<typename _Tp , typename _Seq > bool std::operator< (const queue< _Tp, _Seq > & __x, const queue< _Tp, _Seq > & __y) [inline]

Queue ordering relation.

Parameters:

x A queue.

y A queue of the same type as *x*.

Returns:

True iff *x* is lexicographically less than *y*.

This is an total ordering relation. Complexity and semantics depend on the underlying sequence type, but the expected rules are: this relation is linear in the size of the sequences, the elements must be comparable with <, and std::lexicographical_compare() is usually used to make the determination.

Definition at line 288 of file stl_queue.h.

4.11.4.135 template<class _T1 , class _T2 > bool std::operator< (const pair< _T1, _T2 > & __x, const pair< _T1, _T2 > & __y) [inline]

<http://gcc.gnu.org/onlinedocs/libstdc++/manual/utilities.html>

Definition at line 164 of file stl_pair.h.

4.11.4.136 template<typename _Key , typename _Compare , typename _Alloc > bool std::operator< (const multiset< _Key, _Compare, _Alloc > & __x, const multiset< _Key, _Compare, _Alloc > & __y) [inline]

Multiset ordering relation.

Parameters:

x A multiset.

y A multiset of the same type as *x*.

Returns:

True iff *x* is lexicographically less than *y*.

This is a total ordering relation. It is linear in the size of the maps. The elements must be comparable with <.

See std::lexicographical_compare() for how the determination is made.

Definition at line 680 of file stl_multiset.h.

4.11.4.137 template<typename _Key , typename _Tp , typename _Compare , typename _Alloc > bool std::operator< (const multimap< _Key, _Tp, _Compare, _Alloc > & __x, const multimap< _Key, _Tp, _Compare, _Alloc > & __y) [inline]

Multimap ordering relation.

Parameters:

x A multimap.

y A multimap of the same type as *x*.

Returns:

True iff *x* is lexicographically less than *y*.

This is a total ordering relation. It is linear in the size of the multimaps. The elements must be comparable with <.

See std::lexicographical_compare() for how the determination is made.

Definition at line 785 of file stl_multimap.h.

4.11.4.138 template<typename _Key , typename _Tp , typename _Compare , typename _Alloc > bool std::operator< (const map< _Key, _Tp, _Compare, _Alloc > & __x, const map< _Key, _Tp, _Compare, _Alloc > & __y) [inline]

Map ordering relation.

Parameters:

x A map.

y A map of the same type as *x*.

Returns:

True iff *x* is lexicographically less than *y*.

This is a total ordering relation. It is linear in the size of the maps. The elements must be comparable with <.

See std::lexicographical_compare() for how the determination is made.

Definition at line 854 of file stl_map.h.

4.11.4.139 template<typename _Tp , typename _Alloc > bool std::operator< (const list< _Tp, _Alloc > & __x, const list< _Tp, _Alloc > & __y) [inline]

List ordering relation.

Parameters:

- ***x*** A list.
- ***y*** A list of the same type as *x*.

Returns:

True iff *x* is lexicographically less than *y*.

This is a total ordering relation. It is linear in the size of the lists. The elements must be comparable with <.

See std::lexicographical_compare() for how the determination is made.

Definition at line 1512 of file stl_list.h.

References lexicographical_compare().

4.11.4.140 template<typename _Tp , typename _Alloc > bool std::operator< (const deque< _Tp, _Alloc > & __x, const deque< _Tp, _Alloc > & __y) [inline]

Deque ordering relation.

Parameters:

- ***x*** A deque.
- ***y*** A deque of the same type as *x*.

Returns:

True iff *x* is lexicographically less than *y*.

This is a total ordering relation. It is linear in the size of the deques. The elements must be comparable with <.

See std::lexicographical_compare() for how the determination is made.

Definition at line 1845 of file stl_deque.h.

References lexicographical_compare().

4.11.4.141 template<typename _Tp , typename _Alloc > bool std::operator< (const forward_list< _Tp, _Alloc > & *__lx*, const forward_list< _Tp, _Alloc > & *__ly*) [inline]

Forward list ordering relation.

Parameters:

lx A forward_list.

ly A forward_list of the same type as *lx*.

Returns:

True iff *lx* is lexicographically less than *ly*.

This is a total ordering relation. It is linear in the size of the forward lists. The elements must be comparable with <.

See std::lexicographical_compare() for how the determination is made.

Definition at line 1239 of file forward_list.h.

References lexicographical_compare().

4.11.4.142 template<typename _CharT , typename _Traits , typename _Alloc > bool std::operator< (const _CharT * *__lhs*, const basic_string< _CharT, _Traits, _Alloc > & *__rhs*) [inline]

Test if C string precedes string.

Parameters:

lhs C string.

rhs String.

Returns:

True if *lhs* precedes *rhs*. False otherwise.

Definition at line 2440 of file basic_string.h.

References std::basic_string< _CharT, _Traits, _Alloc >::compare().

4.11.4.143 template<typename _CharT , typename _Traits , typename _Alloc > bool std::operator< (const basic_string< _CharT, _Traits, _Alloc > & *__lhs*, const _CharT * *__rhs*) [inline]

Test if string precedes C string.

Parameters:

lhs String.

rhs C string.

Returns:

True if *lhs* precedes *rhs*. False otherwise.

Definition at line 2428 of file basic_string.h.

4.11.4.144 template<typename _CharT , typename _Traits , typename _Alloc > bool std::operator< (const basic_string< _CharT, _Traits, _Alloc > & *__lhs*, const basic_string< _CharT, _Traits, _Alloc > & *__rhs*) [inline]

Test if string precedes string.

Parameters:

lhs First string.

rhs Second string.

Returns:

True if *lhs* precedes *rhs*. False otherwise.

Definition at line 2416 of file basic_string.h.

4.11.4.145 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> basic_ostream<_CharT, _Traits>& std::operator<< (basic_ostream< _CharT, _Traits > & *__os*, const __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base > & *__str*) [inline]

Write string to a stream.

Parameters:

__os Output stream.

__str String to write out.

Returns:

Reference to the output stream.

Output characters of *__str* into os following the same rules as for writing a C string.

Definition at line 2402 of file vstring.h.

4.11.4.146 template<typename _CharT , typename _Traits , typename _Alloc > basic_ostream<_CharT, _Traits>& std::operator<< (basic_ostream< _CharT, _Traits > & *__os*, const basic_string< _CharT, _Traits, _Alloc > & *__str*) [inline]

Write string to a stream.

Parameters:

os Output stream.

str String to write out.

Returns:

Reference to the output stream.

Output characters of *str* into os following the same rules as for writing a C string.

Definition at line 2599 of file basic_string.h.

4.11.4.147 template<typename _CharT , typename _Traits , typename _Tp > basic_ostream<_CharT, _Traits>& std::operator<< (basic_ostream< _CharT, _Traits > && *__os*, const _Tp & *__x*) [inline]

Generic inserter for rvalue stream.

Parameters:

os An input stream.

x A reference to the object being inserted.

Returns:

os

This is just a forwarding function to allow insertion to rvalue streams since they won't bind to the inserter functions that take an lvalue reference.

Definition at line 579 of file ostream.

4.11.4.148 template<class _Traits > basic_ostream<char, _Traits>& std::operator<< (basic_ostream< char, _Traits > & *__out*, const unsigned char * *__s*) [inline]

String inserters.

Parameters:

out An output stream.

s A character string.

Returns:

out

Precondition:

s must be a non-NULL pointer

Behaves like one of the formatted arithmetic inserters described in std::basic_ostream. After constructing a sentry object with good status, this function inserts `traits::length(s)` characters starting at *s*, widened if necessary, followed by any required padding (as determined by [22.2.2.2.2]). `out.width(0)` is then called.

Definition at line 526 of file ostream.

4.11.4.149 template<class _Traits > basic_ostream<char, _Traits>& std::operator<< (basic_ostream< char, _Traits > & *__out*, const signed char * *__s*) [inline]

String inserters.

Parameters:

out An output stream.

s A character string.

Returns:

out

Precondition:

s must be a non-NULL pointer

Behaves like one of the formatted arithmetic inserters described in std::basic_ostream. After constructing a sentry object with good status, this function inserts `traits::length(s)` characters starting at *s*, widened if necessary, followed by any required padding (as determined by [22.2.2.2.2]). `out.width(0)` is then called.

Definition at line 521 of file ostream.

4.11.4.150 template<class _Traits > basic_ostream<char, _Traits>& std::operator<< (basic_ostream< char, _Traits > & *__out*, const char * *__s*) [inline]

String inserters.

Parameters:

out An output stream.

s A character string.

Returns:

out

Precondition:

s must be a non-NULL pointer

Behaves like one of the formatted arithmetic inserters described in std::basic_ostream. After constructing a sentry object with good status, this function inserts `traits::length(s)` characters starting at *s*, widened if necessary, followed by any required padding (as determined by [22.2.2.2.2]). `out.width(0)` is then called.

Definition at line 508 of file ostream.

4.11.4.151 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::operator<< (basic_ostream< _CharT, _Traits > & *__out*, const char * *__s*) [inline]

String inserters.

Parameters:

out An output stream.

s A character string.

Returns:

out

Precondition:

s must be a non-NULL pointer

Behaves like one of the formatted arithmetic inserters described in std::basic_ostream. After constructing a sentry object with good status, this function inserts

`traits::length(s)` characters starting at *s*, widened if necessary, followed by any required padding (as determined by [22.2.2.2.2]). `out.width(0)` is then called.

Definition at line 321 of file ostream.tcc.

References std::ios_base::badbit.

4.11.4.152 template<typename _CharT , typename _Traits > basic_ostream<_CharT, _Traits>& std::operator<< (basic_ostream< _CharT, _Traits > & *__out*, const _CharT * *__s*) [inline]

String inserters.

Parameters:

out An output stream.

s A character string.

Returns:

out

Precondition:

s must be a non-NULL pointer

Behaves like one of the formatted arithmetic inserters described in std::basic_ostream. After constructing a sentry object with good status, this function inserts `traits::length(s)` characters starting at *s*, widened if necessary, followed by any required padding (as determined by [22.2.2.2.2]). `out.width(0)` is then called.

Definition at line 491 of file ostream.

4.11.4.153 template<class _Traits > basic_ostream<char, _Traits>& std::operator<< (basic_ostream< char, _Traits > & *__out*, unsigned char *__c*) [inline]

String inserters.

Parameters:

out An output stream.

s A character string.

Returns:

out

Precondition:

s must be a non-NULL pointer

Behaves like one of the formatted arithmetic inserters described in std::basic_ostream. After constructing a sentry object with good status, this function inserts `traits::length(s)` characters starting at *s*, widened if necessary, followed by any required padding (as determined by [22.2.2.2.2]). `out.width(0)` is then called.

Definition at line 471 of file ostream.

4.11.4.154 template<class _Traits > basic_ostream<char, _Traits>& std::operator<< (basic_ostream< char, _Traits > & *__out*, signed char *__c*) [inline]

String inserters.

Parameters:

out An output stream.

s A character string.

Returns:

out

Precondition:

s must be a non-NULL pointer

Behaves like one of the formatted arithmetic inserters described in std::basic_ostream. After constructing a sentry object with good status, this function inserts `traits::length(s)` characters starting at *s*, widened if necessary, followed by any required padding (as determined by [22.2.2.2.2]). `out.width(0)` is then called.

Definition at line 466 of file ostream.

4.11.4.155 template<class _Traits > basic_ostream<char, _Traits>& std::operator<< (basic_ostream< char, _Traits > & *__out*, char *__c*) [inline]

String inserters.

Parameters:

out An output stream.

s A character string.

Returns:

out

Precondition:

s must be a non-NULL pointer

Behaves like one of the formatted arithmetic inserters described in std::basic_ostream. After constructing a sentry object with good status, this function inserts `traits::length(s)` characters starting at *s*, widened if necessary, followed by any required padding (as determined by [22.2.2.2.2]). `out.width(0)` is then called.

Definition at line 460 of file ostream.

4.11.4.156 template<typename _CharT , typename _Traits > basic_ostream<_CharT, _Traits>& std::operator<< (basic_ostream< _CharT, _Traits > & *__out*, char *__c*) [inline]

String inserters.

Parameters:

out An output stream.

s A character string.

Returns:

out

Precondition:

s must be a non-NULL pointer

Behaves like one of the formatted arithmetic inserters described in std::basic_ostream. After constructing a sentry object with good status, this function inserts `traits::length(s)` characters starting at *s*, widened if necessary, followed by any required padding (as determined by [22.2.2.2.2]). `out.width(0)` is then called.

Definition at line 454 of file ostream.

4.11.4.157 template<typename _CharT , typename _Traits > basic_ostream<_CharT, _Traits>& std::operator<< (basic_ostream< _CharT, _Traits > & *__out*, _CharT *__c*) [inline]

Character inserters.

Parameters:

out An output stream.

c A character.

Returns:

out

Behaves like one of the formatted arithmetic inserters described in std::basic_ostream. After constructing a sentry object with good status, this function inserts a single character and any required padding (as determined by [22.2.2.2.2]). `out.width(0)` is then called.

If *c* is of type `char` and the character type of the stream is not `char`, the character is widened before insertion.

Definition at line 449 of file ostream.

4.11.4.158 template<class _CharT , class _Traits , size_t _Nb> std::basic_ostream<_CharT, _Traits>& std::operator<< (std::basic_ostream< _CharT, _Traits > & *__os*, const bitset< _Nb > & *__x*) [inline]

Global bitwise operations on bitsets.

Parameters:

x A bitset.

y A bitset of the same size as *x*.

Returns:

A new bitset.

These should be self-explanatory.

Definition at line 1471 of file bitset.

References std::__ctype_abstract_base< _CharT >::widen().

4.11.4.159 template<typename _Tp , typename _Alloc > bool std::operator<= (const vector< _Tp, _Alloc > & *__x*, const vector< _Tp, _Alloc > & *__y*) [inline]

Based on operator<.

Definition at line 1208 of file stl_vector.h.

4.11.4.160 template<typename _Tp , typename _Seq > bool std::operator<= (const stack< _Tp, _Seq > & __x, const stack< _Tp, _Seq > & __y) [inline]

Based on operator<.

Definition at line 271 of file stl_stack.h.

4.11.4.161 template<typename _Key , typename _Compare , typename _Alloc > bool std::operator<= (const set< _Key, _Compare, _Alloc > & __x, const set< _Key, _Compare, _Alloc > & __y) [inline]

Returns !(y < x).

Definition at line 714 of file stl_set.h.

4.11.4.162 template<typename _Tp , typename _Seq > bool std::operator<= (const queue< _Tp, _Seq > & __x, const queue< _Tp, _Seq > & __y) [inline]

Based on operator<.

Definition at line 306 of file stl_queue.h.

4.11.4.163 template<class _T1 , class _T2 > bool std::operator<= (const pair< _T1, _T2 > & __x, const pair< _T1, _T2 > & __y) [inline]

Uses `operator<` to find the result.

Definition at line 183 of file stl_pair.h.

4.11.4.164 template<typename _Key , typename _Compare , typename _Alloc > bool std::operator<= (const multiset< _Key, _Compare, _Alloc > & __x, const multiset< _Key, _Compare, _Alloc > & __y) [inline]

Returns !(y < x).

Definition at line 701 of file stl_multiset.h.

4.11.4.165 template<typename _Key , typename _Tp , typename _Compare , typename _Alloc > bool std::operator<= (const multimap< _Key, _Tp, _Compare, _Alloc > & __x, const multimap< _Key, _Tp, _Compare, _Alloc > & __y) [inline]

Based on operator<.

Definition at line 806 of file stl_multimap.h.

4.11.4.166 template<typename _Key , typename _Tp , typename _Compare , typename _Alloc > bool std::operator<= (const map< _Key, _Tp, _Compare, _Alloc > & __x, const map< _Key, _Tp, _Compare, _Alloc > & __y) [inline]

Based on operator<.

Definition at line 875 of file stl_map.h.

4.11.4.167 template<typename _Tp , typename _Alloc > bool std::operator<= (const list< _Tp, _Alloc > & __x, const list< _Tp, _Alloc > & __y) [inline]

Based on operator<.

Definition at line 1531 of file stl_list.h.

4.11.4.168 template<typename _Tp , typename _Alloc > bool std::operator<= (const deque< _Tp, _Alloc > & __x, const deque< _Tp, _Alloc > & __y) [inline]

Based on operator<.

Definition at line 1867 of file stl_deque.h.

4.11.4.169 template<typename _Tp , typename _Alloc > bool std::operator<= (const forward_list< _Tp, _Alloc > & __lx, const forward_list< _Tp, _Alloc > & __ly) [inline]

Based on operator<.

Definition at line 1268 of file forward_list.h.

4.11.4.170 template<typename _CharT , typename _Traits , typename _Alloc > bool std::operator<= (const _CharT * *__lhs*, const basic_string< _CharT, _Traits, _Alloc > & *__rhs*) [inline]

Test if C string doesn't follow string.

Parameters:

lhs C string.

rhs String.

Returns:

True if *lhs* doesn't follow *rhs*. False otherwise.

Definition at line 2514 of file basic_string.h.

References std::basic_string< _CharT, _Traits, _Alloc >::compare().

4.11.4.171 template<typename _CharT , typename _Traits , typename _Alloc > bool std::operator<= (const basic_string< _CharT, _Traits, _Alloc > & *__lhs*, const _CharT * *__rhs*) [inline]

Test if string doesn't follow C string.

Parameters:

lhs String.

rhs C string.

Returns:

True if *lhs* doesn't follow *rhs*. False otherwise.

Definition at line 2502 of file basic_string.h.

4.11.4.172 template<typename _CharT , typename _Traits , typename _Alloc > bool std::operator<= (const basic_string< _CharT, _Traits, _Alloc > & *__lhs*, const basic_string< _CharT, _Traits, _Alloc > & *__rhs*) [inline]

Test if string doesn't follow string.

Parameters:

lhs First string.

rhs Second string.

Returns:

True if *lhs* doesn't follow *rhs*. False otherwise.

Definition at line 2490 of file basic_string.h.

4.11.4.173 template<typename _Tp , typename _Alloc > bool std::operator== (const vector< _Tp, _Alloc > & __x, const vector< _Tp, _Alloc > & __y) [inline]

Vector equality comparison.

Parameters:

x A vector.

y A vector of the same type as *x*.

Returns:

True iff the size and elements of the vectors are equal.

This is an equivalence relation. It is linear in the size of the vectors. Vectors are considered equivalent if their sizes are equal, and if corresponding elements compare equal.

Definition at line 1172 of file stl_vector.h.

References std::vector< _Tp, _Alloc >::begin(), std::vector< _Tp, _Alloc >::end(), equal(), and std::vector< _Tp, _Alloc >::size().

4.11.4.174 template<typename _Tp , typename _Seq > bool std::operator== (const stack< _Tp, _Seq > & __x, const stack< _Tp, _Seq > & __y) [inline]

Stack equality comparison.

Parameters:

x A stack.

y A stack of the same type as *x*.

Returns:

True iff the size and elements of the stacks are equal.

This is an equivalence relation. Complexity and semantics depend on the underlying sequence type, but the expected rules are: this relation is linear in the size of the sequences, and stacks are considered equivalent if their sequences compare equal.

Definition at line 235 of file stl_stack.h.

4.11.4.175 template<typename _Key , typename _Compare , typename _Alloc > bool std::operator== (const set< _Key, _Compare, _Alloc > & __x, const set< _Key, _Compare, _Alloc > & __y) [inline]

Set equality comparison.

Parameters:

x A set.

y A set of the same type as *x*.

Returns:

True iff the size and elements of the sets are equal.

This is an equivalence relation. It is linear in the size of the sets. Sets are considered equivalent if their sizes are equal, and if corresponding elements compare equal.

Definition at line 676 of file stl_set.h.

4.11.4.176 template<typename _Tp , typename _Seq > bool std::operator== (const queue< _Tp, _Seq > & __x, const queue< _Tp, _Seq > & __y) [inline]

Queue equality comparison.

Parameters:

x A queue.

y A queue of the same type as *x*.

Returns:

True iff the size and elements of the queues are equal.

This is an equivalence relation. Complexity and semantics depend on the underlying sequence type, but the expected rules are: this relation is linear in the size of the sequences, and queues are considered equivalent if their sequences compare equal.

Definition at line 270 of file stl_queue.h.

References std::queue< _Tp, _Sequence >::c.

4.11.4.177 template<class _T1 , class _T2 > bool std::operator== (const pair< _T1, _T2 > & __x, const pair< _T1, _T2 > & __y) [inline]

Two pairs of the same type are equal iff their members are equal.

Definition at line 158 of file stl_pair.h.

References std::pair< _T1, _T2 >::first, and std::pair< _T1, _T2 >::second.

4.11.4.178 template<typename _Key , typename _Compare , typename _Alloc > bool std::operator== (const multiset< _Key, _Compare, _Alloc > & __x, const multiset< _Key, _Compare, _Alloc > & __y) [inline]

Multiset equality comparison.

Parameters:

x A multiset.

y A multiset of the same type as *x*.

Returns:

True iff the size and elements of the multisets are equal.

This is an equivalence relation. It is linear in the size of the multisets. Multisets are considered equivalent if their sizes are equal, and if corresponding elements compare equal.

Definition at line 663 of file stl_multiset.h.

4.11.4.179 template<typename _Key , typename _Tp , typename _Compare , typename _Alloc > bool std::operator== (const multimap< _Key, _Tp, _Compare, _Alloc > & __x, const multimap< _Key, _Tp, _Compare, _Alloc > & __y) [inline]

Multimap equality comparison.

Parameters:

x A multimap.

y A multimap of the same type as *x*.

Returns:

True iff the size and elements of the maps are equal.

This is an equivalence relation. It is linear in the size of the multimaps. Multimaps are considered equivalent if their sizes are equal, and if corresponding elements compare equal.

Definition at line 768 of file stl_multimap.h.

4.11.4.180 template<typename _Key , typename _Tp , typename _Compare , typename _Alloc > bool std::operator== (const map< _Key, _Tp, _Compare, _Alloc > & __x, const map< _Key, _Tp, _Compare, _Alloc > & __y) [inline]

Map equality comparison.

Parameters:

x A map.

y A map of the same type as *x*.

Returns:

True iff the size and elements of the maps are equal.

This is an equivalence relation. It is linear in the size of the maps. Maps are considered equivalent if their sizes are equal, and if corresponding elements compare equal.

Definition at line 837 of file stl_map.h.

4.11.4.181 template<typename _Tp , typename _Alloc > bool std::operator== (const list< _Tp, _Alloc > & __x, const list< _Tp, _Alloc > & __y) [inline]

List equality comparison.

Parameters:

x A list.

y A list of the same type as *x*.

Returns:

True iff the size and elements of the lists are equal.

This is an equivalence relation. It is linear in the size of the lists. Lists are considered equivalent if their sizes are equal, and if corresponding elements compare equal.

Definition at line 1483 of file stl_list.h.

References std::list< _Tp, _Alloc >::begin(), and std::list< _Tp, _Alloc >::end().

4.11.4.182 template<typename _Tp , typename _Alloc > bool std::operator== (const deque< _Tp, _Alloc > & *__x*, const deque< _Tp, _Alloc > & *__y*) [inline]

Deque equality comparison.

Parameters:

x A deque.

y A deque of the same type as *x*.

Returns:

True iff the size and elements of the deques are equal.

This is an equivalence relation. It is linear in the size of the deques. Deques are considered equivalent if their sizes are equal, and if corresponding elements compare equal.

Definition at line 1827 of file stl_deque.h.

References std::deque< _Tp, _Alloc >::begin(), std::deque< _Tp, _Alloc >::end(), equal(), and std::deque< _Tp, _Alloc >::size().

4.11.4.183 template<typename _StateT > bool std::operator== (const fpos< _StateT > & *__lhs*, const fpos< _StateT > & *__rhs*) [inline]

Test if equivalent to another position.

Definition at line 216 of file postypes.h.

4.11.4.184 template<typename _Tp , typename _Alloc > bool std::operator== (const forward_list< _Tp, _Alloc > & *__lx*, const forward_list< _Tp, _Alloc > & *__ly*) [inline]

Forward list equality comparison.

Parameters:

lx A forward_list

ly A forward_list of the same type as *lx*.

Returns:

True iff the size and elements of the forward lists are equal.

This is an equivalence relation. It is linear in the size of the forward lists. Deques are considered equivalent if corresponding elements compare equal.

Definition at line 377 of file forward_list.tcc.

References std::forward_list< _Tp, _Alloc >::cbegin(), and std::forward_list< _Tp, _Alloc >::cend().

4.11.4.185 template<typename _Tp , typename _Alloc > bool std::operator== (const _Fwd_list_iterator< _Tp, _Alloc > & *__x*, const _Fwd_list_const_iterator< _Tp, _Alloc > & *__y*) [inline]

Forward list iterator equality comparison.

Definition at line 237 of file forward_list.h.

4.11.4.186 template<typename _CharT , typename _Traits , typename _Alloc > bool std::operator== (const basic_string< _CharT, _Traits, _Alloc > & *__lhs*, const _CharT * *__rhs*) [inline]

Test equivalence of string and C string.

Parameters:

lhs String.

rhs C string.

Returns:

True if *lhs.compare*(*rhs*) == 0. False otherwise.

Definition at line 2366 of file basic_string.h.

References std::basic_string< _CharT, _Traits, _Alloc >::compare().

4.11.4.187 template<typename _CharT , typename _Traits , typename _Alloc > bool std::operator== (const _CharT * *__lhs*, const basic_string< _CharT, _Traits, _Alloc > & *__rhs*) [inline]

Test equivalence of C string and string.

Parameters:

lhs C string.

rhs String.

Returns:

True if *rhs.compare*(*lhs*) == 0. False otherwise.

Definition at line 2354 of file basic_string.h.

References std::basic_string< _CharT, _Traits, _Alloc >::compare().

4.11.4.188 template<typename _CharT , typename _Traits , typename _Alloc > bool std::operator== (const basic_string< _CharT, _Traits, _Alloc > & *__lhs*, const basic_string< _CharT, _Traits, _Alloc > & *__rhs*) [inline]

Test equivalence of two strings.

Parameters:

lhs First string.

rhs Second string.

Returns:

True if *lhs.compare*(*rhs*) == 0. False otherwise.

Definition at line 2333 of file basic_string.h.

References std::basic_string< _CharT, _Traits, _Alloc >::compare().

4.11.4.189 template<typename _Res , typename... _Args> bool std::operator== (_M_clear_type *, const function< _Res(_Args...)> & *__f*) [inline]

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

Definition at line 2176 of file functional.

4.11.4.190 template<typename _Res , typename... _Args> bool std::operator== (const function< _Res(_Args...)> & *__f*, _M_clear_type *) [inline]

Compares a polymorphic function object wrapper against 0 (the NULL pointer).

Returns:

`true` if the wrapper has no target, `false` otherwise

This function will not throw an exception.

Definition at line 2170 of file functional.

4.11.4.191 template<typename _Tp , typename _Alloc > bool std::operator> (const vector< _Tp, _Alloc > & __x, const vector< _Tp, _Alloc > & __y) [inline]

Based on operator<.

Definition at line 1202 of file stl_vector.h.

4.11.4.192 template<typename _Tp , typename _Seq > bool std::operator> (const stack< _Tp, _Seq > & __x, const stack< _Tp, _Seq > & __y) [inline]

Based on operator<.

Definition at line 265 of file stl_stack.h.

4.11.4.193 template<typename _Key , typename _Compare , typename _Alloc > bool std::operator> (const set< _Key, _Compare, _Alloc > & __x, const set< _Key, _Compare, _Alloc > & __y) [inline]

Returns y < x.

Definition at line 707 of file stl_set.h.

4.11.4.194 template<typename _Tp , typename _Seq > bool std::operator> (const queue< _Tp, _Seq > & __x, const queue< _Tp, _Seq > & __y) [inline]

Based on operator<.

Definition at line 300 of file stl_queue.h.

4.11.4.195 template<class _T1 , class _T2 > bool std::operator> (const pair< _T1, _T2 > & __x, const pair< _T1, _T2 > & __y) [inline]

Uses `operator<` to find the result.

Definition at line 177 of file stl_pair.h.

4.11.4.196 template<typename _Key , typename _Compare , typename _Alloc > bool std::operator> (const multiset< _Key, _Compare, _Alloc > & __x, const multiset< _Key, _Compare, _Alloc > & __y) [inline]

Returns y < x.

Definition at line 694 of file stl_multiset.h.

4.11.4.197 template<typename _Key , typename _Tp , typename _Compare , typename _Alloc > bool std::operator> (const multimap< _Key, _Tp, _Compare, _Alloc > & __x, const multimap< _Key, _Tp, _Compare, _Alloc > & __y) [inline]

Based on operator<.

Definition at line 799 of file stl_multimap.h.

4.11.4.198 template<typename _Key , typename _Tp , typename _Compare , typename _Alloc > bool std::operator> (const map< _Key, _Tp, _Compare, _Alloc > & __x, const map< _Key, _Tp, _Compare, _Alloc > & __y) [inline]

Based on operator<.

Definition at line 868 of file stl_map.h.

4.11.4.199 template<typename _Tp , typename _Alloc > bool std::operator> (const list< _Tp, _Alloc > & __x, const list< _Tp, _Alloc > & __y) [inline]

Based on operator<.

Definition at line 1525 of file stl_list.h.

4.11.4.200 template<typename _Tp , typename _Alloc > bool std::operator> (const deque< _Tp, _Alloc > & __x, const deque< _Tp, _Alloc > & __y) [inline]

Based on operator<.

Definition at line 1860 of file stl_deque.h.

4.11.4.201 template<typename _Tp , typename _Alloc > bool std::operator> (const forward_list< _Tp, _Alloc > & *__lx*, const forward_list< _Tp, _Alloc > & *__ly*) [inline]

Based on operator<.

Definition at line 1254 of file forward_list.h.

4.11.4.202 template<typename _CharT , typename _Traits , typename _Alloc > bool std::operator> (const _CharT * *__lhs*, const basic_string< _CharT, _Traits, _Alloc > & *__rhs*) [inline]

Test if C string follows string.

Parameters:

lhs C string.

rhs String.

Returns:

True if *lhs* follows *rhs*. False otherwise.

Definition at line 2477 of file basic_string.h.

References std::basic_string< _CharT, _Traits, _Alloc >::compare().

4.11.4.203 template<typename _CharT , typename _Traits , typename _Alloc > bool std::operator> (const basic_string< _CharT, _Traits, _Alloc > & *__lhs*, const _CharT * *__rhs*) [inline]

Test if string follows C string.

Parameters:

lhs String.

rhs C string.

Returns:

True if *lhs* follows *rhs*. False otherwise.

Definition at line 2465 of file basic_string.h.

References std::basic_string< _CharT, _Traits, _Alloc >::compare().

4.11.4.204 template<typename _CharT , typename _Traits , typename _Alloc > bool std::operator> (const basic_string< _CharT, _Traits, _Alloc > & *__lhs*, const basic_string< _CharT, _Traits, _Alloc > & *__rhs*) [inline]

Test if string follows string.

Parameters:

lhs First string.

rhs Second string.

Returns:

True if *lhs* follows *rhs*. False otherwise.

Definition at line 2453 of file basic_string.h.

References std::basic_string< _CharT, _Traits, _Alloc >::compare().

4.11.4.205 template<typename _Tp , typename _Alloc > bool std::operator>= (const vector< _Tp, _Alloc > & *__x*, const vector< _Tp, _Alloc > & *__y*) [inline]

Based on operator<.

Definition at line 1214 of file stl_vector.h.

4.11.4.206 template<typename _Tp , typename _Seq > bool std::operator>= (const stack< _Tp, _Seq > & *__x*, const stack< _Tp, _Seq > & *__y*) [inline]

Based on operator<.

Definition at line 277 of file stl_stack.h.

4.11.4.207 template<typename _Key , typename _Compare , typename _Alloc > bool std::operator>= (const set< _Key, _Compare, _Alloc > & *__x*, const set< _Key, _Compare, _Alloc > & *__y*) [inline]

Returns !(x < y).

Definition at line 721 of file stl_set.h.

4.11.4.208 template<typename _Tp , typename _Seq > bool std::operator>= (const queue< _Tp, _Seq > & __x, const queue< _Tp, _Seq > & __y) [inline]

Based on operator<.

Definition at line 312 of file stl_queue.h.

4.11.4.209 template<class _T1 , class _T2 > bool std::operator>= (const pair< _T1, _T2 > & __x, const pair< _T1, _T2 > & __y) [inline]

Uses operator< to find the result.

Definition at line 189 of file stl_pair.h.

4.11.4.210 template<typename _Key , typename _Compare , typename _Alloc > bool std::operator>= (const multiset< _Key, _Compare, _Alloc > & __x, const multiset< _Key, _Compare, _Alloc > & __y) [inline]

Returns !(x < y).

Definition at line 708 of file stl_multiset.h.

4.11.4.211 template<typename _Key , typename _Tp , typename _Compare , typename _Alloc > bool std::operator>= (const multimap< _Key, _Tp, _Compare, _Alloc > & __x, const multimap< _Key, _Tp, _Compare, _Alloc > & __y) [inline]

Based on operator<.

Definition at line 813 of file stl_multimap.h.

4.11.4.212 template<typename _Key , typename _Tp , typename _Compare , typename _Alloc > bool std::operator>= (const map< _Key, _Tp, _Compare, _Alloc > & __x, const map< _Key, _Tp, _Compare, _Alloc > & __y) [inline]

Based on operator<.

Definition at line 882 of file stl_map.h.

4.11.4.213 template<typename _Tp , typename _Alloc > bool std::operator>= (const list< _Tp, _Alloc > & __x, const list< _Tp, _Alloc > & __y) [inline]

Based on operator<.

Definition at line 1537 of file stl_list.h.

4.11.4.214 template<typename _Tp , typename _Alloc > bool std::operator>= (const deque< _Tp, _Alloc > & __x, const deque< _Tp, _Alloc > & __y) [inline]

Based on operator<.

Definition at line 1874 of file stl_deque.h.

4.11.4.215 template<typename _Tp , typename _Alloc > bool std::operator>= (const forward_list< _Tp, _Alloc > & __lx, const forward_list< _Tp, _Alloc > & __ly) [inline]

Based on operator<.

Definition at line 1261 of file forward_list.h.

4.11.4.216 template<typename _CharT , typename _Traits , typename _Alloc > bool std::operator>= (const _CharT * __lhs, const basic_string< _CharT, _Traits, _Alloc > & __rhs) [inline]

Test if C string doesn't precede string.

Parameters:

lhs C string.

rhs String.

Returns:

True if *lhs* doesn't precede *rhs*. False otherwise.

Definition at line 2551 of file basic_string.h.

References std::basic_string< _CharT, _Traits, _Alloc >::compare().

4.11.4.217 template<typename _CharT , typename _Traits , typename _Alloc > bool std::operator>= (const basic_string< _CharT, _Traits, _Alloc > & *__lhs*, const _CharT * *__rhs*) [inline]

Test if string doesn't precede C string.

Parameters:

lhs String.

rhs C string.

Returns:

True if *lhs* doesn't precede *rhs*. False otherwise.

Definition at line 2539 of file basic_string.h.

References std::basic_string< _CharT, _Traits, _Alloc >::compare().

4.11.4.218 template<typename _CharT , typename _Traits , typename _Alloc > bool std::operator>= (const basic_string< _CharT, _Traits, _Alloc > & *__lhs*, const basic_string< _CharT, _Traits, _Alloc > & *__rhs*) [inline]

Test if string doesn't precede string.

Parameters:

lhs First string.

rhs Second string.

Returns:

True if *lhs* doesn't precede *rhs*. False otherwise.

Definition at line 2527 of file basic_string.h.

References std::basic_string< _CharT, _Traits, _Alloc >::compare().

4.11.4.219 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> basic_istream< _CharT, _Traits > & std::operator>> (basic_istream< _CharT, _Traits > & *__is*, __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base > & *__str*) [inline]

Read stream into a string.

Parameters:

__is Input stream.

__str Buffer to store into.

Returns:

Reference to the input stream.

Stores characters from *__is* into *__str* until whitespace is found, the end of the stream is encountered, or str.max_size() is reached. If is.width() is non-zero, that is the limit on the number of characters stored into *__str*. Any previous contents of *__str* are erased.

Definition at line 547 of file vstring.tcc.

4.11.4.220 template<typename _CharT , typename _Traits , typename _Alloc > basic_istream< _CharT, _Traits > & std::operator>> (basic_istream< _CharT, _Traits > & *__is*, basic_string< _CharT, _Traits, _Alloc > & *__str*) [inline]

Read stream into a string.

Parameters:

is Input stream.

str Buffer to store into.

Returns:

Reference to the input stream.

Stores characters from *is* into *str* until whitespace is found, the end of the stream is encountered, or str.max_size() is reached. If is.width() is non-zero, that is the limit on the number of characters stored into *str*. Any previous contents of *str* are erased.

Definition at line 996 of file basic_string.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::append(), std::basic_string< _CharT, _Traits, _Alloc >::erase(), std::ios_base::getloc(), std::basic_string< _CharT, _Traits, _Alloc >::max_size(), std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), and std::ios_base::width().

4.11.4.221 template<typename _CharT , typename _Traits , typename _Tp > basic_istream<_CharT, _Traits>& std::operator>> (basic_istream< _CharT, _Traits > && *__is*, _Tp & *__x*) [inline]

Generic extractor for rvalue stream.

Parameters:

is An input stream.

x A reference to the extraction target.

Returns:

is

This is just a forwarding function to allow extraction from rvalue streams since they won't bind to the extractor functions that take an lvalue reference.

Definition at line 847 of file istream.

4.11.4.222 template<class _Traits > basic_istream<char, _Traits>& std::operator>> (basic_istream< char, _Traits > & *__in*, signed char * *__s*) [inline]

Character string extractors.

Parameters:

in An input stream.

s A pointer to a character array.

Returns:

in

Behaves like one of the formatted arithmetic extractors described in std::basic_istream. After constructing a sentry object with good status, this function extracts up to `n` characters and stores them into the array starting at *s*. `n` is defined as:

- if `width()` is greater than zero, `n` is width() otherwise
- `n` is *the number of elements of the largest array of* *
- `char_type` *that can store a terminating* `eos`.
- [27.6.1.2.3]/6

Characters are extracted and stored until one of the following happens:

- `n-1` characters are stored
- EOF is reached
- the next character is whitespace according to the current locale

- the next character is a null byte (i.e., `charT()`)

`width(0)` is then called for the input stream.

If no characters are extracted, sets failbit.

Definition at line 756 of file istream.

4.11.4.223 template<class _Traits > basic_istream<char, _Traits>& std::operator>> (basic_istream< char, _Traits > & *__in*, unsigned char * *__s*) [inline]

Character string extractors.

Parameters:

in An input stream.

s A pointer to a character array.

Returns:

in

Behaves like one of the formatted arithmetic extractors described in std::basic_istream. After constructing a sentry object with good status, this function extracts up to `n` characters and stores them into the array starting at *s*. `n` is defined as:

- if `width()` is greater than zero, `n` is width() otherwise
- `n` is *the number of elements of the largest array of* *
- `char_type` *that can store a terminating* `eos`.
- [27.6.1.2.3]/6

Characters are extracted and stored until one of the following happens:

- `n-1` characters are stored
- EOF is reached
- the next character is whitespace according to the current locale
- the next character is a null byte (i.e., `charT()`)

`width(0)` is then called for the input stream.

If no characters are extracted, sets failbit.

Definition at line 751 of file istream.

4.11.4.224 template<> basic_istream<char>& std::operator>> (basic_istream< char > & *__in*, char * *__s*) [inline]

Character string extractors.

Parameters:

in An input stream.

s A pointer to a character array.

Returns:

in

Behaves like one of the formatted arithmetic extractors described in std::basic_istream. After constructing a sentry object with good status, this function extracts up to `n` characters and stores them into the array starting at *s*. `n` is defined as:

- if `width()` is greater than zero, `n` is width() otherwise
- `n` is *the number of elements of the largest array of* *
- `char_type` *that can store a terminating* `eos`.
- [27.6.1.2.3]/6

Characters are extracted and stored until one of the following happens:

- `n-1` characters are stored
- EOF is reached
- the next character is whitespace according to the current locale
- the next character is a null byte (i.e., `charT()`)

`width(0)` is then called for the input stream.

If no characters are extracted, sets failbit.

4.11.4.225 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::operator>> (basic_istream< _CharT, _Traits > & *__in*, _CharT * *__s*) [inline]

Character string extractors.

Parameters:

in An input stream.

s A pointer to a character array.

Returns:

in

Behaves like one of the formatted arithmetic extractors described in std::basic_istream. After constructing a sentry object with good status, this function extracts up to `n` characters and stores them into the array starting at *s*. `n` is defined as:

- if `width()` is greater than zero, `n` is width() otherwise
- `n` is *the number of elements of the largest array of* `*`
- `char_type` *that can store a terminating* `eos`.
- [27.6.1.2.3]/6

Characters are extracted and stored until one of the following happens:

- `n-1` characters are stored
- EOF is reached
- the next character is whitespace according to the current locale
- the next character is a null byte (i.e., `charT()`)

`width(0)` is then called for the input stream.

If no characters are extracted, sets failbit.

Definition at line 935 of file istream.tcc.

References std::ios_base::badbit, std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::getloc(), std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), and std::ios_base::width().

4.11.4.226 template<class _Traits > basic_istream<char, _Traits>& std::operator>> (basic_istream< char, _Traits > & *__in*, signed char & *__c*) [inline]

Character string extractors.

Parameters:

in An input stream.

s A pointer to a character array.

Returns:

in

Behaves like one of the formatted arithmetic extractors described in std::basic_istream. After constructing a sentry object with good status, this function extracts up to `n` characters and stores them into the array starting at *s*. `n` is defined as:

- if `width()` is greater than zero, `n` is width() otherwise
- `n` is *the number of elements of the largest array of* `*`
- *`char_type` that can store a terminating `eos`.*
- [27.6.1.2.3]/6

Characters are extracted and stored until one of the following happens:

- `n-1` characters are stored
- EOF is reached
- the next character is whitespace according to the current locale
- the next character is a null byte (i.e., `charT()`)

`width(0)` is then called for the input stream.

If no characters are extracted, sets failbit.

Definition at line 709 of file istream.

4.11.4.227 template<class _Traits > basic_istream<char, _Traits>& std::operator>> (basic_istream< char, _Traits > & *__in*, unsigned char & *__c*) [inline]

Character string extractors.

Parameters:

in An input stream.

s A pointer to a character array.

Returns:

in

Behaves like one of the formatted arithmetic extractors described in std::basic_istream. After constructing a sentry object with good status, this function extracts up to `n` characters and stores them into the array starting at *s*. `n` is defined as:

- if `width()` is greater than zero, `n` is width() otherwise
- `n` is *the number of elements of the largest array of* `*`
- `char_type` *that can store a terminating* `eos`.
- [27.6.1.2.3]/6

Characters are extracted and stored until one of the following happens:

- `n-1` characters are stored
- EOF is reached
- the next character is whitespace according to the current locale
- the next character is a null byte (i.e., `charT()`)

`width(0)` is then called for the input stream.

If no characters are extracted, sets failbit.

Definition at line 704 of file istream.

4.11.4.228 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::operator>> (basic_istream< _CharT, _Traits > & __in, _CharT & __c) [inline]

Character extractors.

Parameters:

in An input stream.

c A character reference.

Returns:

in

Behaves like one of the formatted arithmetic extractors described in std::basic_istream. After constructing a sentry object with good status, this function extracts a character (if one is available) and stores it in *c*. Otherwise, sets failbit in the input stream.

Definition at line 903 of file istream.tcc.

References std::ios_base::badbit, std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

4.11.4.229 template<class _CharT , class _Traits , size_t _Nb> std::basic_istream<_CharT, _Traits>& std::operator>> (std::basic_istream< _CharT, _Traits > & *__is*, bitset< _Nb > & *__x*) [inline]

Global I/O operators for bitsets. Direct I/O between streams and bitsets is supported. Output is straightforward. Input will skip whitespace, only accept *0* and *1* characters, and will only extract as many digits as the bitset will hold.

Definition at line 1403 of file bitset.

References std::basic_string< _CharT, _Traits, _Alloc >::empty(), std::basic_string< _CharT, _Traits, _Alloc >::push_back(), std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_string< _CharT, _Traits, _Alloc >::reserve(), std::basic_ios< _CharT, _Traits >::setstate(), and std::basic_ios< _CharT, _Traits >::widen().

4.11.4.230 template<size_t _Nb> bitset<_Nb> std::operator^ (const bitset< _Nb > & *__x*, const bitset< _Nb > & *__y*) [inline]

Global bitwise operations on bitsets.

Parameters:

x A bitset.

y A bitset of the same size as *x*.

Returns:

A new bitset.

These should be self-explanatory.

Definition at line 1384 of file bitset.

4.11.4.231 template<size_t _Nb> bitset<_Nb> std::operator| (const bitset< _Nb > & *__x*, const bitset< _Nb > & *__y*) [inline]

Global bitwise operations on bitsets.

Parameters:

x A bitset.

y A bitset of the same size as *x*.

Returns:

A new bitset.

These should be self-explanatory.

Definition at line 1375 of file bitset.

4.11.4.232 template<typename _InputIterator , typename _OutputIterator , typename _BinaryOperation > _OutputIterator std::partial_sum (_InputIterator *__first*, _InputIterator *__last*, _OutputIterator *__result*, _BinaryOperation *__binary_op*) [inline]

Return list of partial sums. Accumulates the values in the range [first,last) using operator+(). As each successive input value is added into the total, that partial sum is written to *result*. Therefore, the first value in result is the first value of the input, the second value in result is the sum of the first and second input values, and so on.

Parameters:

first Start of input range.

last End of input range.

result Output to write sums to.

Returns:

Iterator pointing just beyond the values written to result.

Definition at line 273 of file stl_numeric.h.

4.11.4.233 template<typename _InputIterator , typename _OutputIterator > _OutputIterator std::partial_sum (_InputIterator *__first*, _InputIterator *__last*, _OutputIterator *__result*) [inline]

Return list of partial sums. Accumulates the values in the range [first,last) using operator+(). As each successive input value is added into the total, that partial sum is written to *result*. Therefore, the first value in result is the first value of the input, the second value in result is the sum of the first and second input values, and so on.

Parameters:

first Start of input range.

last End of input range.

result Output to write sums to.

Returns:

Iterator pointing just beyond the values written to result.

Definition at line 233 of file stl_numeric.h.

4.11.4.234 template<typename _MoneyT > _Put_money<_MoneyT> std::put_money (const _MoneyT & *__mon*, bool *__intl* = false) [inline]

Extended manipulator for inserting money.

Parameters:

mon Either long double or a specialization of basic_string.

intl A bool indicating whether international format is to be used.

Sent to a stream object, this manipulator inserts *mon*.

Definition at line 292 of file iomanip.

4.11.4.235 template<typename _Tp > reference_wrapper<_Tp> std::ref (reference_wrapper< _Tp > *__t*) [inline]

Partial specialization.

Definition at line 451 of file functional.

References ref().

4.11.4.236 template<typename _Tp > reference_wrapper<_Tp> std::ref (_Tp & *__t*) [inline]

Denotes a reference should be taken to a variable.

Definition at line 439 of file functional.

Referenced by ref().

4.11.4.237 template<typename _InputIterator , typename _OutputIterator , typename _Tp > _OutputIterator std::replace_copy (_InputIterator *__first*, _InputIterator *__last*, _OutputIterator *__result*, const _Tp & *__old_value*, const _Tp & *__new_value*) [inline]

Copy a sequence, replacing each element of one value with another value.

Parameters:

first An input iterator.

last An input iterator.

result An output iterator.

old_value The value to be replaced.

new_value The replacement value.

Returns:

The end of the output sequence, `result+`(last-first).

Copies each element in the input range [first,last) to the output range [result,result+(last-first)) replacing elements equal to `old_value` with `new_value`.

Definition at line 3812 of file stl_algo.h.

4.11.4.238 _Resetiosflags std::resetiosflags (ios_base::fmtflags *__mask*) [inline]

Manipulator for `setf`.

Parameters:

mask A format flags mask.

Sent to a stream object, this manipulator resets the specified flags, via *stream.setf(0,mask)*.

Definition at line 63 of file iomanip.

4.11.4.239 template<typename _Tp > void std::return_temporary_buffer (_Tp * *__p*) [inline]

The companion to get_temporary_buffer().

Parameters:

p A buffer previously allocated by get_temporary_buffer.

Returns:

None.

Frees the memory pointed to by p.

Definition at line 112 of file stl_tempbuf.h.

Referenced by std::_Temporary_buffer< _ForwardIterator, _Tp >::_Temporary_buffer().

4.11.4.240 ios_base& std::right (ios_base & *__base*) [inline]

Calls base.setf(ios_base::right, ios_base::adjustfield).

Definition at line 923 of file ios_base.h.

References std::ios_base::setf().

4.11.4.241 ios_base& std::scientific (ios_base & *__base*) [inline]

Calls base.setf(ios_base::scientific, ios_base::floatfield).

Definition at line 965 of file ios_base.h.

References std::ios_base::setf().

Referenced by operator<<().

4.11.4.242 new_handler std::set_new_handler (new_handler) throw ()

Takes a replacement handler as the argument, returns the previous handler.

4.11.4.243 _Setbase std::setbase (int *__base*) [inline]

Manipulator for `setf`.

Parameters:

base A numeric base.

Sent to a stream object, this manipulator changes the `ios_base::basefield` flags to `oct`, `dec`, or `hex` when *base* is 8, 10, or 16, accordingly, and to 0 if *base* is any other value.

Definition at line 124 of file iomanip.

4.11.4.244 template<typename _CharT > _Setfill<_CharT> std::setfill (_CharT *__c*) [inline]

Manipulator for `fill`.

Parameters:

c The new fill character.

Sent to a stream object, this manipulator calls `fill(c)` for that object.

Definition at line 162 of file iomanip.

4.11.4.245 _Setiosflags std::setiosflags (ios_base::fmtflags __*mask*) [inline]

Manipulator for `setf`.

Parameters:

mask A format flags mask.

Sent to a stream object, this manipulator sets the format flags to *mask*.

Definition at line 93 of file iomanip.

4.11.4.246 _Setprecision std::setprecision (int __*n*) [inline]

Manipulator for `precision`.

Parameters:

n The new precision.

Sent to a stream object, this manipulator calls `precision(n)` for that object.

Definition at line 192 of file iomanip.

4.11.4.247 _Setw std::setw (int __*n*) [inline]

Manipulator for `width`.

Parameters:

n The new width.

Sent to a stream object, this manipulator calls `width(n)` for that object.

Definition at line 222 of file iomanip.

4.11.4.248 ios_base& std::showbase (ios_base & __*base*) [inline]

Calls base.setf(ios_base::showbase).

Definition at line 810 of file ios_base.h.

References std::ios_base::setf().

Referenced by noshowbase().

4.11.4.249 ios_base& std::showpoint (ios_base & *__base*) [inline]

Calls base.setf(ios_base::showpoint).

Definition at line 826 of file ios_base.h.

References std::ios_base::setf().

Referenced by noshowpoint().

4.11.4.250 ios_base& std::showpos (ios_base & *__base*) [inline]

Calls base.setf(ios_base::showpos).

Definition at line 842 of file ios_base.h.

References std::ios_base::setf().

Referenced by noshowpos().

4.11.4.251 ios_base& std::skipws (ios_base & *__base*) [inline]

Calls base.setf(ios_base::skipws).

Definition at line 858 of file ios_base.h.

References std::ios_base::setf().

Referenced by noskipws(), operator>>(), and std::basic_istream< _CharT, _Traits >::sentry::sentry().

4.11.4.252 template<typename _Tp , typename _Alloc > void std::swap (vector< _Tp, _Alloc > & *__x*, vector< _Tp, _Alloc > & *__y*) [inline]

See std::vector::swap().

Definition at line 1220 of file stl_vector.h.

References std::vector< _Tp, _Alloc >::swap().

4.11.4.253 template<typename _Key , typename _Compare , typename _Alloc > void std::swap (set< _Key, _Compare, _Alloc > & *__x*, set< _Key, _Compare, _Alloc > & *__y*) [inline]

See std::set::swap().

Definition at line 728 of file stl_set.h.

References std::set< _Key, _Compare, _Alloc >::swap().

4.11.4.254 template<class _T1 , class _T2 > void std::swap (pair< _T1, _T2 > & __x, pair< _T1, _T2 > & __y) [inline]

See std::pair::swap().

Definition at line 198 of file stl_pair.h.

4.11.4.255 template<typename _Key , typename _Compare , typename _Alloc > void std::swap (multiset< _Key, _Compare, _Alloc > & __x, multiset< _Key, _Compare, _Alloc > & __y) [inline]

See std::multiset::swap().

Definition at line 715 of file stl_multiset.h.

References std::multiset< _Key, _Compare, _Alloc >::swap().

4.11.4.256 template<typename _Key , typename _Tp , typename _Compare , typename _Alloc > void std::swap (multimap< _Key, _Tp, _Compare, _Alloc > & __x, multimap< _Key, _Tp, _Compare, _Alloc > & __y) [inline]

See std::multimap::swap().

Definition at line 820 of file stl_multimap.h.

References std::multimap< _Key, _Tp, _Compare, _Alloc >::swap().

4.11.4.257 template<typename _Key , typename _Tp , typename _Compare , typename _Alloc > void std::swap (map< _Key, _Tp, _Compare, _Alloc > & __x, map< _Key, _Tp, _Compare, _Alloc > & __y) [inline]

See std::map::swap().

Definition at line 889 of file stl_map.h.

References std::map< _Key, _Tp, _Compare, _Alloc >::swap().

4.11.4.258 template<typename _Tp , typename _Alloc > void std::swap (list< _Tp, _Alloc > & __x, list< _Tp, _Alloc > & __y) [inline]

See std::list::swap().

Definition at line 1543 of file stl_list.h.

References std::list< _Tp, _Alloc >::swap().

4.11.4.259 template<typename _Tp , typename _Alloc > void std::swap (deque< _Tp, _Alloc > & __x, deque< _Tp, _Alloc > & __y) [inline]

See std::deque::swap().

Definition at line 1881 of file stl_deque.h.

References std::deque< _Tp, _Alloc >::swap().

4.11.4.260 template<typename _Tp , typename _Alloc > void std::swap (forward_list< _Tp, _Alloc > & __lx, forward_list< _Tp, _Alloc > & __ly) [inline]

See std::forward_list::swap().

Definition at line 1275 of file forward_list.h.

References std::forward_list< _Tp, _Alloc >::swap().

4.11.4.261 template<typename _CharT , typename _Traits , typename _Alloc > void std::swap (basic_string< _CharT, _Traits, _Alloc > & __lhs, basic_string< _CharT, _Traits, _Alloc > & __rhs) [inline]

Swap contents of two strings.

Parameters:

lhs First string.

rhs Second string.

Exchanges the contents of *lhs* and *rhs* in constant time.

Definition at line 2564 of file basic_string.h.

References std::basic_string< _CharT, _Traits, _Alloc >::swap().

4.11.4.262 template<typename _Res , typename... _Args> void std::swap (function< _Res(_Args...)> & __x, function< _Res(_Args...)> & __y) [inline]

Swap the targets of two polymorphic function object wrappers. This function will not throw an exception.

Definition at line 2206 of file functional.

Referenced by __gnu_parallel::_LoserTree< false, _Tp, _Compare >::__delete_min_insert(), __gnu_parallel::_LoserTree< __stable, _Tp, _Compare >::__delete_-

min_insert(), __gnu_parallel::__parallel_nth_element(), __gnu_parallel::__parallel_-partition(), __gnu_parallel::__qsb_divide(), __gnu_parallel::__qsb_local_sort_with_-helping(), __rotate(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _-Base >::assign(), std::basic_string< char >::assign(), std::regex_traits< _Ch_-type >::imbue(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::operator=(), std::vector< result_type >::operator=(), std::set< _Key, _Compare, _Alloc >::operator=(), std::multiset< _Key, _Compare, _Alloc >::operator=(), std::multimap< _Key, _Tp, _Compare, _Alloc >::operator=(), std::map< _Key, _Tp, _Compare, _Alloc >::operator=(), std::list< _Tp, _Alloc >::operator=(), std::forward_list< _Tp, _Alloc >::operator=(), std::basic_string< char >::operator=(), std::vector< result_type >::swap(), std::list< _Tp, _Alloc >::swap(), std::function< _Res(_ArgTypes...)>::swap(), and std::forward_list< _Tp, _Alloc >::swap().

4.11.4.263 template<typename _CharT > _CharT std::tolower (_CharT __*c*, const locale & __*loc*) [inline]

Convenience interface to ctype.tolower(__c).

Referenced by std::regex_traits< _Ch_type >::translate_nocase().

4.11.4.264 template<typename _CharT > _CharT std::toupper (_CharT __*c*, const locale & __*loc*) [inline]

Convenience interface to ctype.toupper(__c).

4.11.4.265 template<typename _InputIterator , typename _ForwardIterator > _ForwardIterator std::uninitialized_copy (_InputIterator __*first*, _InputIterator __*last*, _ForwardIterator __*result*) [inline]

Copies the range [first,last) into result.

Parameters:

first An input iterator.

last An input iterator.

result An output iterator.

Returns:

result + (first - last)

Like copy(), but does not require an initialized output range.

Definition at line 106 of file stl_uninitialized.h.

Referenced by __gnu_parallel::parallel_sort_mwms_pu().

4.11.4.266 template<typename _InputIterator , typename _Size , typename _ForwardIterator > _ForwardIterator std::uninitialized_copy_n (_InputIterator *__first*, _Size *__n*, _ForwardIterator *__result*) [inline]

Copies the range [first,first+n) into result.

Parameters:

first An input iterator.

n The number of elements to copy.

result An output iterator.

Returns:

result + n

Like copy_n(), but does not require an initialized output range.

Definition at line 531 of file stl_uninitialized.h.

References __iterator_category().

4.11.4.267 template<typename _ForwardIterator , typename _Tp > void std::uninitialized_fill (_ForwardIterator *__first*, _ForwardIterator *__last*, const _Tp & *__x*) [inline]

Copies the value x into the range [first,last).

Parameters:

first An input iterator.

last An input iterator.

x The source value.

Returns:

Nothing.

Like fill(), but does not require an initialized output range.

Definition at line 163 of file stl_uninitialized.h.

4.11.4.268 template<typename _ForwardIterator , typename _Size , typename _Tp > void std::uninitialized_fill_n (_ForwardIterator *__first*, _Size *__n*, const _Tp & *__x*) [inline]

Copies the value x into the range [first,first+n).

Parameters:

first An input iterator.

n The number of copies to make.

x The source value.

Returns:

Nothing.

Like fill_n(), but does not require an initialized output range.

Definition at line 279 of file stl_uninitialized.h.

4.11.4.269 ios_base& std::unitbuf (ios_base & *__base*) [inline]

Calls base.setf(ios_base::unitbuf).

Definition at line 890 of file ios_base.h.

References std::ios_base::setf().

Referenced by nounitbuf(), and std::basic_ostream< _CharT, _Traits >::sentry::~sentry().

4.11.4.270 ios_base& std::uppercase (ios_base & *__base*) [inline]

Calls base.setf(ios_base::uppercase).

Definition at line 874 of file ios_base.h.

References std::ios_base::setf().

Referenced by nouppercase().

4.11.4.271 template<typename _Facet > const _Facet & std::use_facet (const locale & *__loc*) [inline]

Return a facet. use_facet looks for and returns a reference to a facet of type Facet where Facet is the template parameter. If has_facet(locale) is true, there is a suitable facet to return. It throws std::bad_cast if the locale doesn't contain a facet of type Facet.

Parameters:

Facet The facet type to access.

locale The locale to use.

Returns:

Reference to facet of type Facet.

Exceptions:

std::bad_cast if locale doesn't contain a facet of type Facet.

Definition at line 105 of file locale_classes.tcc.

Referenced by std::regex_traits< _Ch_type >::isctype(), std::regex_traits< _Ch_type >::transform(), and std::regex_traits< _Ch_type >::translate_nocase().

4.11.4.272 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::ws (basic_istream< _CharT, _Traits > & *__is*) [inline]

Quick and easy way to eat whitespace. This manipulator extracts whitespace characters, stopping when the next character is non-whitespace, or when the input sequence is empty. If the sequence is empty, `eofbit` is set in the stream, but not `failbit`.

The current locale is used to distinguish whitespace characters.

Example:

```
MyClass   mc;

std::cin >> std::ws >> mc;
```

will skip leading whitespace before calling operator>> on cin and your object. Note that the same effect can be achieved by creating a std::basic_istream::sentry inside your definition of operator>>.

Definition at line 996 of file istream.tcc.

References std::ios_base::eofbit, std::ios_base::getloc(), std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

4.11.5 Variable Documentation

4.11.5.1 ostream std::cerr

Linked to standard error (unbuffered).

4.11.5.2 istream std::cin

Linked to standard input.

4.11.5.3 ostream std::clog

Linked to standard error (buffered).

4.11.5.4 ostream std::cout

Linked to standard output.

4.11.5.5 wostream std::wcerr

Linked to standard error (unbuffered).

4.11.5.6 wistream std::wcin

Linked to standard input.

4.11.5.7 wostream std::wclog

Linked to standard error (buffered).

4.11.5.8 wostream std::wcout

Linked to standard output.

4.12 std::__debug Namespace Reference

GNU debug code, replaces standard behavior with debug behavior.

Classes

- class bitset

  Class std::bitset with additional safety/checking/debug instrumentation.

- class deque

  Class std::deque with safety/checking/debug instrumentation.

- class list

  Class std::list with safety/checking/debug instrumentation.

- class map

  Class std::map with safety/checking/debug instrumentation.

- class multimap

  Class std::multimap with safety/checking/debug instrumentation.

- class multiset

  Class std::multiset with safety/checking/debug instrumentation.

- class set

  Class std::set with safety/checking/debug instrumentation.

- class unordered_map

  Class std::unordered_map with safety/checking/debug instrumentation.

- class unordered_multimap

  Class std::unordered_multimap with safety/checking/debug instrumentation.

- class unordered_multiset

  Class std::unordered_multiset with safety/checking/debug instrumentation.

- class unordered_set

  Class std::unordered_set with safety/checking/debug instrumentation.

- class vector

  Class std::vector with safety/checking/debug instrumentation.

Functions

- template<typename _Key , typename _Compare , typename _Allocator >
  bool **operator!=** (const set< _Key, _Compare, _Allocator > &__lhs, const set< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **operator!=** (const multiset< _Key, _Compare, _Allocator > &__lhs, const multiset< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **operator!=** (const multimap< _Key, _Tp, _Compare, _Allocator > &__lhs, const multimap< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **operator!=** (const map< _Key, _Tp, _Compare, _Allocator > &__lhs, const map< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator!=** (const vector< _Tp, _Alloc > &__lhs, const vector< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator!=** (const list< _Tp, _Alloc > &__lhs, const list< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator!=** (const deque< _Tp, _Alloc > &__lhs, const deque< _Tp, _Alloc > &__rhs)
- template<size_t _Nb>
  bitset< _Nb > **operator&** (const bitset< _Nb > &__x, const bitset< _Nb > &__y)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **operator<** (const set< _Key, _Compare, _Allocator > &__lhs, const set< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **operator<** (const multiset< _Key, _Compare, _Allocator > &__lhs, const multiset< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **operator<** (const multimap< _Key, _Tp, _Compare, _Allocator > &__lhs, const multimap< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **operator<** (const map< _Key, _Tp, _Compare, _Allocator > &__lhs, const map< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator<** (const vector< _Tp, _Alloc > &__lhs, const vector< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator<** (const list< _Tp, _Alloc > &__lhs, const list< _Tp, _Alloc > &__rhs)

- template<typename _Tp , typename _Alloc >
  bool **operator**< (const deque< _Tp, _Alloc > &__lhs, const deque< _Tp, _Alloc > &__rhs)
- template<typename _CharT , typename _Traits , size_t _Nb>
  std::basic_ostream< _CharT, _Traits > & **operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const bitset< _Nb > &__x)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **operator**<= (const set< _Key, _Compare, _Allocator > &__lhs, const set< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **operator**<= (const multiset< _Key, _Compare, _Allocator > &__lhs, const multiset< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **operator**<= (const multimap< _Key, _Tp, _Compare, _Allocator > &__lhs, const multimap< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **operator**<= (const map< _Key, _Tp, _Compare, _Allocator > &__lhs, const map< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator**<= (const vector< _Tp, _Alloc > &__lhs, const vector< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator**<= (const list< _Tp, _Alloc > &__lhs, const list< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator**<= (const deque< _Tp, _Alloc > &__lhs, const deque< _Tp, _Alloc > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **operator==** (const set< _Key, _Compare, _Allocator > &__lhs, const set< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **operator==** (const multiset< _Key, _Compare, _Allocator > &__lhs, const multiset< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **operator==** (const multimap< _Key, _Tp, _Compare, _Allocator > &__lhs, const multimap< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **operator==** (const map< _Key, _Tp, _Compare, _Allocator > &__lhs, const map< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator==** (const vector< _Tp, _Alloc > &__lhs, const vector< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator==** (const list< _Tp, _Alloc > &__lhs, const list< _Tp, _Alloc > &__rhs)

- template<typename _Tp , typename _Alloc >
  bool **operator==** (const deque< _Tp, _Alloc > &__lhs, const deque< _Tp, _Alloc > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **operator>** (const set< _Key, _Compare, _Allocator > &__lhs, const set< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **operator>** (const multiset< _Key, _Compare, _Allocator > &__lhs, const multiset< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **operator>** (const multimap< _Key, _Tp, _Compare, _Allocator > &__lhs, const multimap< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **operator>** (const map< _Key, _Tp, _Compare, _Allocator > &__lhs, const map< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator>** (const vector< _Tp, _Alloc > &__lhs, const vector< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator>** (const list< _Tp, _Alloc > &__lhs, const list< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator>** (const deque< _Tp, _Alloc > &__lhs, const deque< _Tp, _Alloc > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **operator>=** (const set< _Key, _Compare, _Allocator > &__lhs, const set< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **operator>=** (const multiset< _Key, _Compare, _Allocator > &__lhs, const multiset< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **operator>=** (const multimap< _Key, _Tp, _Compare, _Allocator > &__lhs, const multimap< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **operator>=** (const map< _Key, _Tp, _Compare, _Allocator > &__lhs, const map< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator>=** (const vector< _Tp, _Alloc > &__lhs, const vector< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator>=** (const list< _Tp, _Alloc > &__lhs, const list< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator>=** (const deque< _Tp, _Alloc > &__lhs, const deque< _Tp, _Alloc > &__rhs)

- template<typename _CharT , typename _Traits , size_t _Nb>
  std::basic_istream< _CharT, _Traits > & **operator>>** (std::basic_istream< _CharT, _Traits > &__is, bitset< _Nb > &__x)
- template<size_t _Nb>
  bitset< _Nb > **operator^** (const bitset< _Nb > &__x, const bitset< _Nb > &__y)
- template<size_t _Nb>
  bitset< _Nb > **operator|** (const bitset< _Nb > &__x, const bitset< _Nb > &__y)
- template<typename _Key , typename _Compare , typename _Allocator >
  void **swap** (set< _Key, _Compare, _Allocator > &__x, set< _Key, _Compare, _Allocator > &__y)
- template<typename _Key , typename _Compare , typename _Allocator >
  void **swap** (multiset< _Key, _Compare, _Allocator > &__x, multiset< _Key, _Compare, _Allocator > &__y)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  void **swap** (multimap< _Key, _Tp, _Compare, _Allocator > &__lhs, multimap< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  void **swap** (map< _Key, _Tp, _Compare, _Allocator > &__lhs, map< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Tp , typename _Alloc >
  void **swap** (vector< _Tp, _Alloc > &__lhs, vector< _Tp, _Alloc > &__rhs)
- template<typename _Value , typename _Hash , typename _Pred , typename _Alloc >
  void **swap** (unordered_multiset< _Value, _Hash, _Pred, _Alloc > &__x, unordered_multiset< _Value, _Hash, _Pred, _Alloc > &__y)
- template<typename _Value , typename _Hash , typename _Pred , typename _Alloc >
  void **swap** (unordered_set< _Value, _Hash, _Pred, _Alloc > &__x, unordered_set< _Value, _Hash, _Pred, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Hash , typename _Pred , typename _Alloc >
  void **swap** (unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc > &__x, unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Hash , typename _Pred , typename _Alloc >
  void **swap** (unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc > &__x, unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc > &__y)
- template<typename _Tp , typename _Alloc >
  void **swap** (list< _Tp, _Alloc > &__lhs, list< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  void **swap** (deque< _Tp, _Alloc > &__lhs, deque< _Tp, _Alloc > &__rhs)

4.12.1 Detailed Description

GNU debug code, replaces standard behavior with debug behavior. Macros and namespaces used by the implementation outside of debug wrappers to verify certain properties. The __glibcxx_requires_xxx macros are merely wrappers around the __glibcxx_check_xxx wrappers when we are compiling with debug mode, but disappear when we are in release mode so that there is no checking performed in, e.g., the standard library algorithms.

4.13 std::__detail Namespace Reference

Implementation details not part of the namespace std interface.

Functions

- template<class _Iterator >
  std::iterator_traits< _Iterator >::difference_type **__distance_fw** (_Iterator __first, _Iterator __last)
- template<class _Iterator >
  std::iterator_traits< _Iterator >::difference_type **__distance_fw** (_Iterator __first, _Iterator __last, std::forward_iterator_tag)
- template<class _Iterator >
  std::iterator_traits< _Iterator >::difference_type **__distance_fw** (_Iterator __first, _Iterator __last, std::input_iterator_tag)
- template<typename _RAIter , typename _Tp >
  _RAIter **__lower_bound** (_RAIter __first, _RAIter __last, const _Tp &__val)
- template<typename _Value , bool __cache>
  bool **operator!=** (const _Hashtable_iterator_base< _Value, __cache > &__x, const _Hashtable_iterator_base< _Value, __cache > &__y)
- template<typename _Value , bool __cache>
  bool **operator!=** (const _Node_iterator_base< _Value, __cache > &__x, const _Node_iterator_base< _Value, __cache > &__y)
- template<typename _Value , bool __cache>
  bool **operator==** (const _Hashtable_iterator_base< _Value, __cache > &__x, const _Hashtable_iterator_base< _Value, __cache > &__y)
- template<typename _Value , bool __cache>
  bool **operator==** (const _Node_iterator_base< _Value, __cache > &__x, const _Node_iterator_base< _Value, __cache > &__y)

Variables

- const unsigned long **__prime_list** [ ]

4.13.1 Detailed Description

Implementation details not part of the namespace std interface.

4.14 std::__parallel Namespace Reference

GNU parallel code, replaces standard behavior with parallel behavior.

Classes

- struct _CRandNumber

  Functor wrapper for std::rand().

Functions

- template<typename _RAIter , typename _Tp , typename _BinaryOper >
  _Tp **__accumulate_switch** (_RAIter, _RAIter, _Tp, _BinaryOper, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism=__gnu_parallel::parallel_unbalanced)
- template<typename _IIter , typename _Tp , typename _BinaryOper , typename _Tag >
  _Tp **__accumulate_switch** (_IIter, _IIter, _Tp, _BinaryOper, _Tag)
- template<typename _IIter , typename _Tp , typename _Tag >
  _Tp **__accumulate_switch** (_IIter, _IIter, _Tp, _Tag)
- template<typename __RAIter , typename _Tp , typename _BinaryOperation >
  _Tp **__accumulate_switch** (__RAIter __begin, __RAIter __end, _Tp __init, _BinaryOperation __binary_op, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_unbalanced)
- template<typename _IIter , typename _Tp , typename _BinaryOperation , typename _IteratorTag >
  _Tp **__accumulate_switch** (_IIter __begin, _IIter __end, _Tp __init, _BinaryOperation __binary_op, _IteratorTag)
- template<typename _IIter , typename _Tp , typename _IteratorTag >
  _Tp **__accumulate_switch** (_IIter __begin, _IIter __end, _Tp __init, _IteratorTag)
- template<typename _IIter , typename _OIter , typename _BinaryOper >
  _OIter **__adjacent_difference_switch** (_IIter, _IIter, _OIter, _BinaryOper, random_access_iterator_tag, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism=__gnu_parallel::parallel_unbalanced)
- template<typename _IIter , typename _OIter , typename _BinaryOper , typename _Tag1 , typename _Tag2 >
  _OIter **__adjacent_difference_switch** (_IIter, _IIter, _OIter, _BinaryOper, _Tag1, _Tag2)
- template<typename _IIter , typename _OutputIterator , typename _BinaryOperation >
  _OutputIterator **__adjacent_difference_switch** (_IIter __begin, _IIter __end, _OutputIterator __result, _BinaryOperation __bin_op, random_access_iterator_tag, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_balanced)

- template<typename _IIter , typename _OutputIterator , typename _BinaryOperation , typename _IteratorTag1 , typename _IteratorTag2 >
  _OutputIterator **__adjacent_difference_switch** (_IIter __begin, _IIter __end, _OutputIterator __result, _BinaryOperation __bin_op, _IteratorTag1, _IteratorTag2)
- template<typename _RAIter , typename _BiPredicate >
  _RAIter **__adjacent_find_switch** (_RAIter, _RAIter, _BiPredicate, random_access_iterator_tag)
- template<typename _FIter , typename _BiPredicate , typename _IterTag >
  _FIter **__adjacent_find_switch** (_FIter, _FIter, _BiPredicate, _IterTag)
- template<typename _FIter , typename _IterTag >
  _FIter **__adjacent_find_switch** (_FIter, _FIter, _IterTag)
- template<typename _RAIter , typename _BinaryPredicate >
  _RAIter **__adjacent_find_switch** (_RAIter __begin, _RAIter __end, _BinaryPredicate __pred, random_access_iterator_tag)
- template<typename _FIterator , typename _BinaryPredicate , typename _IteratorTag >
  _FIterator **__adjacent_find_switch** (_FIterator __begin, _FIterator __end, _BinaryPredicate __pred, _IteratorTag)
- template<typename _FIterator , typename _IteratorTag >
  _FIterator **__adjacent_find_switch** (_FIterator __begin, _FIterator __end, _IteratorTag)
- template<typename _RAIter >
  _RAIter **__adjacent_find_switch** (_RAIter __begin, _RAIter __end, random_access_iterator_tag)
- template<typename _IIter , typename _Predicate , typename _IterTag >
  iterator_traits< _IIter >::difference_type **__count_if_switch** (_IIter, _IIter, _Predicate, _IterTag)
- template<typename _IIter , typename _Predicate , typename _IteratorTag >
  iterator_traits< _IIter >::difference_type **__count_if_switch** (_IIter __begin, _IIter __end, _Predicate __pred, _IteratorTag)
- template<typename _RAIter , typename _Predicate >
  iterator_traits< _RAIter >::difference_type **__count_if_switch** (_RAIter __begin, _RAIter __end, _Predicate __pred, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_unbalanced)
- template<typename _IIter , typename _Tp , typename _IterTag >
  iterator_traits< _IIter >::difference_type **__count_switch** (_IIter, _IIter, const _Tp &, _IterTag)
- template<typename _IIter , typename _Tp , typename _IteratorTag >
  iterator_traits< _IIter >::difference_type **__count_switch** (_IIter __begin, _IIter __end, const _Tp &__value, _IteratorTag)
- template<typename _RAIter , typename _Tp >
  iterator_traits< _RAIter >::difference_type **__count_switch** (_RAIter __begin, _RAIter __end, const _Tp &__value, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_unbalanced)

- template<typename _IIter , typename _FIter , typename _BiPredicate , typename _IterTag1 , typename _IterTag2 >
  _IIter **__find_first_of_switch** (_IIter, _IIter, _FIter, _FIter, _BiPredicate, _IterTag1, _IterTag2)
- template<typename _RAIter , typename _FIter , typename _BiPredicate , typename _IterTag >
  _RAIter **__find_first_of_switch** (_RAIter, _RAIter, _FIter, _FIter, _BiPredicate, random_access_iterator_tag, _IterTag)
- template<typename _IIter , typename _FIter , typename _IterTag1 , typename _IterTag2 >
  _IIter **__find_first_of_switch** (_IIter, _IIter, _FIter, _FIter, _IterTag1, _IterTag2)

- template<typename _IIter , typename _FIterator , typename _BinaryPredicate , typename _IteratorTag1 , typename _IteratorTag2 >
  _IIter **__find_first_of_switch** (_IIter __begin1, _IIter __end1, _FIterator __begin2, _FIterator __end2, _BinaryPredicate __comp, _IteratorTag1, _IteratorTag2)
- template<typename _RAIter , typename _FIterator , typename _BinaryPredicate , typename _IteratorTag >
  _RAIter **__find_first_of_switch** (_RAIter __begin1, _RAIter __end1, _FIterator __begin2, _FIterator __end2, _BinaryPredicate __comp, random_access_iterator_tag, _IteratorTag)
- template<typename _IIter , typename _FIterator , typename _IteratorTag1 , typename _IteratorTag2 >
  _IIter **__find_first_of_switch** (_IIter __begin1, _IIter __end1, _FIterator __begin2, _FIterator __end2, _IteratorTag1, _IteratorTag2)
- template<typename _IIter , typename _Predicate , typename _IterTag >
  _IIter **__find_if_switch** (_IIter, _IIter, _Predicate, _IterTag)
- template<typename _RAIter , typename _Predicate >
  _RAIter **__find_if_switch** (_RAIter __begin, _RAIter __end, _Predicate __pred, random_access_iterator_tag)
- template<typename _IIter , typename _Predicate , typename _IteratorTag >
  _IIter **__find_if_switch** (_IIter __begin, _IIter __end, _Predicate __pred, _IteratorTag)
- template<typename _IIter , typename _Tp , typename _IterTag >
  _IIter **__find_switch** (_IIter, _IIter, const _Tp &, _IterTag)
- template<typename _RAIter , typename _Tp >
  _RAIter **__find_switch** (_RAIter __begin, _RAIter __end, const _Tp &__val, random_access_iterator_tag)
- template<typename _IIter , typename _Tp , typename _IteratorTag >
  _IIter **__find_switch** (_IIter __begin, _IIter __end, const _Tp &__val, _IteratorTag)
- template<typename _IIter , typename _Function , typename _IterTag >
  _Function **__for_each_switch** (_IIter, _IIter, _Function, _IterTag)
- template<typename _RAIter , typename _Function >
  _Function **__for_each_switch** (_RAIter __begin, _RAIter __end, _Function

__f, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_balanced)

- template<typename _IIter , typename _Function , typename _IteratorTag >
  _Function **__for_each_switch** (_IIter __begin, _IIter __end, _Function __f, _IteratorTag)
- template<typename _OIter , typename _Size , typename _Generator , typename _IterTag >
  _OIter **__generate_n_switch** (_OIter, _Size, _Generator, _IterTag)
- template<typename _RAIter , typename _Size , typename _Generator >
  _RAIter **__generate_n_switch** (_RAIter __begin, _Size __n, _Generator __gen, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_balanced)
- template<typename _OutputIterator , typename _Size , typename _Generator , typename _IteratorTag >
  _OutputIterator **__generate_n_switch** (_OutputIterator __begin, _Size __n, _Generator __gen, _IteratorTag)
- template<typename _FIter , typename _Generator , typename _IterTag >
  void **__generate_switch** (_FIter, _FIter, _Generator, _IterTag)
- template<typename _RAIter , typename _Generator >
  void **__generate_switch** (_RAIter __begin, _RAIter __end, _Generator __gen, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_balanced)
- template<typename _FIterator , typename _Generator , typename _IteratorTag >
  void **__generate_switch** (_FIterator __begin, _FIterator __end, _Generator __gen, _IteratorTag)
- template<typename _IIter1 , typename _IIter2 , typename _Tp , typename _BinaryFunction1 , typename _BinaryFunction2 , typename _Tag1 , typename _Tag2 >
  _Tp **__inner_product_switch** (_IIter1, _IIter1, _IIter2, _Tp, _BinaryFunction1, _BinaryFunction2, _Tag1, _Tag2)
- template<typename _RAIter1 , typename _RAIter2 , typename _Tp , typename BinaryFunction1 , typename BinaryFunction2 >
  _Tp **__inner_product_switch** (_RAIter1, _RAIter1, _RAIter2, _Tp, BinaryFunction1, BinaryFunction2, random_access_iterator_tag, random_access_iterator_tag, __gnu_parallel::_Parallelism=__gnu_parallel::parallel_unbalanced)
- template<typename _IIter1 , typename _IIter2 , typename _Tp , typename _BinaryFunction1 , typename _BinaryFunction2 , typename _IteratorTag1 , typename _IteratorTag2 >
  _Tp **__inner_product_switch** (_IIter1 __first1, _IIter1 __last1, _IIter2 __first2, _Tp __init, _BinaryFunction1 __binary_op1, _BinaryFunction2 __binary_op2, _IteratorTag1, _IteratorTag2)
- template<typename _RAIter1 , typename _RAIter2 , typename _Tp , typename _BinaryFunction1 , typename _BinaryFunction2 >
  _Tp **__inner_product_switch** (_RAIter1 __first1, _RAIter1 __last1, _RAIter2 __first2, _Tp __init, _BinaryFunction1 __binary_op1, _BinaryFunction2 __binary_op2, random_access_iterator_tag, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_unbalanced)

- template<typename _IIter1 , typename _IIter2 , typename _Predicate , typename _IterTag1 , typename _IterTag2 >
  bool **__lexicographical_compare_switch** (_IIter1, _IIter1, _IIter2, _IIter2, _Predicate, _IterTag1, _IterTag2)
- template<typename _RAIter1 , typename _RAIter2 , typename _Predicate >
  bool **__lexicographical_compare_switch** (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _RAIter2 __end2, _Predicate __pred, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate , typename _IteratorTag1 , typename _IteratorTag2 >
  bool **__lexicographical_compare_switch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _Predicate __pred, _IteratorTag1, _IteratorTag2)
- template<typename _FIter , typename _Compare , typename _IterTag >
  _FIter **__max_element_switch** (_FIter, _FIter, _Compare, _IterTag)
- template<typename _RAIter , typename _Compare >
  _RAIter **__max_element_switch** (_RAIter __begin, _RAIter __end, _Compare __comp, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_balanced)
- template<typename _FIterator , typename _Compare , typename _IteratorTag >
  _FIterator **__max_element_switch** (_FIterator __begin, _FIterator __end, _Compare __comp, _IteratorTag)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Compare >
  _OIter **__merge_switch** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Compare, random_access_iterator_tag, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Compare , typename _IterTag1 , typename _IterTag2 , typename _IterTag3 >
  _OIter **__merge_switch** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Compare, _IterTag1, _IterTag2, _IterTag3)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _Compare >
  _OutputIterator **__merge_switch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __result, _Compare __comp, random_access_iterator_tag, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _Compare , typename _IteratorTag1 , typename _IteratorTag2 , typename _IteratorTag3 >
  _OutputIterator **__merge_switch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __result, _Compare __comp, _IteratorTag1, _IteratorTag2, _IteratorTag3)
- template<typename _FIter , typename _Compare , typename _IterTag >
  _FIter **__min_element_switch** (_FIter, _FIter, _Compare, _IterTag)
- template<typename _RAIter , typename _Compare >
  _RAIter **__min_element_switch** (_RAIter __begin, _RAIter __end, _Compare __comp, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_balanced)

- template<typename _FIterator , typename _Compare , typename _IteratorTag >
  _FIterator **__min_element_switch** (_FIterator __begin, _FIterator __end, _Compare __comp, _IteratorTag)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate , typename _IterTag1 , typename _IterTag2 >
  pair< _IIter1, _IIter2 > **__mismatch_switch** (_IIter1, _IIter1, _IIter2, _Predicate, _IterTag1, _IterTag2)
- template<typename _RAIter1 , typename _RAIter2 , typename _Predicate >
  pair< _RAIter1, _RAIter2 > **__mismatch_switch** (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _Predicate __pred, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate , typename _IteratorTag1 , typename _IteratorTag2 >
  pair< _IIter1, _IIter2 > **__mismatch_switch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _Predicate __pred, _IteratorTag1, _IteratorTag2)
- template<typename _IIter , typename _OIter , typename _BinaryOper >
  _OIter **__partial_sum_switch** (_IIter, _IIter, _OIter, _BinaryOper, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _IIter , typename _OIter , typename _BinaryOper , typename _Tag1 , typename _Tag2 >
  _OIter **__partial_sum_switch** (_IIter, _IIter, _OIter, _BinaryOper, _Tag1, _Tag2)
- template<typename _IIter , typename _OutputIterator , typename _BinaryOperation >
  _OutputIterator **__partial_sum_switch** (_IIter __begin, _IIter __end, _OutputIterator __result, _BinaryOperation __bin_op, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _IIter , typename _OutputIterator , typename _BinaryOperation , typename _IteratorTag1 , typename _IteratorTag2 >
  _OutputIterator **__partial_sum_switch** (_IIter __begin, _IIter __end, _OutputIterator __result, _BinaryOperation __bin_op, _IteratorTag1, _IteratorTag2)
- template<typename _FIter , typename _Predicate , typename _IterTag >
  _FIter **__partition_switch** (_FIter, _FIter, _Predicate, _IterTag)
- template<typename _RAIter , typename _Predicate >
  _RAIter **__partition_switch** (_RAIter __begin, _RAIter __end, _Predicate __pred, random_access_iterator_tag)
- template<typename _FIterator , typename _Predicate , typename _IteratorTag >
  _FIterator **__partition_switch** (_FIterator __begin, _FIterator __end, _Predicate __pred, _IteratorTag)
- template<typename _FIter , typename _Predicate , typename _Tp , typename _IterTag >
  void **__replace_if_switch** (_FIter, _FIter, _Predicate, const _Tp &, _IterTag)
- template<typename _RAIter , typename _Predicate , typename _Tp >
  void **__replace_if_switch** (_RAIter __begin, _RAIter __end, _Predicate __pred, const _Tp &__new_value, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_balanced)

- template<typename _FIterator , typename _Predicate , typename _Tp , typename _IteratorTag >
  void **__replace_if_switch** (_FIterator __begin, _FIterator __end, _Predicate __pred, const _Tp &__new_value, _IteratorTag)
- template<typename _FIter , typename _Tp , typename _IterTag >
  void **__replace_switch** (_FIter, _FIter, const _Tp &, const _Tp &, _IterTag)
- template<typename _RAIter , typename _Tp >
  void **__replace_switch** (_RAIter __begin, _RAIter __end, const _Tp &__old_value, const _Tp &__new_value, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_balanced)
- template<typename _FIterator , typename _Tp , typename _IteratorTag >
  void **__replace_switch** (_FIterator __begin, _FIterator __end, const _Tp &__old_value, const _Tp &__new_value, _IteratorTag)
- template<typename _FIter , typename _Integer , typename _Tp , typename _BiPredicate , typename _IterTag >
  _FIter **__search_n_switch** (_FIter, _FIter, _Integer, const _Tp &, _BiPredicate, _IterTag)
- template<typename _RAIter , typename _Integer , typename _Tp , typename _BiPredicate >
  _RAIter **__search_n_switch** (_RAIter, _RAIter, _Integer, const _Tp &, _BiPredicate, random_access_iterator_tag)
- template<typename _FIterator , typename _Integer , typename _Tp , typename _BinaryPredicate , typename _IteratorTag >
  _FIterator **__search_n_switch** (_FIterator __begin, _FIterator __end, _Integer __count, const _Tp &__val, _BinaryPredicate __binary_pred, _IteratorTag)
- template<typename _RAIter , typename _Integer , typename _Tp , typename _BinaryPredicate >
  _RAIter **__search_n_switch** (_RAIter __begin, _RAIter __end, _Integer __count, const _Tp &__val, _BinaryPredicate __binary_pred, random_access_iterator_tag)
- template<typename _FIter1 , typename _FIter2 , typename _BiPredicate , typename _IterTag1 , typename _IterTag2 >
  _FIter1 **__search_switch** (_FIter1, _FIter1, _FIter2, _FIter2, _BiPredicate, _IterTag1, _IterTag2)
- template<typename _RAIter1 , typename _RAIter2 , typename _BiPredicate >
  _RAIter1 **__search_switch** (_RAIter1, _RAIter1, _RAIter2, _RAIter2, _BiPredicate, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _FIter1 , typename _FIter2 , typename _IterTag1 , typename _IterTag2 >
  _FIter1 **__search_switch** (_FIter1, _FIter1, _FIter2, _FIter2, _IterTag1, _IterTag2)
- template<typename _FIterator1 , typename _FIterator2 , typename _BinaryPredicate , typename _IteratorTag1 , typename _IteratorTag2 >
  _FIterator1 **__search_switch** (_FIterator1 __begin1, _FIterator1 __end1, _FIterator2 __begin2, _FIterator2 __end2, _BinaryPredicate __pred, _IteratorTag1, _IteratorTag2)
- template<typename _RAIter1 , typename _RAIter2 , typename _BinaryPredicate >
  _RAIter1 **__search_switch** (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _RAIter2 __end2, _BinaryPredicate __pred, random_access_iterator_tag, random_access_iterator_tag)

- template<typename _FIterator1 , typename _FIterator2 , typename _IteratorTag1 , typename _IteratorTag2 >
  _FIterator1 **__search_switch** (_FIterator1 __begin1, _FIterator1 __end1, _FIterator2 __begin2, _FIterator2 __end2, _IteratorTag1, _IteratorTag2)
- template<typename _RAIter1 , typename _RAIter2 >
  _RAIter1 **__search_switch** (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _RAIter2 __end2, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate , typename _OIter , typename _IterTag1 , typename _IterTag2 , typename _IterTag3 >
  _OIter **__set_difference_switch** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Predicate, _IterTag1, _IterTag2, _IterTag3)
- template<typename _RAIter1 , typename _RAIter2 , typename _Output_RAIter , typename _Predicate >
  _Output_RAIter **__set_difference_switch** (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _RAIter2 __end2, _Output_RAIter __result, _Predicate __pred, random_access_iterator_tag, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate , typename _OutputIterator , typename _IteratorTag1 , typename _IteratorTag2 , typename _IteratorTag3 >
  _OutputIterator **__set_difference_switch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __result, _Predicate __pred, _IteratorTag1, _IteratorTag2, _IteratorTag3)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate , typename _OIter , typename _IterTag1 , typename _IterTag2 , typename _IterTag3 >
  _OIter **__set_intersection_switch** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Predicate, _IterTag1, _IterTag2, _IterTag3)
- template<typename _RAIter1 , typename _RAIter2 , typename _Output_RAIter , typename _Predicate >
  _Output_RAIter **__set_intersection_switch** (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _RAIter2 __end2, _Output_RAIter __result, _Predicate __pred, random_access_iterator_tag, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate , typename _OutputIterator , typename _IteratorTag1 , typename _IteratorTag2 , typename _IteratorTag3 >
  _OutputIterator **__set_intersection_switch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __result, _Predicate __pred, _IteratorTag1, _IteratorTag2, _IteratorTag3)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate , typename _OIter , typename _IterTag1 , typename _IterTag2 , typename _IterTag3 >
  _OIter **__set_symmetric_difference_switch** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Predicate, _IterTag1, _IterTag2, _IterTag3)
- template<typename _RAIter1 , typename _RAIter2 , typename _Output_RAIter , typename _Predicate >

_Output_RAIter **__set_symmetric_difference_switch** (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _RAIter2 __end2, _Output_RAIter __result, _Predicate __pred, random_access_iterator_tag, random_access_iterator_tag, random_access_iterator_tag)

- template<typename _IIter1 , typename _IIter2 , typename _Predicate , typename _OutputIterator , typename _IteratorTag1 , typename _IteratorTag2 , typename _IteratorTag3 >
  _OutputIterator **__set_symmetric_difference_switch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __result, _Predicate __pred, _IteratorTag1, _IteratorTag2, _IteratorTag3)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate , typename _OIter , typename _IterTag1 , typename _IterTag2 , typename _IterTag3 >
  _OIter **__set_union_switch** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Predicate, _IterTag1, _IterTag2, _IterTag3)
- template<typename _RAIter1 , typename _RAIter2 , typename _Output_RAIter , typename _Predicate >
  _Output_RAIter **__set_union_switch** (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _RAIter2 __end2, _Output_RAIter __result, _Predicate __pred, random_access_iterator_tag, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate , typename _OutputIterator , typename _IteratorTag1 , typename _IteratorTag2 , typename _IteratorTag3 >
  _OutputIterator **__set_union_switch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __result, _Predicate __pred, _IteratorTag1, _IteratorTag2, _IteratorTag3)
- template<typename _RAIIter , typename _RAOIter , typename _UnaryOperation >
  _RAOIter **__transform1_switch** (_RAIIter, _RAIIter, _RAOIter, _UnaryOperation, random_access_iterator_tag, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism=__gnu_parallel::parallel_balanced)
- template<typename _IIter , typename _OIter , typename _UnaryOperation , typename _IterTag1 , typename _IterTag2 >
  _OIter **__transform1_switch** (_IIter, _IIter, _OIter, _UnaryOperation, _IterTag1, _IterTag2)
- template<typename _RAIter1 , typename _RAIter2 , typename _UnaryOperation , typename _IteratorTag1 , typename _IteratorTag2 >
  _RAIter2 **__transform1_switch** (_RAIter1 __begin, _RAIter1 __end, _RAIter2 __result, _UnaryOperation __unary_op, _IteratorTag1, _IteratorTag2)
- template<typename _RAIter1 , typename _RAIter2 , typename _UnaryOperation >
  _RAIter2 **__transform1_switch** (_RAIter1 __begin, _RAIter1 __end, _RAIter2 __result, _UnaryOperation __unary_op, random_access_iterator_tag, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_balanced)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _BiOperation , typename _Tag1 , typename _Tag2 , typename _Tag3 >
  _OIter **__transform2_switch** (_IIter1, _IIter1, _IIter2, _OIter, _BiOperation, _Tag1, _Tag2, _Tag3)

- template<typename _RAIter1 , typename _RAIter2 , typename _RAIter3 , typename _BiOperation >
  _RAIter3 **__transform2_switch** (_RAIter1, _RAIter1, _RAIter2, _RAIter3, _BiOperation, random_access_iterator_tag, random_access_iterator_tag, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism=__gnu_parallel::parallel_balanced)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _BinaryOperation , typename _Tag1 , typename _Tag2 , typename _Tag3 >
  _OutputIterator **__transform2_switch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _OutputIterator __result, _BinaryOperation __binary_op, _Tag1, _Tag2, _Tag3)
- template<typename _RAIter1 , typename _RAIter2 , typename _RAIter3 , typename _BinaryOperation >
  _RAIter3 **__transform2_switch** (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _RAIter3 __result, _BinaryOperation __binary_op, random_access_iterator_tag, random_access_iterator_tag, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_balanced)
- template<typename _RAIter , typename _RandomAccess_OIter , typename _Predicate >
  _RandomAccess_OIter **__unique_copy_switch** (_RAIter, _RAIter, _RandomAccess_OIter, _Predicate, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _IIter , typename _OIter , typename _Predicate , typename _IterTag1 , typename _IterTag2 >
  _OIter **__unique_copy_switch** (_IIter, _IIter, _OIter, _Predicate, _IterTag1, _IterTag2)
- template<typename _RAIter , typename RandomAccessOutputIterator , typename _Predicate >
  RandomAccessOutputIterator **__unique_copy_switch** (_RAIter __begin, _RAIter __last, RandomAccessOutputIterator __out, _Predicate __pred, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _IIter , typename _OutputIterator , typename _Predicate , typename _IteratorTag1 , typename _IteratorTag2 >
  _OutputIterator **__unique_copy_switch** (_IIter __begin, _IIter __last, _OutputIterator __out, _Predicate __pred, _IteratorTag1, _IteratorTag2)
- template<typename _IIter , typename _Tp , typename _BinaryOper >
  _Tp **accumulate** (_IIter, _IIter, _Tp, _BinaryOper, __gnu_parallel::_Parallelism)
- template<typename _IIter , typename _Tp , typename _BinaryOper >
  _Tp **accumulate** (_IIter, _IIter, _Tp, _BinaryOper, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _Tp , typename _BinaryOper >
  _Tp **accumulate** (_IIter, _IIter, _Tp, _BinaryOper)
- template<typename _IIter , typename _Tp , typename _BinaryOperation >
  _Tp **accumulate** (_IIter __begin, _IIter __end, _Tp __init, _BinaryOperation __binary_op)

- template<typename _IIter , typename _Tp , typename _BinaryOperation >
  _Tp **accumulate** (_IIter __begin, _IIter __end, _Tp __init, _BinaryOperation __binary_op, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _IIter , typename _Tp >
  _Tp **accumulate** (_IIter __begin, _IIter __end, _Tp __init)
- template<typename _IIter , typename _Tp >
  _Tp **accumulate** (_IIter __begin, _IIter __end, _Tp __init, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _IIter , typename _Tp , typename _BinaryOperation >
  _Tp **accumulate** (_IIter __begin, _IIter __end, _Tp __init, _BinaryOperation __binary_op, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _Tp >
  _Tp **accumulate** (_IIter __begin, _IIter __end, _Tp __init, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _OIter , typename _BinaryOper >
  _OIter **adjacent_difference** (_IIter, _IIter, _OIter, _BinaryOper, __gnu_parallel::_Parallelism)
- template<typename _IIter , typename _OIter >
  _OIter **adjacent_difference** (_IIter, _IIter, _OIter, __gnu_parallel::_Parallelism)
- template<typename _IIter , typename _OIter , typename _BinaryOper >
  _OIter **adjacent_difference** (_IIter, _IIter, _OIter, _BinaryOper, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _OIter >
  _OIter **adjacent_difference** (_IIter, _IIter, _OIter, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _OIter , typename _BinaryOper >
  _OIter **adjacent_difference** (_IIter, _IIter, _OIter, _BinaryOper)
- template<typename _IIter , typename _OIter >
  _OIter **adjacent_difference** (_IIter, _IIter, _OIter)
- template<typename _IIter , typename _OutputIterator , typename _BinaryOperation >
  _OutputIterator **adjacent_difference** (_IIter __begin, _IIter __end, _OutputIterator __result, _BinaryOperation __binary_op)
- template<typename _IIter , typename _OutputIterator , typename _BinaryOperation >
  _OutputIterator **adjacent_difference** (_IIter __begin, _IIter __end, _OutputIterator __result, _BinaryOperation __binary_op, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _IIter , typename _OutputIterator >
  _OutputIterator **adjacent_difference** (_IIter __begin, _IIter __end, _OutputIterator __result)
- template<typename _IIter , typename _OutputIterator >
  _OutputIterator **adjacent_difference** (_IIter __begin, _IIter __end, _OutputIterator __result, __gnu_parallel::_Parallelism __parallelism_tag)

- template<typename _IIter , typename _OutputIterator , typename _BinaryOperation > _OutputIterator **adjacent_difference** (_IIter __begin, _IIter __end, _OutputIterator __result, _BinaryOperation __bin_op, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _OutputIterator > _OutputIterator **adjacent_difference** (_IIter __begin, _IIter __end, _OutputIterator __result, __gnu_parallel::sequential_tag)
- template<typename _FIter , typename _BiPredicate > _FIter **adjacent_find** (_FIter, _FIter, _BiPredicate, __gnu_parallel::sequential_tag)
- template<typename _FIter , typename _BiPredicate > _FIter **adjacent_find** (_FIter, _FIter, _BiPredicate)
- template<typename _FIter > _FIter **adjacent_find** (_FIter, _FIter, __gnu_parallel::sequential_tag)
- template<typename _FIter > _FIter **adjacent_find** (_FIter, _FIter)
- template<typename _FIterator , typename _BinaryPredicate > _FIterator **adjacent_find** (_FIterator __begin, _FIterator __end, _BinaryPredicate __pred)
- template<typename _FIterator > _FIterator **adjacent_find** (_FIterator __begin, _FIterator __end)
- template<typename _FIterator , typename _BinaryPredicate > _FIterator **adjacent_find** (_FIterator __begin, _FIterator __end, _BinaryPredicate __binary_pred, __gnu_parallel::sequential_tag)
- template<typename _FIterator > _FIterator **adjacent_find** (_FIterator __begin, _FIterator __end, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _Tp > iterator_traits< _IIter >::difference_type **count** (_IIter __begin, _IIter __end, const _Tp &__value)
- template<typename _IIter , typename _Tp > iterator_traits< _IIter >::difference_type **count** (_IIter __begin, _IIter __end, const _Tp &__value, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _IIter , typename _Tp > iterator_traits< _IIter >::difference_type **count** (_IIter __begin, _IIter __end, const _Tp &__value, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _Predicate > iterator_traits< _IIter >::difference_type **count_if** (_IIter __begin, _IIter __end, _Predicate __pred)
- template<typename _IIter , typename _Predicate > iterator_traits< _IIter >::difference_type **count_if** (_IIter __begin, _IIter __end, _Predicate __pred, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _IIter , typename _Predicate > iterator_traits< _IIter >::difference_type **count_if** (_IIter __begin, _IIter __end, _Predicate __pred, __gnu_parallel::sequential_tag)

- template<typename _IIter1 , typename _IIter2 , typename _Predicate >
  bool **equal** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _Predicate __pred)
- template<typename _IIter1 , typename _IIter2 >
  bool **equal** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate >
  bool **equal** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _Predicate __pred, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 >
  bool **equal** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _Tp >
  _IIter **find** (_IIter __begin, _IIter __end, const _Tp &__val)
- template<typename _IIter , typename _Tp >
  _IIter **find** (_IIter __begin, _IIter __end, const _Tp &__val, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _FIter >
  _IIter **find_first_of** (_IIter, _IIter, _FIter, _FIter)
- template<typename _IIter , typename _FIter , typename _BiPredicate >
  _IIter **find_first_of** (_IIter, _IIter, _FIter, _FIter, _BiPredicate)
- template<typename _IIter , typename _FIter , typename _BiPredicate >
  _IIter **find_first_of** (_IIter, _IIter, _FIter, _FIter, _BiPredicate, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _FIter >
  _IIter **find_first_of** (_IIter, _IIter, _FIter, _FIter, __gnu_parallel::sequential_tag)

- template<typename _IIter , typename _FIterator >
  _IIter **find_first_of** (_IIter __begin1, _IIter __end1, _FIterator __begin2, _FIterator __end2)
- template<typename _IIter , typename _FIterator , typename _BinaryPredicate >
  _IIter **find_first_of** (_IIter __begin1, _IIter __end1, _FIterator __begin2, _FIterator __end2, _BinaryPredicate __comp)
- template<typename _IIter , typename _FIterator , typename _BinaryPredicate >
  _IIter **find_first_of** (_IIter __begin1, _IIter __end1, _FIterator __begin2, _FIterator __end2, _BinaryPredicate __comp, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _FIterator >
  _IIter **find_first_of** (_IIter __begin1, _IIter __end1, _FIterator __begin2, _FIterator __end2, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _Predicate >
  _IIter **find_if** (_IIter __begin, _IIter __end, _Predicate __pred)
- template<typename _IIter , typename _Predicate >
  _IIter **find_if** (_IIter __begin, _IIter __end, _Predicate __pred, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _Function >
  _Function **for_each** (_IIter, _IIter, _Function)

- template<typename _Iterator , typename _Function >
  _Function **for_each** (_Iterator __begin, _Iterator __end, _Function __f)
- template<typename _Iterator , typename _Function >
  _Function **for_each** (_Iterator __begin, _Iterator __end, _Function __f, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _IIter , typename _Function >
  _Function **for_each** (_IIter __begin, _IIter __end, _Function __f, __gnu_parallel::sequential_tag)
- template<typename _FIter , typename _Generator >
  void **generate** (_FIter, _FIter, _Generator, __gnu_parallel::_Parallelism)
- template<typename _FIter , typename _Generator >
  void **generate** (_FIter, _FIter, _Generator, __gnu_parallel::sequential_tag)
- template<typename _FIter , typename _Generator >
  void **generate** (_FIter, _FIter, _Generator)
- template<typename _FIterator , typename _Generator >
  void **generate** (_FIterator __begin, _FIterator __end, _Generator __gen)
- template<typename _FIterator , typename _Generator >
  void **generate** (_FIterator __begin, _FIterator __end, _Generator __gen, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _FIterator , typename _Generator >
  void **generate** (_FIterator __begin, _FIterator __end, _Generator __gen, __gnu_parallel::sequential_tag)
- template<typename _OIter , typename _Size , typename _Generator >
  _OIter **generate_n** (_OIter, _Size, _Generator, __gnu_parallel::_Parallelism)
- template<typename _OIter , typename _Size , typename _Generator >
  _OIter **generate_n** (_OIter, _Size, _Generator, __gnu_parallel::sequential_tag)
- template<typename _OIter , typename _Size , typename _Generator >
  _OIter **generate_n** (_OIter, _Size, _Generator)
- template<typename _OutputIterator , typename _Size , typename _Generator >
  _OutputIterator **generate_n** (_OutputIterator __begin, _Size __n, _Generator __gen)
- template<typename _OutputIterator , typename _Size , typename _Generator >
  _OutputIterator **generate_n** (_OutputIterator __begin, _Size __n, _Generator __gen, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _OutputIterator , typename _Size , typename _Generator >
  _OutputIterator **generate_n** (_OutputIterator __begin, _Size __n, _Generator __gen, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Tp , typename BinaryFunction1 , typename BinaryFunction2 >
  _Tp **inner_product** (_IIter1, _IIter1, _IIter2, _Tp, BinaryFunction1, BinaryFunction2, __gnu_parallel::_Parallelism)
- template<typename _IIter1 , typename _IIter2 , typename _Tp >
  _Tp **inner_product** (_IIter1 __first1, _IIter1 __last1, _IIter2 __first2, _Tp __init)

- template<typename _IIter1 , typename _IIter2 , typename _Tp >
  _Tp **inner_product** (_IIter1 __first1, _IIter1 __last1, _IIter2 __first2, _Tp __init, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Tp , typename _BinaryFunction1 , typename _BinaryFunction2 >
  _Tp **inner_product** (_IIter1 __first1, _IIter1 __last1, _IIter2 __first2, _Tp __init, _BinaryFunction1 __binary_op1, _BinaryFunction2 __binary_op2)
- template<typename _IIter1 , typename _IIter2 , typename _Tp , typename _BinaryFunction1 , typename _BinaryFunction2 >
  _Tp **inner_product** (_IIter1 __first1, _IIter1 __last1, _IIter2 __first2, _Tp __init, _BinaryFunction1 __binary_op1, _BinaryFunction2 __binary_op2, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Tp , typename _BinaryFunction1 , typename _BinaryFunction2 >
  _Tp **inner_product** (_IIter1 __first1, _IIter1 __last1, _IIter2 __first2, _Tp __init, _BinaryFunction1 __binary_op1, _BinaryFunction2 __binary_op2, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Tp >
  _Tp **inner_product** (_IIter1 __first1, _IIter1 __last1, _IIter2 __first2, _Tp __init, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate >
  bool **lexicographical_compare** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _Predicate __pred)
- template<typename _IIter1 , typename _IIter2 >
  bool **lexicographical_compare** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate >
  bool **lexicographical_compare** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _Predicate __pred, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 >
  bool **lexicographical_compare** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, __gnu_parallel::sequential_tag)
- template<typename _FIter , typename _Compare >
  _FIter **max_element** (_FIter, _FIter, _Compare, __gnu_parallel::_Parallelism)
- template<typename _FIter , typename _Compare >
  _FIter **max_element** (_FIter, _FIter, _Compare, __gnu_parallel::sequential_tag)

- template<typename _FIter , typename _Compare >
  _FIter **max_element** (_FIter, _FIter, _Compare)
- template<typename _FIter >
  _FIter **max_element** (_FIter, _FIter, __gnu_parallel::_Parallelism)
- template<typename _FIter >
  _FIter **max_element** (_FIter, _FIter, __gnu_parallel::sequential_tag)
- template<typename _FIter >
  _FIter **max_element** (_FIter, _FIter)

- template<typename _FIterator , typename _Compare >
  _FIterator **max_element** (_FIterator __begin, _FIterator __end, _Compare __comp)
- template<typename _FIterator , typename _Compare >
  _FIterator **max_element** (_FIterator __begin, _FIterator __end, _Compare __comp, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _FIterator >
  _FIterator **max_element** (_FIterator __begin, _FIterator __end)
- template<typename _FIterator >
  _FIterator **max_element** (_FIterator __begin, _FIterator __end, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _FIterator , typename _Compare >
  _FIterator **max_element** (_FIterator __begin, _FIterator __end, _Compare __comp, __gnu_parallel::sequential_tag)
- template<typename _FIterator >
  _FIterator **max_element** (_FIterator __begin, _FIterator __end, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OIter >
  _OIter **merge** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Compare >
  _OIter **merge** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Compare)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Compare >
  _OIter **merge** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Compare, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OIter >
  _OIter **merge** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator >
  _OutputIterator **merge** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __result)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _Compare >
  _OutputIterator **merge** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __result, _Compare __comp)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _Compare >
  _OutputIterator **merge** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __result, _Compare __comp, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator >
  _OutputIterator **merge** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __result, __gnu_parallel::sequential_tag)
- template<typename _FIter , typename _Compare >
  _FIter **min_element** (_FIter, _FIter, _Compare, __gnu_parallel::_Parallelism)
- template<typename _FIter , typename _Compare >
  _FIter **min_element** (_FIter, _FIter, _Compare, __gnu_parallel::sequential_tag)

- template<typename _FIter , typename _Compare >
  _FIter **min_element** (_FIter, _FIter, _Compare)
- template<typename _FIter >
  _FIter **min_element** (_FIter, _FIter, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _FIter >
  _FIter **min_element** (_FIter, _FIter, __gnu_parallel::sequential_tag)
- template<typename _FIter >
  _FIter **min_element** (_FIter, _FIter)
- template<typename _FIterator , typename _Compare >
  _FIterator **min_element** (_FIterator __begin, _FIterator __end, _Compare __comp)
- template<typename _FIterator , typename _Compare >
  _FIterator **min_element** (_FIterator __begin, _FIterator __end, _Compare __comp, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _FIterator >
  _FIterator **min_element** (_FIterator __begin, _FIterator __end)
- template<typename _FIterator >
  _FIterator **min_element** (_FIterator __begin, _FIterator __end, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _FIterator , typename _Compare >
  _FIterator **min_element** (_FIterator __begin, _FIterator __end, _Compare __comp, __gnu_parallel::sequential_tag)
- template<typename _FIterator >
  _FIterator **min_element** (_FIterator __begin, _FIterator __end, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate >
  pair< _IIter1, _IIter2 > **mismatch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _Predicate __pred)
- template<typename _IIter1 , typename _IIter2 >
  pair< _IIter1, _IIter2 > **mismatch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate >
  pair< _IIter1, _IIter2 > **mismatch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _Predicate __pred, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 >
  pair< _IIter1, _IIter2 > **mismatch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, __gnu_parallel::sequential_tag)
- template<typename _RAIter >
  void **nth_element** (_RAIter __begin, _RAIter __nth, _RAIter __end)
- template<typename _RAIter , typename _Compare >
  void **nth_element** (_RAIter __begin, _RAIter __nth, _RAIter __end, _Compare __comp)

- template<typename _RAIter , typename _Compare >
  void **nth_element** (_RAIter __begin, _RAIter __nth, _RAIter __end, _Compare __comp, __gnu_parallel::sequential_tag)
- template<typename _RAIter >
  void **nth_element** (_RAIter __begin, _RAIter __nth, _RAIter __end, __gnu_parallel::sequential_tag)
- template<typename _RAIter >
  void **partial_sort** (_RAIter __begin, _RAIter __middle, _RAIter __end)
- template<typename _RAIter , typename _Compare >
  void **partial_sort** (_RAIter __begin, _RAIter __middle, _RAIter __end, _Compare __comp)
- template<typename _RAIter >
  void **partial_sort** (_RAIter __begin, _RAIter __middle, _RAIter __end, __gnu_parallel::sequential_tag)
- template<typename _RAIter , typename _Compare >
  void **partial_sort** (_RAIter __begin, _RAIter __middle, _RAIter __end, _Compare __comp, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _OIter , typename _BinaryOper >
  _OIter **partial_sum** (_IIter, _IIter, _OIter, _BinaryOper)
- template<typename _IIter , typename _OIter >
  _OIter **partial_sum** (_IIter, _IIter, _OIter __result)
- template<typename _IIter , typename _OIter , typename _BinaryOper >
  _OIter **partial_sum** (_IIter, _IIter, _OIter, _BinaryOper, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _OIter >
  _OIter **partial_sum** (_IIter, _IIter, _OIter, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _OutputIterator , typename _BinaryOperation >
  _OutputIterator **partial_sum** (_IIter __begin, _IIter __end, _OutputIterator __result, _BinaryOperation __binary_op)
- template<typename _IIter , typename _OutputIterator >
  _OutputIterator **partial_sum** (_IIter __begin, _IIter __end, _OutputIterator __result)
- template<typename _IIter , typename _OutputIterator , typename _BinaryOperation >
  _OutputIterator **partial_sum** (_IIter __begin, _IIter __end, _OutputIterator __result, _BinaryOperation __bin_op, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _OutputIterator >
  _OutputIterator **partial_sum** (_IIter __begin, _IIter __end, _OutputIterator __result, __gnu_parallel::sequential_tag)
- template<typename _FIter , typename _Predicate >
  _FIter **partition** (_FIter, _FIter, _Predicate)
- template<typename _FIter , typename _Predicate >
  _FIter **partition** (_FIter, _FIter, _Predicate, __gnu_parallel::sequential_tag)
- template<typename _FIterator , typename _Predicate >
  _FIterator **partition** (_FIterator __begin, _FIterator __end, _Predicate __pred)

- template<typename _FIterator , typename _Predicate >
  _FIterator **partition** (_FIterator __begin, _FIterator __end, _Predicate __pred, __gnu_parallel::sequential_tag)
- template<typename _RAIter , typename _RandomNumberGenerator >
  void **random_shuffle** (_RAIter __begin, _RAIter __end, _RandomNumberGenerator &__rand)
- template<typename _RAIter >
  void **random_shuffle** (_RAIter __begin, _RAIter __end)
- template<typename _RAIter , typename _RandomNumberGenerator >
  void **random_shuffle** (_RAIter __begin, _RAIter __end, _RandomNumberGenerator &__rand, __gnu_parallel::sequential_tag)
- template<typename _RAIter >
  void **random_shuffle** (_RAIter __begin, _RAIter __end, __gnu_parallel::sequential_tag)
- template<typename _FIter , typename _Tp >
  void **replace** (_FIter, _FIter, const _Tp &, const _Tp &, __gnu_parallel::_Parallelism)
- template<typename _FIter , typename _Tp >
  void **replace** (_FIter, _FIter, const _Tp &, const _Tp &, __gnu_parallel::sequential_tag)
- template<typename _FIter , typename _Tp >
  void **replace** (_FIter, _FIter, const _Tp &, const _Tp &)
- template<typename _FIterator , typename _Tp >
  void **replace** (_FIterator __begin, _FIterator __end, const _Tp &__old_value, const _Tp &__new_value)
- template<typename _FIterator , typename _Tp >
  void **replace** (_FIterator __begin, _FIterator __end, const _Tp &__old_value, const _Tp &__new_value, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _FIterator , typename _Tp >
  void **replace** (_FIterator __begin, _FIterator __end, const _Tp &__old_value, const _Tp &__new_value, __gnu_parallel::sequential_tag)
- template<typename _FIter , typename _Predicate , typename _Tp >
  void **replace_if** (_FIter, _FIter, _Predicate, const _Tp &, __gnu_parallel::_Parallelism)
- template<typename _FIter , typename _Predicate , typename _Tp >
  void **replace_if** (_FIter, _FIter, _Predicate, const _Tp &, __gnu_parallel::sequential_tag)
- template<typename _FIter , typename _Predicate , typename _Tp >
  void **replace_if** (_FIter, _FIter, _Predicate, const _Tp &)
- template<typename _FIterator , typename _Predicate , typename _Tp >
  void **replace_if** (_FIterator __begin, _FIterator __end, _Predicate __pred, const _Tp &__new_value)
- template<typename _FIterator , typename _Predicate , typename _Tp >
  void **replace_if** (_FIterator __begin, _FIterator __end, _Predicate __pred, const _Tp &__new_value, __gnu_parallel::_Parallelism __parallelism_tag)

- template<typename _FIterator , typename _Predicate , typename _Tp >
  void **replace_if** (_FIterator __begin, _FIterator __end, _Predicate __pred, const _Tp &__new_value, __gnu_parallel::sequential_tag)
- template<typename _FIter1 , typename _FIter2 , typename _BiPredicate >
  _FIter1 **search** (_FIter1, _FIter1, _FIter2, _FIter2, _BiPredicate)
- template<typename _FIter1 , typename _FIter2 , typename _BiPredicate >
  _FIter1 **search** (_FIter1, _FIter1, _FIter2, _FIter2, _BiPredicate, __gnu_parallel::sequential_tag)
- template<typename _FIter1 , typename _FIter2 >
  _FIter1 **search** (_FIter1, _FIter1, _FIter2, _FIter2)
- template<typename _FIter1 , typename _FIter2 >
  _FIter1 **search** (_FIter1, _FIter1, _FIter2, _FIter2, __gnu_parallel::sequential_tag)
- template<typename _FIterator1 , typename _FIterator2 , typename _BinaryPredicate >
  _FIterator1 **search** (_FIterator1 __begin1, _FIterator1 __end1, _FIterator2 __begin2, _FIterator2 __end2, _BinaryPredicate __pred)
- template<typename _FIterator1 , typename _FIterator2 , typename _BinaryPredicate >
  _FIterator1 **search** (_FIterator1 __begin1, _FIterator1 __end1, _FIterator2 __begin2, _FIterator2 __end2, _BinaryPredicate __pred, __gnu_parallel::sequential_tag)
- template<typename _FIterator1 , typename _FIterator2 >
  _FIterator1 **search** (_FIterator1 __begin1, _FIterator1 __end1, _FIterator2 __begin2, _FIterator2 __end2)
- template<typename _FIterator1 , typename _FIterator2 >
  _FIterator1 **search** (_FIterator1 __begin1, _FIterator1 __end1, _FIterator2 __begin2, _FIterator2 __end2, __gnu_parallel::sequential_tag)
- template<typename _FIter , typename _Integer , typename _Tp , typename _BiPredicate >
  _FIter **search_n** (_FIter, _FIter, _Integer, const _Tp &, _BiPredicate)
- template<typename _FIter , typename _Integer , typename _Tp >
  _FIter **search_n** (_FIter, _FIter, _Integer, const _Tp &)
- template<typename _FIter , typename _Integer , typename _Tp , typename _BiPredicate >
  _FIter **search_n** (_FIter, _FIter, _Integer, const _Tp &, _BiPredicate, __gnu_parallel::sequential_tag)
- template<typename _FIter , typename _Integer , typename _Tp >
  _FIter **search_n** (_FIter, _FIter, _Integer, const _Tp &, __gnu_parallel::sequential_tag)
- template<typename _FIterator , typename _Integer , typename _Tp , typename _BinaryPredicate >
  _FIterator **search_n** (_FIterator __begin, _FIterator __end, _Integer __count, const _Tp &__val, _BinaryPredicate __binary_pred)
- template<typename _FIterator , typename _Integer , typename _Tp >
  _FIterator **search_n** (_FIterator __begin, _FIterator __end, _Integer __count, const _Tp &__val)
- template<typename _FIterator , typename _Integer , typename _Tp , typename _BinaryPredicate >
  _FIterator **search_n** (_FIterator __begin, _FIterator __end, _Integer __count, const _Tp &__val, _BinaryPredicate __binary_pred, __gnu_parallel::sequential_tag)

- template<typename _FIterator , typename _Integer , typename _Tp >
  _FIterator **search_n** (_FIterator __begin, _FIterator __end, _Integer __count, const _Tp &__val, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Predicate >
  _OIter **set_difference** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Predicate)
- template<typename _IIter1 , typename _IIter2 , typename _OIter >
  _OIter **set_difference** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Predicate >
  _OIter **set_difference** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Predicate, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OIter >
  _OIter **set_difference** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _Predicate >
  _OutputIterator **set_difference** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out, _Predicate __pred)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator >
  _OutputIterator **set_difference** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _Predicate >
  _OutputIterator **set_difference** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out, _Predicate __pred, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator >
  _OutputIterator **set_difference** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out, __gnu_parallel::sequential_tag)

- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Predicate >
  _OIter **set_intersection** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Predicate)
- template<typename _IIter1 , typename _IIter2 , typename _OIter >
  _OIter **set_intersection** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Predicate >
  _OIter **set_intersection** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Predicate, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OIter >
  _OIter **set_intersection** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _Predicate >
  _OutputIterator **set_intersection** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out, _Predicate __pred)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator >
  _OutputIterator **set_intersection** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out)

- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _Predicate > _OutputIterator **set_intersection** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out, _Predicate __pred, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator > _OutputIterator **set_intersection** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Predicate > _OIter **set_symmetric_difference** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Predicate)
- template<typename _IIter1 , typename _IIter2 , typename _OIter > _OIter **set_symmetric_difference** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Predicate > _OIter **set_symmetric_difference** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Predicate, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OIter > _OIter **set_symmetric_difference** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _Predicate > _OutputIterator **set_symmetric_difference** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out, _Predicate __pred)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator > _OutputIterator **set_symmetric_difference** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _Predicate > _OutputIterator **set_symmetric_difference** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out, _Predicate __pred, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator > _OutputIterator **set_symmetric_difference** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Predicate > _OIter **set_union** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Predicate)
- template<typename _IIter1 , typename _IIter2 , typename _OIter > _OIter **set_union** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Predicate > _OIter **set_union** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Predicate, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OIter > _OIter **set_union** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, __gnu_parallel::sequential_tag)

- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _Predicate > _OutputIterator **set_union** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out, _Predicate __pred)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator > _OutputIterator **set_union** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _Predicate > _OutputIterator **set_union** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out, _Predicate __pred, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator > _OutputIterator **set_union** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out, __gnu_parallel::sequential_tag)
- template<typename _RAIter , typename _Compare > void **sort** (_RAIter __begin, _RAIter __end, _Compare __comp)
- template<typename _RAIter > void **sort** (_RAIter __begin, _RAIter __end, __gnu_parallel::balanced_quicksort_tag __parallelism)
- template<typename _RAIter > void **sort** (_RAIter __begin, _RAIter __end, __gnu_parallel::quicksort_tag __parallelism)
- template<typename _RAIter > void **sort** (_RAIter __begin, _RAIter __end, __gnu_parallel::multiway_mergesort_exact_tag __parallelism)
- template<typename _RAIter > void **sort** (_RAIter __begin, _RAIter __end, __gnu_parallel::multiway_mergesort_sampling_tag __parallelism)
- template<typename _RAIter > void **sort** (_RAIter __begin, _RAIter __end, __gnu_parallel::multiway_mergesort_tag __parallelism)
- template<typename _RAIter > void **sort** (_RAIter __begin, _RAIter __end, __gnu_parallel::parallel_tag __parallelism)
- template<typename _RAIter > void **sort** (_RAIter __begin, _RAIter __end, __gnu_parallel::default_parallel_tag __parallelism)
- template<typename _RAIter > void **sort** (_RAIter __begin, _RAIter __end)
- template<typename _RAIter , typename _Compare , typename _Parallelism > void **sort** (_RAIter __begin, _RAIter __end, _Compare __comp, _Parallelism __parallelism)
- template<typename _RAIter , typename _Compare > void **sort** (_RAIter __begin, _RAIter __end, _Compare __comp, __gnu_parallel::sequential_tag)

- template<typename _RAIter >
  void **sort** (_RAIter __begin, _RAIter __end, __gnu_parallel::sequential_tag)
- template<typename _RAIter , typename _Compare >
  void **stable_sort** (_RAIter __begin, _RAIter __end, _Compare __comp)
- template<typename _RAIter >
  void **stable_sort** (_RAIter __begin, _RAIter __end, __gnu_parallel::balanced_quicksort_tag __parallelism)
- template<typename _RAIter >
  void **stable_sort** (_RAIter __begin, _RAIter __end, __gnu_parallel::quicksort_tag __parallelism)
- template<typename _RAIter >
  void **stable_sort** (_RAIter __begin, _RAIter __end, __gnu_parallel::multiway_mergesort_tag __parallelism)
- template<typename _RAIter >
  void **stable_sort** (_RAIter __begin, _RAIter __end, __gnu_parallel::parallel_tag __parallelism)
- template<typename _RAIter >
  void **stable_sort** (_RAIter __begin, _RAIter __end, __gnu_parallel::default_parallel_tag __parallelism)
- template<typename _RAIter >
  void **stable_sort** (_RAIter __begin, _RAIter __end)
- template<typename _RAIter , typename _Compare , typename _Parallelism >
  void **stable_sort** (_RAIter __begin, _RAIter __end, _Compare __comp, _Parallelism __parallelism)
- template<typename _RAIter , typename _Compare >
  void **stable_sort** (_RAIter __begin, _RAIter __end, _Compare __comp, __gnu_parallel::sequential_tag)
- template<typename _RAIter >
  void **stable_sort** (_RAIter __begin, _RAIter __end, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _BiOperation >
  _OIter **transform** (_IIter1, _IIter1, _IIter2, _OIter, _BiOperation, __gnu_parallel::_Parallelism)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _BiOperation >
  _OIter **transform** (_IIter1, _IIter1, _IIter2, _OIter, _BiOperation, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _BiOperation >
  _OIter **transform** (_IIter1, _IIter1, _IIter2, _OIter, _BiOperation)
- template<typename _IIter , typename _OIter , typename _UnaryOperation >
  _OIter **transform** (_IIter, _IIter, _OIter, _UnaryOperation, __gnu_parallel::_Parallelism)
- template<typename _IIter , typename _OIter , typename _UnaryOperation >
  _OIter **transform** (_IIter, _IIter, _OIter, _UnaryOperation, __gnu_parallel::sequential_tag)

- template<typename _IIter , typename _OIter , typename _UnaryOperation >
  _OIter **transform** (_IIter, _IIter, _OIter, _UnaryOperation)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _-BinaryOperation >
  _OutputIterator **transform** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _OutputIterator __result, _BinaryOperation __binary_op)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _-BinaryOperation >
  _OutputIterator **transform** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _OutputIterator __result, _BinaryOperation __binary_op, __gnu_parallel::_-Parallelism __parallelism_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _-BinaryOperation >
  _OutputIterator **transform** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __-begin2, _OutputIterator __result, _BinaryOperation __binary_op, __gnu_-parallel::sequential_tag)
- template<typename _IIter , typename _OutputIterator , typename _UnaryOperation >
  _OutputIterator **transform** (_IIter __begin, _IIter __end, _OutputIterator __-result, _UnaryOperation __unary_op)
- template<typename _IIter , typename _OutputIterator , typename _UnaryOperation >
  _OutputIterator **transform** (_IIter __begin, _IIter __end, _OutputIterator __result, _UnaryOperation __unary_op, __gnu_parallel::_Parallelism __-parallelism_tag)
- template<typename _IIter , typename _OutputIterator , typename _UnaryOperation >
  _OutputIterator **transform** (_IIter __begin, _IIter __end, _OutputIterator __-result, _UnaryOperation __unary_op, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _OIter , typename _Predicate >
  _OIter **unique_copy** (_IIter, _IIter, _OIter, _Predicate)
- template<typename _IIter , typename _OIter >
  _OIter **unique_copy** (_IIter, _IIter, _OIter)
- template<typename _IIter , typename _OIter , typename _Predicate >
  _OIter **unique_copy** (_IIter, _IIter, _OIter, _Predicate, __gnu_-parallel::sequential_tag)
- template<typename _IIter , typename _OIter >
  _OIter **unique_copy** (_IIter, _IIter, _OIter, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _OutputIterator , typename _Predicate >
  _OutputIterator **unique_copy** (_IIter __begin1, _IIter __end1, _OutputIterator __out, _Predicate __pred)
- template<typename _IIter , typename _OutputIterator >
  _OutputIterator **unique_copy** (_IIter __begin1, _IIter __end1, _OutputIterator __out)
- template<typename _IIter , typename _OutputIterator , typename _Predicate >
  _OutputIterator **unique_copy** (_IIter __begin1, _IIter __end1, _OutputIterator __out, _Predicate __pred, __gnu_parallel::sequential_tag)

- template<typename _IIter , typename _OutputIterator >
  _OutputIterator **unique_copy** (_IIter __begin1, _IIter __end1, _OutputIterator __out, __gnu_parallel::sequential_tag)

4.14.1 Detailed Description

GNU parallel code, replaces standard behavior with parallel behavior.

4.15 std::__profile Namespace Reference

GNU profile code, replaces standard behavior with profile behavior.

Classes

- class bitset

  Class std::bitset wrapper with performance instrumentation.

- class deque

  Class std::deque wrapper with performance instrumentation.

- class list

  List wrapper with performance instrumentation.

- class map

  Class std::map wrapper with performance instrumentation.

- class multimap

  Class std::multimap wrapper with performance instrumentation.

- class multiset

  Class std::multiset wrapper with performance instrumentation.

- class set

  Class std::set wrapper with performance instrumentation.

- class unordered_map

  Class std::unordered_map wrapper with performance instrumentation.

- class unordered_multimap

  Class std::unordered_multimap wrapper with performance instrumentation.

- class unordered_multiset

  Unordered_multiset wrapper with performance instrumentation.

- class unordered_set

  Unordered_set wrapper with performance instrumentation.

Functions

- template<typename _Key , typename _Compare , typename _Allocator >
bool **operator!=** (const set< _Key, _Compare, _Allocator > &__lhs, const set< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
bool **operator!=** (const multiset< _Key, _Compare, _Allocator > &__lhs, const multiset< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
bool **operator!=** (const multimap< _Key, _Tp, _Compare, _Allocator > &__lhs, const multimap< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
bool **operator!=** (const map< _Key, _Tp, _Compare, _Allocator > &__lhs, const map< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Iterator , typename _Sequence >
bool **operator!=** (const __iterator_tracker< _Iterator, _Sequence > &__lhs, const __iterator_tracker< _Iterator, _Sequence > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Sequence >
bool **operator!=** (const __iterator_tracker< _IteratorL, _Sequence > &__lhs, const __iterator_tracker< _IteratorR, _Sequence > &__rhs)
- template<typename _Tp , typename _Alloc >
bool **operator!=** (const vector< _Tp, _Alloc > &__lhs, const vector< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
bool **operator!=** (const list< _Tp, _Alloc > &__lhs, const list< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
bool **operator!=** (const deque< _Tp, _Alloc > &__lhs, const deque< _Tp, _Alloc > &__rhs)
- template<size_t _Nb>
bitset< _Nb > **operator&** (const bitset< _Nb > &__x, const bitset< _Nb > &__y)
- template<typename _Iterator , typename _Sequence >
__iterator_tracker< _Iterator, _Sequence > **operator+** (typename __iterator_tracker< _Iterator, _Sequence >::difference_type __n, const __iterator_tracker< _Iterator, _Sequence > &__i)
- template<typename _Iterator , typename _Sequence >
__iterator_tracker< _Iterator, _Sequence >::difference_type **operator-** (const __iterator_tracker< _Iterator, _Sequence > &__lhs, const __iterator_tracker< _Iterator, _Sequence > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Sequence >
__iterator_tracker< _IteratorL, _Sequence >::difference_type **operator-** (const __iterator_tracker< _IteratorL, _Sequence > &__lhs, const __iterator_tracker< _IteratorR, _Sequence > &__rhs)

- template<typename _Key , typename _Compare , typename _Allocator >
  bool **operator**< (const set< _Key, _Compare, _Allocator > &__lhs, const set< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **operator**< (const multiset< _Key, _Compare, _Allocator > &__lhs, const multiset< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **operator**< (const multimap< _Key, _Tp, _Compare, _Allocator > &__lhs, const multimap< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **operator**< (const map< _Key, _Tp, _Compare, _Allocator > &__lhs, const map< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Iterator , typename _Sequence >
  bool **operator**< (const __iterator_tracker< _Iterator, _Sequence > &__lhs, const __iterator_tracker< _Iterator, _Sequence > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Sequence >
  bool **operator**< (const __iterator_tracker< _IteratorL, _Sequence > &__lhs, const __iterator_tracker< _IteratorR, _Sequence > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator**< (const vector< _Tp, _Alloc > &__lhs, const vector< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator**< (const list< _Tp, _Alloc > &__lhs, const list< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator**< (const deque< _Tp, _Alloc > &__lhs, const deque< _Tp, _Alloc > &__rhs)
- template<typename _CharT , typename _Traits , size_t _Nb>
  std::basic_ostream< _CharT, _Traits > & **operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const bitset< _Nb > &__x)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **operator**<= (const set< _Key, _Compare, _Allocator > &__lhs, const set< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **operator**<= (const multiset< _Key, _Compare, _Allocator > &__lhs, const multiset< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **operator**<= (const multimap< _Key, _Tp, _Compare, _Allocator > &__lhs, const multimap< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **operator**<= (const map< _Key, _Tp, _Compare, _Allocator > &__lhs, const map< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Iterator , typename _Sequence >
  bool **operator**<= (const __iterator_tracker< _Iterator, _Sequence > &__lhs, const __iterator_tracker< _Iterator, _Sequence > &__rhs)

- template<typename _IteratorL , typename _IteratorR , typename _Sequence >
  bool **operator<=** (const __iterator_tracker< _IteratorL, _Sequence > &__lhs, const __iterator_tracker< _IteratorR, _Sequence > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator<=** (const vector< _Tp, _Alloc > &__lhs, const vector< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator<=** (const list< _Tp, _Alloc > &__lhs, const list< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator<=** (const deque< _Tp, _Alloc > &__lhs, const deque< _Tp, _Alloc > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **operator==** (const set< _Key, _Compare, _Allocator > &__lhs, const set< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **operator==** (const multiset< _Key, _Compare, _Allocator > &__lhs, const multiset< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **operator==** (const multimap< _Key, _Tp, _Compare, _Allocator > &__lhs, const multimap< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **operator==** (const map< _Key, _Tp, _Compare, _Allocator > &__lhs, const map< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Iterator , typename _Sequence >
  bool **operator==** (const __iterator_tracker< _Iterator, _Sequence > &__lhs, const __iterator_tracker< _Iterator, _Sequence > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Sequence >
  bool **operator==** (const __iterator_tracker< _IteratorL, _Sequence > &__lhs, const __iterator_tracker< _IteratorR, _Sequence > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator==** (const vector< _Tp, _Alloc > &__lhs, const vector< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator==** (const list< _Tp, _Alloc > &__lhs, const list< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator==** (const deque< _Tp, _Alloc > &__lhs, const deque< _Tp, _Alloc > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **operator>** (const set< _Key, _Compare, _Allocator > &__lhs, const set< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **operator>** (const multiset< _Key, _Compare, _Allocator > &__lhs, const multiset< _Key, _Compare, _Allocator > &__rhs)

- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **operator**> (const multimap< _Key, _Tp, _Compare, _Allocator > &__lhs, const multimap< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **operator**> (const map< _Key, _Tp, _Compare, _Allocator > &__lhs, const map< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Iterator , typename _Sequence >
  bool **operator**> (const __iterator_tracker< _Iterator, _Sequence > &__lhs, const __iterator_tracker< _Iterator, _Sequence > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Sequence >
  bool **operator**> (const __iterator_tracker< _IteratorL, _Sequence > &__lhs, const __iterator_tracker< _IteratorR, _Sequence > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator**> (const vector< _Tp, _Alloc > &__lhs, const vector< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator**> (const list< _Tp, _Alloc > &__lhs, const list< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator**> (const deque< _Tp, _Alloc > &__lhs, const deque< _Tp, _Alloc > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **operator**>= (const set< _Key, _Compare, _Allocator > &__lhs, const set< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **operator**>= (const multiset< _Key, _Compare, _Allocator > &__lhs, const multiset< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **operator**>= (const multimap< _Key, _Tp, _Compare, _Allocator > &__lhs, const multimap< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **operator**>= (const map< _Key, _Tp, _Compare, _Allocator > &__lhs, const map< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Iterator , typename _Sequence >
  bool **operator**>= (const __iterator_tracker< _Iterator, _Sequence > &__lhs, const __iterator_tracker< _Iterator, _Sequence > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Sequence >
  bool **operator**>= (const __iterator_tracker< _IteratorL, _Sequence > &__lhs, const __iterator_tracker< _IteratorR, _Sequence > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator**>= (const vector< _Tp, _Alloc > &__lhs, const vector< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **operator**>= (const list< _Tp, _Alloc > &__lhs, const list< _Tp, _Alloc > &__rhs)

- template<typename _Tp , typename _Alloc >
  bool **operator>=** (const deque< _Tp, _Alloc > &__lhs, const deque< _Tp, _Alloc > &__rhs)
- template<typename _CharT , typename _Traits , size_t _Nb>
  std::basic_istream< _CharT, _Traits > & **operator>>** (std::basic_istream< _CharT, _Traits > &__is, bitset< _Nb > &__x)
- template<size_t _Nb>
  bitset< _Nb > **operator^** (const bitset< _Nb > &__x, const bitset< _Nb > &__y)
- template<size_t _Nb>
  bitset< _Nb > **operator|** (const bitset< _Nb > &__x, const bitset< _Nb > &__y)
- template<typename _Key , typename _Compare , typename _Allocator >
  void **swap** (set< _Key, _Compare, _Allocator > &__x, set< _Key, _Compare, _Allocator > &__y)
- template<typename _Key , typename _Compare , typename _Allocator >
  void **swap** (multiset< _Key, _Compare, _Allocator > &__x, multiset< _Key, _Compare, _Allocator > &__y)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  void **swap** (multimap< _Key, _Tp, _Compare, _Allocator > &__lhs, multimap< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  void **swap** (map< _Key, _Tp, _Compare, _Allocator > &__lhs, map< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Tp , typename _Alloc >
  void **swap** (vector< _Tp, _Alloc > &__lhs, vector< _Tp, _Alloc > &&__rhs)
- template<typename _Tp , typename _Alloc >
  void **swap** (vector< _Tp, _Alloc > &&__lhs, vector< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  void **swap** (vector< _Tp, _Alloc > &__lhs, vector< _Tp, _Alloc > &__rhs)
- template<typename _Value , typename _Hash , typename _Pred , typename _Alloc >
  void **swap** (unordered_multiset< _Value, _Hash, _Pred, _Alloc > &__x, unordered_multiset< _Value, _Hash, _Pred, _Alloc > &__y)
- template<typename _Value , typename _Hash , typename _Pred , typename _Alloc >
  void **swap** (unordered_set< _Value, _Hash, _Pred, _Alloc > &__x, unordered_set< _Value, _Hash, _Pred, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Hash , typename _Pred , typename _Alloc >
  void **swap** (unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc > &__x, unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Hash , typename _Pred , typename _Alloc >
  void **swap** (unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc > &__x, unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc > &__y)

- template<typename _Tp , typename _Alloc >
  void **swap** (list< _Tp, _Alloc > &__lhs, list< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  void **swap** (deque< _Tp, _Alloc > &__lhs, deque< _Tp, _Alloc > &__rhs)

4.15.1 Detailed Description

GNU profile code, replaces standard behavior with profile behavior.

4.16 std::chrono Namespace Reference

ISO C++ 0x entities sub namespace for time and date.

Classes

- struct duration

  duration

- struct duration_values

  duration_values

- struct system_clock

  system_clock

- struct time_point

  time_point

- struct treat_as_floating_point

  treat_as_floating_point

Typedefs

- typedef system_clock **high_resolution_clock**
- typedef duration< int, ratio< 3600 > > hours
- typedef duration< int64_t, micro > microseconds
- typedef duration< int64_t, milli > milliseconds
- typedef duration< int, ratio< 60 > > minutes
- typedef system_clock **monotonic_clock**
- typedef duration< int64_t, nano > nanoseconds
- typedef duration< int64_t > seconds

Functions

- template<typename _ToDuration , typename _Rep , typename _Period >
  enable_if< __is_duration< _ToDuration >::value, _ToDuration >::type duration_cast (const duration< _Rep, _Period > &__d)
- template<typename _Clock , typename _Duration1 , typename _Duration2 >
  bool **operator!=** (const time_point< _Clock, _Duration1 > &__lhs, const time_point< _Clock, _Duration2 > &__rhs)

- template<typename _Rep1 , typename _Period1 , typename _Rep2 , typename _Period2 > bool **operator!=** (const duration< _Rep1, _Period1 > &__lhs, const duration< _Rep2, _Period2 > &__rhs)
- template<typename _Rep1 , typename _Period1 , typename _Rep2 , typename _Period2 > common_type< duration< _Rep1, _Period1 >, duration< _Rep2, _Period2 > >::type **operator%** (const duration< _Rep1, _Period1 > &__lhs, const duration< _Rep2, _Period2 > &__rhs)
- template<typename _Rep1 , typename _Period , typename _Rep2 > duration< typename __common_rep_type< _Rep1, typename enable_if<!__is_duration< _Rep2 >::value, _Rep2 >::type >::type, _Period > **operator%** (const duration< _Rep1, _Period > &__d, const _Rep2 &__s)
- template<typename _Rep1 , typename _Period , typename _Rep2 > duration< typename __common_rep_type< _Rep2, _Rep1 >::type, _Period > **operator*** (const _Rep1 &__s, const duration< _Rep2, _Period > &__d)
- template<typename _Rep1 , typename _Period , typename _Rep2 > duration< typename __common_rep_type< _Rep1, _Rep2 >::type, _Period > **operator*** (const duration< _Rep1, _Period > &__d, const _Rep2 &__s)
- template<typename _Rep1 , typename _Period1 , typename _Clock , typename _Duration2 > time_point< _Clock, typename common_type< duration< _Rep1, _Period1 >, _Duration2 >::type > **operator+** (const duration< _Rep1, _Period1 > &__lhs, const time_point< _Clock, _Duration2 > &__rhs)
- template<typename _Clock , typename _Duration1 , typename _Rep2 , typename _Period2 > time_point< _Clock, typename common_type< _Duration1, duration< _Rep2, _Period2 > >::type > **operator+** (const time_point< _Clock, _Duration1 > &__lhs, const duration< _Rep2, _Period2 > &__rhs)
- template<typename _Rep1 , typename _Period1 , typename _Rep2 , typename _Period2 > common_type< duration< _Rep1, _Period1 >, duration< _Rep2, _Period2 > >::type **operator+** (const duration< _Rep1, _Period1 > &__lhs, const duration< _Rep2, _Period2 > &__rhs)
- template<typename _Clock , typename _Duration1 , typename _Duration2 > common_type< _Duration1, _Duration2 >::type **operator-** (const time_point< _Clock, _Duration1 > &__lhs, const time_point< _Clock, _Duration2 > &__rhs)
- template<typename _Clock , typename _Duration1 , typename _Rep2 , typename _Period2 > time_point< _Clock, typename common_type< _Duration1, duration< _Rep2, _Period2 > >::type > **operator-** (const time_point< _Clock, _Duration1 > &__lhs, const duration< _Rep2, _Period2 > &__rhs)
- template<typename _Rep1 , typename _Period1 , typename _Rep2 , typename _Period2 > common_type< duration< _Rep1, _Period1 >, duration< _Rep2, _Period2 > >::type **operator-** (const duration< _Rep1, _Period1 > &__lhs, const duration< _Rep2, _Period2 > &__rhs)
- template<typename _Rep1 , typename _Period1 , typename _Rep2 , typename _Period2 > common_type< _Rep1, _Rep2 >::type **operator/** (const duration< _Rep1, _Period1 > &__lhs, const duration< _Rep2, _Period2 > &__rhs)

- template<typename _Rep1 , typename _Period , typename _Rep2 >
  duration< typename __common_rep_type< _Rep1, typename enable_if<!__-
  is_duration< _Rep2 >::value, _Rep2 >::type >::type, _Period > **operator/**
  (const duration< _Rep1, _Period > &__d, const _Rep2 &__s)
- template<typename _Clock , typename _Duration1 , typename _Duration2 >
  bool **operator<** (const time_point< _Clock, _Duration1 > &__lhs, const time_-
  point< _Clock, _Duration2 > &__rhs)
- template<typename _Rep1 , typename _Period1 , typename _Rep2 , typename _Period2 >
  bool **operator<** (const duration< _Rep1, _Period1 > &__lhs, const duration<
  _Rep2, _Period2 > &__rhs)
- template<typename _Clock , typename _Duration1 , typename _Duration2 >
  bool **operator<=** (const time_point< _Clock, _Duration1 > &__lhs, const
  time_point< _Clock, _Duration2 > &__rhs)
- template<typename _Rep1 , typename _Period1 , typename _Rep2 , typename _Period2 >
  bool **operator<=** (const duration< _Rep1, _Period1 > &__lhs, const duration<
  _Rep2, _Period2 > &__rhs)
- template<typename _Clock , typename _Duration1 , typename _Duration2 >
  bool **operator==** (const time_point< _Clock, _Duration1 > &__lhs, const
  time_point< _Clock, _Duration2 > &__rhs)
- template<typename _Rep1 , typename _Period1 , typename _Rep2 , typename _Period2 >
  bool **operator==** (const duration< _Rep1, _Period1 > &__lhs, const duration<
  _Rep2, _Period2 > &__rhs)
- template<typename _Clock , typename _Duration1 , typename _Duration2 >
  bool **operator>** (const time_point< _Clock, _Duration1 > &__lhs, const time_-
  point< _Clock, _Duration2 > &__rhs)
- template<typename _Rep1 , typename _Period1 , typename _Rep2 , typename _Period2 >
  bool **operator>** (const duration< _Rep1, _Period1 > &__lhs, const duration<
  _Rep2, _Period2 > &__rhs)
- template<typename _Clock , typename _Duration1 , typename _Duration2 >
  bool **operator>=** (const time_point< _Clock, _Duration1 > &__lhs, const
  time_point< _Clock, _Duration2 > &__rhs)
- template<typename _Rep1 , typename _Period1 , typename _Rep2 , typename _Period2 >
  bool **operator>=** (const duration< _Rep1, _Period1 > &__lhs, const duration<
  _Rep2, _Period2 > &__rhs)
- template<typename _ToDuration , typename _Clock , typename _Duration >
  enable_if< __is_duration< _ToDuration >::value, time_point< _Clock, _-
  ToDuration > >::type time_point_cast (const time_point< _Clock, _Duration
  > &__t)

4.16.1 Detailed Description

ISO C++ 0x entities sub namespace for time and date.

4.16.2 Typedef Documentation

4.16.2.1 typedef duration<int, ratio<3600> > std::chrono::hours

hours

Definition at line 488 of file chrono.

4.16.2.2 typedef duration<int64_t, micro> std::chrono::microseconds

microseconds

Definition at line 476 of file chrono.

4.16.2.3 typedef duration<int64_t, milli> std::chrono::milliseconds

milliseconds

Definition at line 479 of file chrono.

4.16.2.4 typedef duration<int, ratio< 60> > std::chrono::minutes

minutes

Definition at line 485 of file chrono.

4.16.2.5 typedef duration<int64_t, nano> std::chrono::nanoseconds

nanoseconds

Definition at line 473 of file chrono.

4.16.2.6 typedef duration<int64_t > std::chrono::seconds

seconds

Definition at line 482 of file chrono.

4.16.3 Function Documentation

4.16.3.1 template<typename _ToDuration , typename _Rep , typename _Period > enable_if<__is_duration<_ToDuration>::value, _ToDuration>::type std::chrono::duration_cast (const duration< _Rep, _Period > & __d) [inline]

duration_cast

Definition at line 155 of file chrono.

Referenced by std::this_thread::sleep_for(), and time_point_cast().

4.16.3.2 template<typename _ToDuration , typename _Clock , typename _Duration > enable_if<__is_duration<_ToDuration>::value, time_point<_Clock, _ToDuration> >::type std::chrono::time_point_cast (const time_point< _Clock, _Duration > & __t) [inline]

time_point_cast

Definition at line 550 of file chrono.

References duration_cast().

4.17 std::decimal Namespace Reference

ISO/IEC TR 24733 Decimal floating-point arithmetic.

Classes

- class decimal128

  3.2.4 Class decimal128.

- class decimal32

  3.2.2 Class decimal32.

- class decimal64

  3.2.3 Class decimal64.

Functions

- double **decimal128_to_double** (decimal128 __d)
- float **decimal128_to_float** (decimal128 __d)
- long double **decimal128_to_long_double** (decimal128 __d)
- long long **decimal128_to_long_long** (decimal128 __d)
- double **decimal32_to_double** (decimal32 __d)
- float **decimal32_to_float** (decimal32 __d)
- long double **decimal32_to_long_double** (decimal32 __d)
- long long decimal32_to_long_long (decimal32 __d)
- double **decimal64_to_double** (decimal64 __d)
- float **decimal64_to_float** (decimal64 __d)
- long double **decimal64_to_long_double** (decimal64 __d)
- long long **decimal64_to_long_long** (decimal64 __d)
- double **decimal_to_double** (decimal128 __d)
- double **decimal_to_double** (decimal64 __d)
- double **decimal_to_double** (decimal32 __d)
- float **decimal_to_float** (decimal128 __d)
- float **decimal_to_float** (decimal64 __d)
- float **decimal_to_float** (decimal32 __d)
- long double **decimal_to_long_double** (decimal128 __d)
- long double **decimal_to_long_double** (decimal64 __d)
- long double **decimal_to_long_double** (decimal32 __d)
- long long **decimal_to_long_long** (decimal128 __d)
- long long **decimal_to_long_long** (decimal64 __d)
- long long **decimal_to_long_long** (decimal32 __d)

- static decimal128 **make_decimal128** (unsigned long long __coeff, int __exp)
- static decimal128 **make_decimal128** (long long __coeff, int __exp)
- static decimal32 **make_decimal32** (unsigned long long __coeff, int __exp)
- static decimal32 **make_decimal32** (long long __coeff, int __exp)
- static decimal64 **make_decimal64** (unsigned long long __coeff, int __exp)
- static decimal64 **make_decimal64** (long long __coeff, int __exp)
- bool **operator!=** (unsigned long long __lhs, decimal128 __rhs)
- bool **operator!=** (long long __lhs, decimal128 __rhs)
- bool **operator!=** (unsigned long __lhs, decimal128 __rhs)
- bool **operator!=** (long __lhs, decimal128 __rhs)
- bool **operator!=** (unsigned int __lhs, decimal128 __rhs)
- bool **operator!=** (int __lhs, decimal128 __rhs)
- bool **operator!=** (decimal128 __lhs, unsigned long long __rhs)
- bool **operator!=** (decimal128 __lhs, long long __rhs)
- bool **operator!=** (decimal128 __lhs, unsigned long __rhs)
- bool **operator!=** (decimal128 __lhs, long __rhs)
- bool **operator!=** (decimal128 __lhs, unsigned int __rhs)
- bool **operator!=** (decimal128 __lhs, int __rhs)
- bool **operator!=** (decimal128 __lhs, decimal128 __rhs)
- bool **operator!=** (decimal128 __lhs, decimal64 __rhs)
- bool **operator!=** (decimal128 __lhs, decimal32 __rhs)
- bool **operator!=** (unsigned long long __lhs, decimal64 __rhs)
- bool **operator!=** (long long __lhs, decimal64 __rhs)
- bool **operator!=** (unsigned long __lhs, decimal64 __rhs)
- bool **operator!=** (long __lhs, decimal64 __rhs)
- bool **operator!=** (unsigned int __lhs, decimal64 __rhs)
- bool **operator!=** (int __lhs, decimal64 __rhs)
- bool **operator!=** (decimal64 __lhs, unsigned long long __rhs)
- bool **operator!=** (decimal64 __lhs, long long __rhs)
- bool **operator!=** (decimal64 __lhs, unsigned long __rhs)
- bool **operator!=** (decimal64 __lhs, long __rhs)
- bool **operator!=** (decimal64 __lhs, unsigned int __rhs)
- bool **operator!=** (decimal64 __lhs, int __rhs)
- bool **operator!=** (decimal64 __lhs, decimal128 __rhs)
- bool **operator!=** (decimal64 __lhs, decimal64 __rhs)
- bool **operator!=** (decimal64 __lhs, decimal32 __rhs)
- bool **operator!=** (unsigned long long __lhs, decimal32 __rhs)
- bool **operator!=** (long long __lhs, decimal32 __rhs)
- bool **operator!=** (unsigned long __lhs, decimal32 __rhs)
- bool **operator!=** (long __lhs, decimal32 __rhs)
- bool **operator!=** (unsigned int __lhs, decimal32 __rhs)
- bool **operator!=** (int __lhs, decimal32 __rhs)
- bool **operator!=** (decimal32 __lhs, unsigned long long __rhs)

- bool **operator!=** (decimal32 __lhs, long long __rhs)
- bool **operator!=** (decimal32 __lhs, unsigned long __rhs)
- bool **operator!=** (decimal32 __lhs, long __rhs)
- bool **operator!=** (decimal32 __lhs, unsigned int __rhs)
- bool **operator!=** (decimal32 __lhs, int __rhs)
- bool **operator!=** (decimal32 __lhs, decimal128 __rhs)
- bool **operator!=** (decimal32 __lhs, decimal64 __rhs)
- bool **operator!=** (decimal32 __lhs, decimal32 __rhs)
- decimal128 **operator*** (unsigned long long __lhs, decimal128 __rhs)
- decimal128 **operator*** (long long __lhs, decimal128 __rhs)
- decimal128 **operator*** (unsigned long __lhs, decimal128 __rhs)
- decimal128 **operator*** (long __lhs, decimal128 __rhs)
- decimal128 **operator*** (unsigned int __lhs, decimal128 __rhs)
- decimal128 **operator*** (int __lhs, decimal128 __rhs)
- decimal128 **operator*** (decimal128 __lhs, unsigned long long __rhs)
- decimal128 **operator*** (decimal128 __lhs, long long __rhs)
- decimal128 **operator*** (decimal128 __lhs, unsigned long __rhs)
- decimal128 **operator*** (decimal128 __lhs, long __rhs)
- decimal128 **operator*** (decimal128 __lhs, unsigned int __rhs)
- decimal128 **operator*** (decimal128 __lhs, int __rhs)
- decimal128 **operator*** (decimal128 __lhs, decimal128 __rhs)
- decimal128 **operator*** (decimal128 __lhs, decimal64 __rhs)
- decimal128 **operator*** (decimal128 __lhs, decimal32 __rhs)
- decimal128 **operator*** (decimal64 __lhs, decimal128 __rhs)
- decimal128 **operator*** (decimal32 __lhs, decimal128 __rhs)
- decimal64 **operator*** (unsigned long long __lhs, decimal64 __rhs)
- decimal64 **operator*** (long long __lhs, decimal64 __rhs)
- decimal64 **operator*** (unsigned long __lhs, decimal64 __rhs)
- decimal64 **operator*** (long __lhs, decimal64 __rhs)
- decimal64 **operator*** (unsigned int __lhs, decimal64 __rhs)
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- decimal64 **operator*** (decimal64 __lhs, unsigned long long __rhs)
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- decimal64 **operator*** (decimal64 __lhs, int __rhs)
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- decimal64 **operator*** (decimal32 __lhs, decimal64 __rhs)
- decimal32 **operator*** (unsigned long long __lhs, decimal32 __rhs)
- decimal32 **operator*** (long long __lhs, decimal32 __rhs)
- decimal32 **operator*** (unsigned long __lhs, decimal32 __rhs)

- decimal32 **operator**∗ (long __lhs, decimal32 __rhs)
- decimal32 **operator**∗ (unsigned int __lhs, decimal32 __rhs)
- decimal32 **operator**∗ (int __lhs, decimal32 __rhs)
- decimal32 **operator**∗ (decimal32 __lhs, unsigned long long __rhs)
- decimal32 **operator**∗ (decimal32 __lhs, long long __rhs)
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- decimal32 **operator**∗ (decimal32 __lhs, decimal32 __rhs)
- decimal128 **operator+** (unsigned long long __lhs, decimal128 __rhs)
- decimal128 **operator+** (long long __lhs, decimal128 __rhs)
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- decimal32 **operator/** (decimal32 __lhs, int __rhs)
- decimal32 **operator/** (decimal32 __lhs, decimal32 __rhs)
- bool **operator**< (unsigned long long __lhs, decimal128 __rhs)
- bool **operator**< (long long __lhs, decimal128 __rhs)
- bool **operator**< (unsigned long __lhs, decimal128 __rhs)
- bool **operator**< (long __lhs, decimal128 __rhs)
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- bool **operator**< (decimal128 __lhs, unsigned int __rhs)
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- bool **operator**< (decimal128 __lhs, decimal128 __rhs)
- bool **operator**< (decimal128 __lhs, decimal64 __rhs)
- bool **operator**< (decimal128 __lhs, decimal32 __rhs)
- bool **operator**< (unsigned long long __lhs, decimal64 __rhs)
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- bool **operator**< (decimal64 __lhs, unsigned long long __rhs)
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- bool **operator**>= (decimal32 __lhs, decimal128 __rhs)
- bool **operator**>= (decimal32 __lhs, decimal64 __rhs)
- bool **operator**>= (decimal32 __lhs, decimal32 __rhs)

4.17.1 Detailed Description

ISO/IEC TR 24733 Decimal floating-point arithmetic.

4.17.2 Function Documentation

4.17.2.1 long long std::decimal::decimal32_to_long_long (decimal32 *__d*)

Non-conforming extension: Conversion to integral type.

4.18 std::placeholders Namespace Reference

ISO C++ 0x entities sub namespace for functional.

Define a large number of placeholders. There is no way to simplify this with variadic templates, because we're introducing unique names for each.

4.18.1 Detailed Description

ISO C++ 0x entities sub namespace for functional.

Define a large number of placeholders. There is no way to simplify this with variadic templates, because we're introducing unique names for each.

4.19 std::regex_constants Namespace Reference

ISO C++ 0x entities sub namespace for regex.

5.2 Matching Rules

Matching a regular expression against a sequence of characters [first, last) proceeds according to the rules of the grammar specified for the regular expression object, modified according to the effects listed below for any bitmask elements set.

- enum __match_flag {
  _S_not_bol, **_S_not_eol**, **_S_not_bow**, **_S_not_eow**,
  _S_any, **_S_not_null**, **_S_continuous**, **_S_prev_avail**,
  _S_sed, **_S_no_copy**, **_S_first_only**, **_S_match_flag_last** }
- typedef std::bitset< _S_match_flag_last > match_flag_type
- static const match_flag_type format_default
- static const match_flag_type format_first_only
- static const match_flag_type format_no_copy
- static const match_flag_type format_sed
- static const match_flag_type match_any
- static const match_flag_type match_continuous
- static const match_flag_type match_default
- static const match_flag_type match_not_bol
- static const match_flag_type match_not_bow
- static const match_flag_type match_not_eol
- static const match_flag_type match_not_eow
- static const match_flag_type match_not_null
- static const match_flag_type match_prev_avail

5.1 Regular Expression Syntax Options

- enum __syntax_option {
  _S_icase, **_S_nosubs**, **_S_optimize**, **_S_collate**,
  _S_ECMAScript, **_S_basic**, **_S_extended**, **_S_awk**,
  _S_grep, **_S_egrep**, **_S_syntax_last** }
- typedef unsigned int syntax_option_type
- static const syntax_option_type awk
- static const syntax_option_type basic
- static const syntax_option_type collate
- static const syntax_option_type ECMAScript

- static const syntax_option_type egrep
- static const syntax_option_type extended
- static const syntax_option_type grep
- static const syntax_option_type icase
- static const syntax_option_type nosubs
- static const syntax_option_type optimize

5.3 Error Types

- enum error_type {
  _S_error_collate, **_S_error_ctype**, **_S_error_escape**, **_S_error_backref**,
  _S_error_brack, **_S_error_paren**, **_S_error_brace**, **_S_error_badbrace**,
  _S_error_range, **_S_error_space**, **_S_error_badrepeat**, **_S_error_-complexity**,
  _S_error_stack, **_S_error_last** }
- static const error_type error_backref (_S_error_backref)
- static const error_type error_badbrace (_S_error_badbrace)
- static const error_type error_badrepeat (_S_error_badrepeat)
- static const error_type error_brace (_S_error_brace)
- static const error_type error_brack (_S_error_brack)
- static const error_type error_collate (_S_error_collate)
- static const error_type error_complexity (_S_error_complexity)
- static const error_type error_ctype (_S_error_ctype)
- static const error_type error_escape (_S_error_escape)
- static const error_type error_paren (_S_error_paren)
- static const error_type error_range (_S_error_range)
- static const error_type error_space (_S_error_space)
- static const error_type error_stack (_S_error_stack)

4.19.1 Detailed Description

ISO C++ 0x entities sub namespace for regex.

4.19.2 Typedef Documentation

4.19.2.1 typedef std::bitset<_S_match_flag_last> std::regex_constants::match_flag_type

This is a bitmask type indicating regex matching rules. The `match_flag_type` is implementation defined but it is valid to perform bitwise operations on these values and expect the right thing to happen.

Definition at line 198 of file tr1_impl/regex.

4.19.2.2 typedef unsigned int std::regex_constants::syntax_option_type

This is a bitmask type indicating how to interpret the regex. The `syntax_option_type` is implementation defined but it is valid to perform bitwise operations on these values and expect the right thing to happen.

A valid value of type syntax_option_type shall have exactly one of the elements `ECMAScript`, `basic`, `extended`, `awk`, `grep`, `egrep` set.

Definition at line 78 of file tr1_impl/regex.

4.19.3 Enumeration Type Documentation

4.19.3.1 enum std::regex_constants::__match_flag

This is a bitmask type indicating regex matching rules. The `match_flag_type` is implementation defined but it is valid to perform bitwise operations on these values and expect the right thing to happen.

Definition at line 175 of file tr1_impl/regex.

4.19.3.2 enum std::regex_constants::__syntax_option

This is a bitmask type indicating how to interpret the regex. The `syntax_option_type` is implementation defined but it is valid to perform bitwise operations on these values and expect the right thing to happen.

A valid value of type syntax_option_type shall have exactly one of the elements `ECMAScript`, `basic`, `extended`, `awk`, `grep`, `egrep` set.

Definition at line 52 of file tr1_impl/regex.

4.19.3.3 enum std::regex_constants::error_type

The expression contained an invalid back reference.

Definition at line 310 of file tr1_impl/regex.

4.19.4 Function Documentation

4.19.4.1 static const error_type std::regex_constants::error_backref (_S_error_backref) [static]

The expression contained an invalid back reference.

4.19.4.2 static const error_type std::regex_constants::error_badbrace (_S_error_badbrace) [static]

The expression contained an invalid range in a {} expression.

4.19.4.3 static const error_type std::regex_constants::error_badrepeat (_S_error_badrepeat) [static]

One of $*?+\{$ was not preceded by a valid regular expression.

4.19.4.4 static const error_type std::regex_constants::error_brace (_S_error_brace) [static]

The expression contained mismatched { and }

4.19.4.5 static const error_type std::regex_constants::error_brack (_S_error_brack) [static]

The expression contained mismatched [and].

4.19.4.6 static const error_type std::regex_constants::error_collate (_S_error_collate) [static]

The expression contained an invalid collating element name.

4.19.4.7 static const error_type std::regex_constants::error_complexity (_S_error_complexity) [static]

The complexity of an attempted match against a regular expression exceeded a pre-set level.

4.19.4.8 static const error_type std::regex_constants::error_ctype (_S_error_ctype) [static]

The expression contained an invalid character class name.

4.19.4.9 static const error_type std::regex_constants::error_escape (_S_error_escape) [static]

The expression contained an invalid escaped character, or a trailing escape.

4.19.4.10 static const error_type std::regex_constants::error_paren (_S_error_paren) [static]

The expression contained mismatched (and).

4.19.4.11 static const error_type std::regex_constants::error_range (_S_error_range) [static]

The expression contained an invalid character range, such as [b-a] in most encodings.

4.19.4.12 static const error_type std::regex_constants::error_space (_S_error_space) [static]

There was insufficient memory to convert the expression into a finite state machine.

4.19.4.13 static const error_type std::regex_constants::error_stack (_S_error_stack) [static]

There was insufficient memory to determine whether the regular expression could match the specified character sequence.

4.19.5 Variable Documentation

4.19.5.1 const syntax_option_type std::regex_constants::awk [static]

Specifies that the grammar recognized by the regular expression engine is that used by POSIX utility awk in IEEE Std 1003.1-2001. This option is identical to syntax_-option_type extended, except that C-style escape sequences are supported. These sequences are: \\, \a, \b, \f, \n, \r, \t , \v, \', ', and \ddd (where ddd is one, two, or three octal digits).

Definition at line 144 of file tr1_impl/regex.

4.19.5.2 const syntax_option_type std::regex_constants::basic [static]

Specifies that the grammar recognized by the regular expression engine is that used by POSIX basic regular expressions in IEEE Std 1003.1-2001, Portable Operating System Interface (POSIX), Base Definitions and Headers, Section 9, Regular Expressions [IEEE, Information Technology -- Portable Operating System Interface (POSIX), IEEE Standard 1003.1-2001].

Definition at line 124 of file tr1_impl/regex.

4.19.5.3 const syntax_option_type std::regex_constants::collate [static]

Specifies that character ranges of the form [a-b] should be locale sensitive.

Definition at line 105 of file tr1_impl/regex.

4.19.5.4 const syntax_option_type std::regex_constants::ECMAScript [static]

Specifies that the grammar recognized by the regular expression engine is that used by ECMAScript in ECMA-262 [Ecma International, ECMAScript Language Specification, Standard Ecma-262, third edition, 1999], as modified in tr1 section [7.13]. This grammar is similar to that defined in the PERL scripting language but extended with elements found in the POSIX regular expression grammar.

Definition at line 115 of file tr1_impl/regex.

4.19.5.5 const syntax_option_type std::regex_constants::egrep [static]

Specifies that the grammar recognized by the regular expression engine is that used by POSIX utility grep when given the -E option in IEEE Std 1003.1-2001. This option is identical to syntax_option_type extended, except that newlines are treated as whitespace.

Definition at line 160 of file tr1_impl/regex.

4.19.5.6 const syntax_option_type std::regex_constants::extended [static]

Specifies that the grammar recognized by the regular expression engine is that used by POSIX extended regular expressions in IEEE Std 1003.1-2001, Portable Operating System Interface (POSIX), Base Definitions and Headers, Section 9, Regular Expressions.

Definition at line 132 of file tr1_impl/regex.

4.19.5.7 const match_flag_type std::regex_constants::format_default [static]

When a regular expression match is to be replaced by a new string, the new string is constructed using the rules used by the ECMAScript replace function in ECMA-262 [Ecma International, ECMAScript Language Specification, Standard Ecma-262, third edition, 1999], part 15.5.4.11 String.prototype.replace. In addition, during search and replace operations all non-overlapping occurrences of the regular expression are located and replaced, and sections of the input that did not match the expression are copied unchanged to the output string.

Format strings (from ECMA-262 [15.5.4.11]):

- $$ The dollar-sign itself ($)
- $& The matched substring.
- $‘ The portion of *string* that precedes the matched substring. This would be match_results::prefix().
- $’ The portion of *string* that follows the matched substring. This would be match_results::suffix().
- $n The nth capture, where n is in [1,9] and $n is not followed by a decimal digit. If n <= match_results::size() and the nth capture is undefined, use the empty string instead. If n > match_results::size(), the result is implementation-defined.
- $nn The nnth capture, where nn is a two-digit decimal number on [01, 99]. If nn <= match_results::size() and the nth capture is undefined, use the empty string instead. If nn > match_results::size(), the result is implementation-defined.

Definition at line 280 of file tr1_impl/regex.

4.19.5.8 const match_flag_type std::regex_constants::format_first_only [static]

When specified during a search and replace operation, only the first occurrence of the regular expression shall be replaced.

Definition at line 301 of file tr1_impl/regex.

4.19.5.9 const match_flag_type std::regex_constants::format_no_copy [static]

During a search and replace operation, sections of the character container sequence being searched that do not match the regular expression shall not be copied to the output string.

Definition at line 295 of file tr1_impl/regex.

4.19.5.10 const match_flag_type std::regex_constants::format_sed [static]

When a regular expression match is to be replaced by a new string, the new string is constructed using the rules used by the POSIX sed utility in IEEE Std 1003.1- 2001 [IEEE, Information Technology -- Portable Operating System Interface (POSIX), IEEE Standard 1003.1-2001].

Definition at line 288 of file tr1_impl/regex.

4.19.5.11 const syntax_option_type std::regex_constants::grep [static]

Specifies that the grammar recognized by the regular expression engine is that used by POSIX utility grep in IEEE Std 1003.1-2001. This option is identical to syntax_-option_type basic, except that newlines are treated as whitespace.

Definition at line 152 of file tr1_impl/regex.

4.19.5.12 const syntax_option_type std::regex_constants::icase [static]

Specifies that the matching of regular expressions against a character sequence shall be performed without regard to case.

Definition at line 84 of file tr1_impl/regex.

4.19.5.13 const match_flag_type std::regex_constants::match_any [static]

If more than one match is possible then any match is an acceptable result.

Definition at line 235 of file tr1_impl/regex.

4.19.5.14 const match_flag_type std::regex_constants::match_continuous [static]

The expression only matches a sub-sequence that begins at first .

Definition at line 245 of file tr1_impl/regex.

4.19.5.15 const match_flag_type std::regex_constants::match_default [static]

The default matching rules.

Definition at line 203 of file tr1_impl/regex.

4.19.5.16 const match_flag_type std::regex_constants::match_not_bol [static]

The first character in the sequence [first, last) is treated as though it is not at the beginning of a line, so the character (^) in the regular expression shall not match [first, first).

Definition at line 210 of file tr1_impl/regex.

4.19.5.17 const match_flag_type std::regex_constants::match_not_bow [static]

The expression \b is not matched against the sub-sequence [first,first).

Definition at line 223 of file tr1_impl/regex.

4.19.5.18 const match_flag_type std::regex_constants::match_not_eol [static]

The last character in the sequence [first, last) is treated as though it is not at the end of a line, so the character ($) in the regular expression shall not match [last, last).

Definition at line 217 of file tr1_impl/regex.

4.19.5.19 const match_flag_type std::regex_constants::match_not_eow [static]

The expression \b should not be matched against the sub-sequence [last,last).

Definition at line 229 of file tr1_impl/regex.

4.19.5.20 const match_flag_type std::regex_constants::match_not_null [static]

The expression does not match an empty sequence.

Definition at line 240 of file tr1_impl/regex.

4.19.5.21 const match_flag_type std::regex_constants::match_prev_avail [static]

--first is a valid iterator position. When this flag is set then the flags match_not_bol and match_not_bow are ignored by the regular expression algorithms 7.11 and iterators 7.12.

Definition at line 252 of file tr1_impl/regex.

4.19.5.22 const syntax_option_type std::regex_constants::nosubs [static]

Specifies that when a regular expression is matched against a character container sequence, no sub-expression matches are to be stored in the supplied match_results structure.

Definition at line 91 of file tr1_impl/regex.

4.19.5.23 const syntax_option_type std::regex_constants::optimize [static]

Specifies that the regular expression engine should pay more attention to the speed with which regular expressions are matched, and less to the speed with which regular expression objects are constructed. Otherwise it has no detectable effect on the program output.

Definition at line 99 of file tr1_impl/regex.

4.20 std::rel_ops Namespace Reference

The generated relational operators are sequestered here.

Functions

- template<class _Tp >
  bool operator!= (const _Tp &__x, const _Tp &__y)
- template<class _Tp >
  bool operator<= (const _Tp &__x, const _Tp &__y)
- template<class _Tp >
  bool operator> (const _Tp &__x, const _Tp &__y)
- template<class _Tp >
  bool operator>= (const _Tp &__x, const _Tp &__y)

4.20.1 Detailed Description

The generated relational operators are sequestered here.

4.20.2 Function Documentation

4.20.2.1 template<class _Tp > bool std::rel_ops::operator!= (const _Tp & __x, const _Tp & __y) [inline]

Defines != for arbitrary types, in terms of ==.

Parameters:

x A thing.

y Another thing.

Returns:

x != y

This function uses == to determine its result.

Definition at line 85 of file stl_relops.h.

4.20.2.2 template<class _Tp > bool std::rel_ops::operator<= (const _Tp & __x, const _Tp & __y) [inline]

Defines <= for arbitrary types, in terms of <.

Parameters:

x A thing.

y Another thing.

Returns:

x <= y

This function uses < to determine its result.

Definition at line 111 of file stl_relops.h.

4.20.2.3 template<class _Tp > bool std::rel_ops::operator> (const _Tp & __x, const _Tp & __y) [inline]

Defines > for arbitrary types, in terms of <.

Parameters:

x A thing.

y Another thing.

Returns:

x > y

This function uses < to determine its result.

Definition at line 98 of file stl_relops.h.

4.20.2.4 template<class _Tp > bool std::rel_ops::operator>= (const _Tp & __x, const _Tp & __y) [inline]

Defines >= for arbitrary types, in terms of <.

Parameters:

x A thing.

y Another thing.

Returns:

x >= y

This function uses < to determine its result.

Definition at line 124 of file stl_relops.h.

4.21 std::this_thread Namespace Reference

ISO C++ 0x entities sub namespace for thread. 30.2.2 Namespace this_thread.

Functions

- thread::id get_id ()
- template<typename _Rep , typename _Period >
  void sleep_for (const chrono::duration< _Rep, _Period > &__rtime)
- template<typename _Clock , typename _Duration >
  void sleep_until (const chrono::time_point< _Clock, _Duration > &__atime)
- void yield ()

4.21.1 Detailed Description

ISO C++ 0x entities sub namespace for thread. 30.2.2 Namespace this_thread.

4.21.2 Function Documentation

4.21.2.1 thread::id std::this_thread::get_id () [inline]

get_id

Definition at line 252 of file thread.

4.21.2.2 template<typename _Rep , typename _Period > void std::this_thread::sleep_for (const chrono::duration< _Rep, _Period > & *__rtime*) [inline]

sleep_for

Definition at line 271 of file thread.

References std::chrono::duration_cast().

Referenced by sleep_until().

4.21.2.3 template<typename _Clock , typename _Duration > void std::this_thread::sleep_until (const chrono::time_point< _Clock, _Duration > & *__atime*) [inline]

sleep_until

Definition at line 265 of file thread.

References sleep_for().

4.21.2.4 void std::this_thread::yield () [inline]

yield

Definition at line 257 of file thread.

4.22 std::tr1 Namespace Reference

ISO C++ TR1 entities toplevel namespace is std::tr1.

Namespaces

- namespace __detail

Functions

- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type assoc_laguerre (unsigned int __n, unsigned int __m, _Tp __x)
- float **assoc_laguerref** (unsigned int __n, unsigned int __m, float __x)
- long double **assoc_laguerrel** (unsigned int __n, unsigned int __m, long double __x)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type assoc_legendre (unsigned int __l, unsigned int __m, _Tp __x)
- float **assoc_legendref** (unsigned int __l, unsigned int __m, float __x)
- long double **assoc_legendrel** (unsigned int __l, unsigned int __m, long double __x)
- template<typename _Tpx , typename _Tpy >
  __gnu_cxx::__promote_2< _Tpx, _Tpy >::__type beta (_Tpx __x, _Tpy __y)
- float **betaf** (float __x, float __y)
- long double **betal** (long double __x, long double __y)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type comp_ellint_1 (_Tp __k)
- float **comp_ellint_1f** (float __k)
- long double **comp_ellint_1l** (long double __k)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type comp_ellint_2 (_Tp __k)
- float **comp_ellint_2f** (float __k)
- long double **comp_ellint_2l** (long double __k)
- template<typename _Tp , typename _Tpn >
  __gnu_cxx::__promote_2< _Tp, _Tpn >::__type comp_ellint_3 (_Tp __k, _Tpn __nu)
- float **comp_ellint_3f** (float __k, float __nu)
- long double **comp_ellint_3l** (long double __k, long double __nu)
- template<typename _Tpa , typename _Tpc , typename _Tp >
  __gnu_cxx::__promote_3< _Tpa, _Tpc, _Tp >::__type conf_hyperg (_Tpa __a, _Tpc __c, _Tp __x)

- float **conf_hypergf** (float __a, float __c, float __x)
- long double **conf_hypergl** (long double __a, long double __c, long double __x)
- template<typename _Tp >
  std::complex< typename __gnu_cxx::__promote< _Tp >::__type > **conj** (_Tp __x)
- template<typename _Tp >
  std::complex< _Tp > **conj** (const std::complex< _Tp > &__z)
- template<typename _Tpnu , typename _Tp >
  __gnu_cxx::__promote_2< _Tpnu, _Tp >::__type cyl_bessel_i (_Tpnu __nu, _Tp __x)
- float **cyl_bessel_if** (float __nu, float __x)
- long double **cyl_bessel_il** (long double __nu, long double __x)
- template<typename _Tpnu , typename _Tp >
  __gnu_cxx::__promote_2< _Tpnu, _Tp >::__type cyl_bessel_j (_Tpnu __nu, _Tp __x)
- float **cyl_bessel_jf** (float __nu, float __x)
- long double **cyl_bessel_jl** (long double __nu, long double __x)
- template<typename _Tpnu , typename _Tp >
  __gnu_cxx::__promote_2< _Tpnu, _Tp >::__type cyl_bessel_k (_Tpnu __nu, _Tp __x)
- float **cyl_bessel_kf** (float __nu, float __x)
- long double **cyl_bessel_kl** (long double __nu, long double __x)
- template<typename _Tpnu , typename _Tp >
  __gnu_cxx::__promote_2< _Tpnu, _Tp >::__type cyl_neumann (_Tpnu __nu, _Tp __x)
- float **cyl_neumannf** (float __nu, float __x)
- long double **cyl_neumannl** (long double __nu, long double __x)
- template<typename _Tp , typename _Tpp >
  __gnu_cxx::__promote_2< _Tp, _Tpp >::__type ellint_1 (_Tp __k, _Tpp __phi)
- float **ellint_1f** (float __k, float __phi)
- long double **ellint_1l** (long double __k, long double __phi)
- template<typename _Tp , typename _Tpp >
  __gnu_cxx::__promote_2< _Tp, _Tpp >::__type ellint_2 (_Tp __k, _Tpp __phi)
- float **ellint_2f** (float __k, float __phi)
- long double **ellint_2l** (long double __k, long double __phi)
- template<typename _Tp , typename _Tpn , typename _Tpp >
  __gnu_cxx::__promote_3< _Tp, _Tpn, _Tpp >::__type ellint_3 (_Tp __k, _Tpn __nu, _Tpp __phi)
- float **ellint_3f** (float __k, float __nu, float __phi)
- long double **ellint_3l** (long double __k, long double __nu, long double __phi)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type expint (_Tp __x)

- float **expintf** (float __x)
- long double **expintl** (long double __x)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type hermite (unsigned int __n, _Tp __x)
- float **hermitef** (unsigned int __n, float __x)
- long double **hermitel** (unsigned int __n, long double __x)
- template<typename _Tpa , typename _Tpb , typename _Tpc , typename _Tp >
  __gnu_cxx::__promote_4< _Tpa, _Tpb, _Tpc, _Tp >::__type hyperg (_Tpa _-
  _a, _Tpb __b, _Tpc __c, _Tp __x)
- float **hypergf** (float __a, float __b, float __c, float __x)
- long double **hypergl** (long double __a, long double __b, long double __c, long double __x)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type laguerre (unsigned int __n, _Tp __x)
- float **laguerref** (unsigned int __n, float __x)
- long double **laguerrel** (unsigned int __n, long double __x)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type legendre (unsigned int __n, _Tp __x)
- float **legendref** (unsigned int __n, float __x)
- long double **legendrel** (unsigned int __n, long double __x)
- template<typename _Tp , typename _Up >
  std::complex< typename __gnu_cxx::__promote_2< _Tp, _Up >::__type > **polar** (const _Tp &__rho, const _Up &__theta)
- template<typename _Tp >
  std::complex< _Tp > **pow** (const std::complex< _Tp > &__x, const std::complex< _Tp > &__y)
- template<typename _Tp >
  std::complex< _Tp > **pow** (const _Tp &__x, const std::complex< _Tp > &__y)

- template<typename _Tp >
  std::complex< _Tp > **pow** (const std::complex< _Tp > &__x, const _Tp &__y)

- template<typename _Tp , typename _Up >
  __gnu_cxx::__promote_2< _Tp, _Up >::__type **pow** (_Tp __x, _Up __y)
- long double **pow** (long double __x, long double __y)
- float **pow** (float __x, float __y)
- double **pow** (double __x, double __y)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type riemann_zeta (_Tp __x)
- float **riemann_zetaf** (float __x)
- long double **riemann_zetal** (long double __x)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type sph_bessel (unsigned int __n, _Tp __x)
- float **sph_besself** (unsigned int __n, float __x)

- long double **sph_bessell** (unsigned int __n, long double __x)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type sph_legendre (unsigned int __l, unsigned int __m, _Tp __theta)
- float **sph_legendref** (unsigned int __l, unsigned int __m, float __theta)
- long double **sph_legendrel** (unsigned int __l, unsigned int __m, long double __theta)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type sph_neumann (unsigned int __n, _Tp __x)
- float **sph_neumannf** (unsigned int __n, float __x)
- long double **sph_neumannl** (unsigned int __n, long double __x)

4.22.1 Detailed Description

ISO C++ TR1 entities toplevel namespace is std::tr1.

4.23 std::tr1::__detail Namespace Reference

Implementation details not part of the namespace std::tr1 interface.

4.23.1 Detailed Description

Implementation details not part of the namespace std::tr1 interface.

Chapter 5

Class Documentation

5.1 __atomic0::atomic_address Struct Reference

29.4.2, address types

Public Member Functions

- **atomic_address** (void *__v)
- **atomic_address** (const atomic_address &)
- bool **compare_exchange_strong** (void *&__v1, void *__v2, memory_order __m=memory_order_seq_cst)
- bool **compare_exchange_strong** (void *&__v1, void *__v2, memory_order __m1, memory_order __m2)
- bool **compare_exchange_weak** (void *&__v1, void *__v2, memory_order __m=memory_order_seq_cst)
- bool **compare_exchange_weak** (void *&__v1, void *__v2, memory_order __m1, memory_order __m2)
- void * **exchange** (void *__v, memory_order __m=memory_order_seq_cst)
- void * **fetch_add** (ptrdiff_t __d, memory_order __m=memory_order_seq_cst)
- void * **fetch_sub** (ptrdiff_t __d, memory_order __m=memory_order_seq_cst)
- bool **is_lock_free** () const
- void * **load** (memory_order __m=memory_order_seq_cst) const
- **operator void** * () const
- void * **operator+=** (ptrdiff_t __d)
- void * **operator-=** (ptrdiff_t __d)
- void * **operator=** (void *__v)
- atomic_address & **operator=** (const atomic_address &) volatile
- void **store** (void *__v, memory_order __m=memory_order_seq_cst)

5.1.1 Detailed Description

29.4.2, address types

Definition at line 103 of file atomic_0.h.

The documentation for this struct was generated from the following file:

- atomic_0.h

5.2 __atomic0::atomic_bool Struct Reference

atomic_bool

Public Member Functions

- **atomic_bool** (bool __i)
- **atomic_bool** (const atomic_bool &)
- bool **compare_exchange_strong** (bool &__i1, bool __i2, memory_order __m=memory_order_seq_cst)
- bool **compare_exchange_strong** (bool &__i1, bool __i2, memory_order __m1, memory_order __m2)
- bool **compare_exchange_weak** (bool &__i1, bool __i2, memory_order __m=memory_order_seq_cst)
- bool **compare_exchange_weak** (bool &__i1, bool __i2, memory_order __m1, memory_order __m2)
- bool **exchange** (bool __i, memory_order __m=memory_order_seq_cst)
- bool **is_lock_free** () const
- bool **load** (memory_order __m=memory_order_seq_cst) const
- **operator bool** () const
- bool **operator=** (bool __i)
- atomic_bool & **operator=** (const atomic_bool &) volatile
- void **store** (bool __i, memory_order __m=memory_order_seq_cst)

5.2.1 Detailed Description

atomic_bool

Definition at line 391 of file atomic_0.h.

The documentation for this struct was generated from the following file:

- atomic_0.h

5.3 __atomic0::atomic_flag Struct Reference

atomic_flag

Inherits __atomic_flag_base.

Public Member Functions

- **atomic_flag** (bool __i)
- **atomic_flag** (const atomic_flag &)
- void **clear** (memory_order __m=memory_order_seq_cst)
- atomic_flag & **operator=** (const atomic_flag &) volatile
- bool **test_and_set** (memory_order __m=memory_order_seq_cst)

5.3.1 Detailed Description

atomic_flag

Definition at line 85 of file atomic_0.h.

The documentation for this struct was generated from the following file:

- atomic_0.h

5.4 __atomic2::atomic_address Struct Reference

29.4.2, address types

Public Member Functions

- **atomic_address** (void *__v)
- **atomic_address** (const atomic_address &)
- bool **compare_exchange_strong** (void *&__v1, void *__v2, memory_order __m=memory_order_seq_cst)
- bool **compare_exchange_strong** (void *&__v1, void *__v2, memory_order __m1, memory_order __m2)
- bool **compare_exchange_weak** (void *&__v1, void *__v2, memory_order __m=memory_order_seq_cst)
- bool **compare_exchange_weak** (void *&__v1, void *__v2, memory_order __m1, memory_order __m2)
- void * **exchange** (void *__v, memory_order __m=memory_order_seq_cst)
- void * **fetch_add** (ptrdiff_t __d, memory_order __m=memory_order_seq_cst)
- void * **fetch_sub** (ptrdiff_t __d, memory_order __m=memory_order_seq_cst)
- bool **is_lock_free** () const
- void * **load** (memory_order __m=memory_order_seq_cst) const
- **operator void** * () const
- void * **operator+=** (ptrdiff_t __d)
- void * **operator-=** (ptrdiff_t __d)
- void * **operator=** (void *__v)
- atomic_address & **operator=** (const atomic_address &) volatile
- void **store** (void *__v, memory_order __m=memory_order_seq_cst)

5.4.1 Detailed Description

29.4.2, address types

Definition at line 81 of file atomic_2.h.

The documentation for this struct was generated from the following file:

- atomic_2.h

5.5 __atomic2::atomic_bool Struct Reference

atomic_bool

Public Member Functions

- **atomic_bool** (bool __i)
- **atomic_bool** (const atomic_bool &)
- bool **compare_exchange_strong** (bool &__i1, bool __i2, memory_order __m=memory_order_seq_cst)
- bool **compare_exchange_strong** (bool &__i1, bool __i2, memory_order __m1, memory_order __m2)
- bool **compare_exchange_weak** (bool &__i1, bool __i2, memory_order __m=memory_order_seq_cst)
- bool **compare_exchange_weak** (bool &__i1, bool __i2, memory_order __m1, memory_order __m2)
- bool **exchange** (bool __i, memory_order __m=memory_order_seq_cst)
- bool **is_lock_free** () const
- bool **load** (memory_order __m=memory_order_seq_cst) const
- **operator bool** () const
- bool **operator=** (bool __i)
- atomic_bool & **operator=** (const atomic_bool &) volatile
- void **store** (bool __i, memory_order __m=memory_order_seq_cst)

5.5.1 Detailed Description

atomic_bool

Definition at line 391 of file atomic_2.h.

The documentation for this struct was generated from the following file:

- atomic_2.h

5.6 __atomic2::atomic_flag Struct Reference

atomic_flag

Inherits __atomic_flag_base.

Public Member Functions

- **atomic_flag** (bool __i)
- **atomic_flag** (const atomic_flag &)
- atomic_flag & **operator=** (const atomic_flag &) volatile

5.6.1 Detailed Description

atomic_flag

Definition at line 47 of file atomic_2.h.

The documentation for this struct was generated from the following file:

- atomic_2.h

5.7 __cxxabiv1::__forced_unwind Class Reference

Thrown as part of forced unwinding.

A magic placeholder class that can be caught by reference to recognize forced unwinding.

5.7.1 Detailed Description

Thrown as part of forced unwinding.

A magic placeholder class that can be caught by reference to recognize forced unwinding.

Definition at line 47 of file cxxabi-forced.h.

The documentation for this class was generated from the following file:

- cxxabi-forced.h

5.8 __gnu_cxx::__common_pool_policy< _PoolTp, _Thread > Struct Template Reference

Policy for shared __pool objects.

Inherits __common_pool_base< _PoolTp, _Thread >.

5.8.1 Detailed Description

template<template< bool > class _PoolTp, bool _Thread> struct __gnu_cxx::__common_pool_policy< _PoolTp, _Thread >

Policy for shared __pool objects.

Definition at line 456 of file mt_allocator.h.

The documentation for this struct was generated from the following file:

- mt_allocator.h

5.9 __gnu_cxx::__detail::__mini_vector< _Tp > Class Template Reference

__mini_vector<> is a stripped down version of the full-fledged std::vector<>.

Public Types

- typedef const _Tp & **const_reference**
- typedef ptrdiff_t **difference_type**
- typedef pointer **iterator**
- typedef _Tp * **pointer**
- typedef _Tp & **reference**
- typedef size_t **size_type**
- typedef _Tp **value_type**

Public Member Functions

- reference **back** () const throw ()
- iterator **begin** () const throw ()
- void **clear** () throw ()
- iterator **end** () const throw ()
- void **erase** (iterator __pos) throw ()
- void **insert** (iterator __pos, const_reference __x)
- reference **operator[ ]** (const size_type __pos) const throw ()
- void **pop_back** () throw ()
- void **push_back** (const_reference __x)
- size_type **size** () const throw ()

5.9.1 Detailed Description

template<typename _Tp> class __gnu_cxx::__detail::__mini_vector< _Tp >

__mini_vector<> is a stripped down version of the full-fledged std::vector<>. It is to be used only for built-in types or PODs. Notable differences are:

1. Not all accessor functions are present. 2. Used ONLY for PODs. 3. No Allocator template argument. Uses operator new() to get memory, and operator delete() to free it. Caveat: The dtor does NOT free the memory allocated, so this a memory-leaking vector!

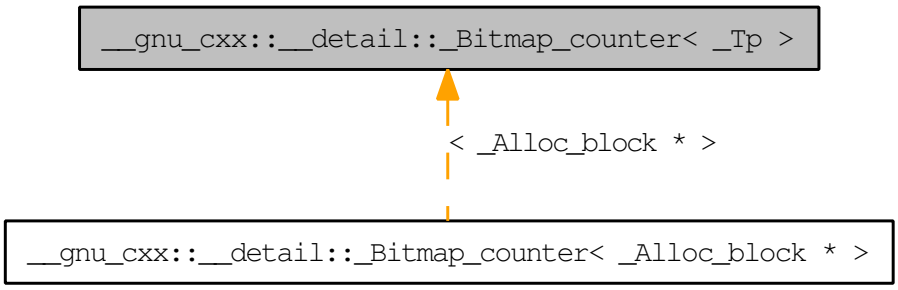
Definition at line 71 of file bitmap_allocator.h.

The documentation for this class was generated from the following file:

- bitmap_allocator.h

5.10 __gnu_cxx::__detail::_Bitmap_counter< _Tp > Class Template Reference

The bitmap counter which acts as the bitmap manipulator, and manages the bit-manipulation functions and the searching and identification functions on the bit-map. Inheritance diagram for __gnu_cxx::__detail::_Bitmap_counter< _Tp >:



Public Member Functions

- **_Bitmap_counter** (_BPVector &Rvbp, long __index=-1)
- pointer **_M_base** () const throw ()
- bool **_M_finished** () const throw ()
- size_t * **_M_get** () const throw ()
- _Index_type **_M_offset** () const throw ()
- void **_M_reset** (long __index=-1) throw ()
- void **_M_set_internal_bitmap** (size_t *__new_internal_marker) throw ()
- _Index_type **_M_where** () const throw ()
- _Bitmap_counter & **operator++** () throw ()

5.10.1 Detailed Description

template<typename _Tp> class __gnu_cxx::__detail::_Bitmap_counter< _Tp >

The bitmap counter which acts as the bitmap manipulator, and manages the bit-manipulation functions and the searching and identification functions on the bit-map.

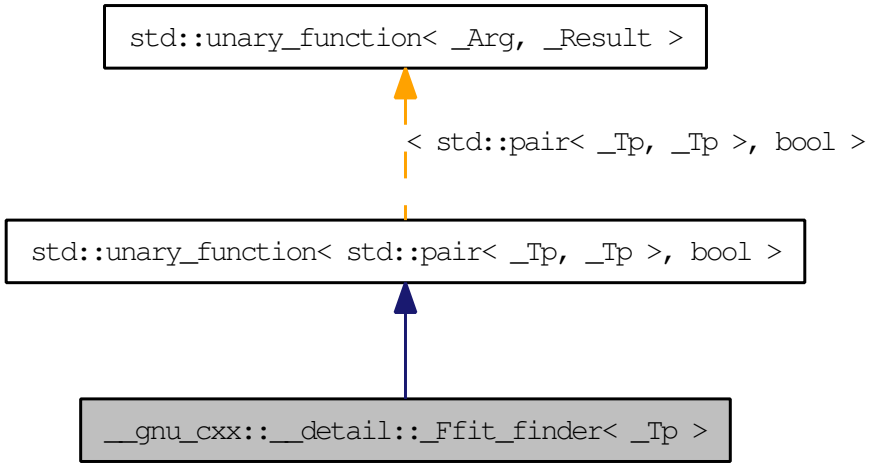
Definition at line 400 of file bitmap_allocator.h.

The documentation for this class was generated from the following file:

- bitmap_allocator.h

5.11 __gnu_cxx::__detail::_Ffit_finder< _Tp > Class Template Reference

The class which acts as a predicate for applying the first-fit memory allocation policy for the bitmap allocator. Inheritance diagram for __gnu_cxx::__detail::_Ffit_finder< _Tp >:



Public Types

- typedef std::pair< _Tp, _Tp > argument_type
- typedef bool result_type

Public Member Functions

- size_t * **_M_get** () const throw ()
- _Counter_type **_M_offset** () const throw ()
- bool **operator()** (_Block_pair __bp) throw ()

5.11.1 Detailed Description

template<typename _Tp> class __gnu_cxx::__detail::_Ffit_finder< _Tp >

The class which acts as a predicate for applying the first-fit memory allocation policy for the bitmap allocator.

Definition at line 335 of file bitmap_allocator.h.

5.11.2 Member Typedef Documentation

5.11.2.1 typedef std::pair< _Tp, _Tp > std::unary_function< std::pair< _Tp, _Tp > , bool >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.11.2.2 typedef bool std::unary_function< std::pair< _Tp, _Tp > , bool >::result_type [inherited]

`result_type` is the return type

Definition at line 105 of file stl_function.h.

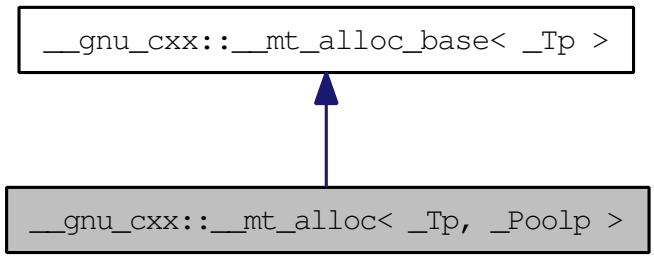
The documentation for this class was generated from the following file:

- bitmap_allocator.h

5.12 __gnu_cxx::__mt_alloc< _Tp, _Poolp > Class Template Reference

This is a fixed size (power of 2) allocator which - when compiled with thread support - will maintain one freelist per size per thread plus a *global* one. Steps are taken to limit the per thread freelist sizes (by returning excess back to the *global* list).

Further details: http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt12ch32.html.
Inheritance diagram for __gnu_cxx::__mt_alloc< _Tp, _Poolp >:



Public Types

- typedef _Poolp **__policy_type**
- typedef _Poolp::pool_type **__pool_type**
- typedef const _Tp * **const_pointer**
- typedef const _Tp & **const_reference**
- typedef ptrdiff_t **difference_type**
- typedef _Tp * **pointer**
- typedef _Tp & **reference**
- typedef size_t **size_type**
- typedef _Tp **value_type**

Public Member Functions

- template<typename _Tp1 , typename _Poolp1 >
  __mt_alloc (const __mt_alloc< _Tp1, _Poolp1 > &) throw ()
- **__mt_alloc** (const __mt_alloc &) throw ()
- const __pool_base::_Tune **_M_get_options** ()
- void **_M_set_options** (__pool_base::_Tune __t)
- const_pointer **address** (const_reference __x) const
- pointer **address** (reference __x) const
- pointer **allocate** (size_type __n, const void *=0)

- template<typename... _Args>
  void **construct** (pointer __p, _Args &&...__args)
- void **construct** (pointer __p, const _Tp &__val)
- void **deallocate** (pointer __p, size_type __n)
- void **destroy** (pointer __p)
- size_type **max_size** () const throw ()

5.12.1 Detailed Description

template<typename _Tp, typename _Poolp = __common_pool_policy<__pool, true >> class __gnu_cxx::__mt_alloc< _Tp, _Poolp >

This is a fixed size (power of 2) allocator which - when compiled with thread support - will maintain one freelist per size per thread plus a *global* one. Steps are taken to limit the per thread freelist sizes (by returning excess back to the *global* list).

Further details: http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt12ch32.html.

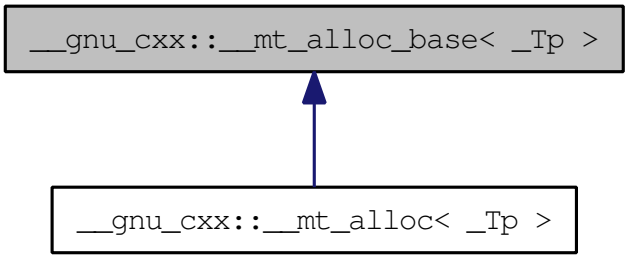
Definition at line 625 of file mt_allocator.h.

The documentation for this class was generated from the following file:

- mt_allocator.h

5.13 __gnu_cxx::__mt_alloc_base< _Tp > Class Template Reference

Base class for _Tp dependent member functions. Inheritance diagram for __gnu_cxx::__mt_alloc_base< _Tp >:



Public Types

- typedef const _Tp * **const_pointer**
- typedef const _Tp & **const_reference**
- typedef ptrdiff_t **difference_type**
- typedef _Tp * **pointer**
- typedef _Tp & **reference**
- typedef size_t **size_type**
- typedef _Tp **value_type**

Public Member Functions

- const_pointer **address** (const_reference __x) const
- pointer **address** (reference __x) const
- template<typename... _Args>
  void **construct** (pointer __p, _Args &&...__args)
- void **construct** (pointer __p, const _Tp &__val)
- void **destroy** (pointer __p)
- size_type **max_size** () const throw ()

5.13.1 Detailed Description

template<typename _Tp> class __gnu_cxx::__mt_alloc_base< _Tp >

Base class for _Tp dependent member functions.

Definition at line 566 of file mt_allocator.h.

The documentation for this class was generated from the following file:

- mt_allocator.h

5.14 __gnu_cxx::__per_type_pool_policy< _Tp, _PoolTp, _Thread > Struct Template Reference

Policy for individual __pool objects.

Inherits __per_type_pool_base< _Tp, _PoolTp, _Thread >.

5.14.1 Detailed Description

template<typename _Tp, template< bool > class _PoolTp, bool _Thread> struct __gnu_cxx::__per_type_pool_policy< _Tp, _PoolTp, _Thread >

Policy for individual __pool objects.

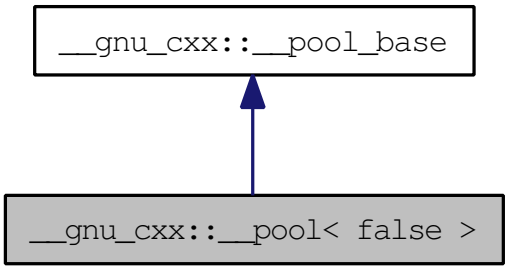
Definition at line 551 of file mt_allocator.h.

The documentation for this struct was generated from the following file:

- mt_allocator.h

5.15 __gnu_cxx::__pool< false > Class Template Reference

Specialization for single thread. Inheritance diagram for __gnu_cxx::__pool< false >:



Public Types

- typedef unsigned short int **_Binmap_type**

Public Member Functions

- **__pool** (const __pool_base::_Tune &__tune)
- void **_M_adjust_freelist** (const _Bin_record &, _Block_record *, size_t)
- bool **_M_check_threshold** (size_t __bytes)
- void **_M_destroy** () throw ()
- size_t **_M_get_align** ()
- const _Bin_record & **_M_get_bin** (size_t __which)
- size_t **_M_get_binmap** (size_t __bytes)
- const _Tune & **_M_get_options** () const
- size_t **_M_get_thread_id** ()
- void **_M_initialize_once** ()
- void **_M_reclaim_block** (char *__p, size_t __bytes) throw ()
- char * **_M_reserve_block** (size_t __bytes, const size_t __thread_id)
- void **_M_set_options** (_Tune __t)

Protected Attributes

- _Binmap_type * **_M_binmap**
- bool **_M_init**
- _Tune **_M_options**

5.15.1 Detailed Description

template<> class __gnu_cxx::__pool< false >

Specialization for single thread.

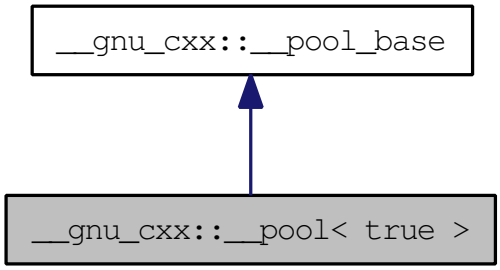
Definition at line 192 of file mt_allocator.h.

The documentation for this class was generated from the following file:

- mt_allocator.h

5.16 __gnu_cxx::__pool< true > Class Template Reference

Specialization for thread enabled, via gthreads.h. Inheritance diagram for __gnu_cxx::__pool< true >:



Public Types

- typedef unsigned short int **_Binmap_type**

Public Member Functions

- **__pool** (const __pool_base::_Tune &__tune)
- **__attribute__** ((__const__)) void _M_destroy_thread_key(void *) throw ()
- void **_M_adjust_freelist** (const _Bin_record &__bin, _Block_record *__block, size_t __thread_id)
- bool **_M_check_threshold** (size_t __bytes)
- void **_M_destroy** () throw ()
- size_t **_M_get_align** ()
- const _Bin_record & **_M_get_bin** (size_t __which)
- size_t **_M_get_binmap** (size_t __bytes)
- const _Tune & **_M_get_options** () const
- size_t **_M_get_thread_id** ()
- void **_M_initialize** (__destroy_handler)
- void **_M_initialize_once** ()
- void **_M_reclaim_block** (char *__p, size_t __bytes) throw ()
- char * **_M_reserve_block** (size_t __bytes, const size_t __thread_id)
- void **_M_set_options** (_Tune __t)

Protected Attributes

- _Binmap_type * **_M_binmap**
- bool **_M_init**
- _Tune **_M_options**

5.16.1 Detailed Description

template<> class __gnu_cxx::__pool< true >

Specialization for thread enabled, via gthreads.h.

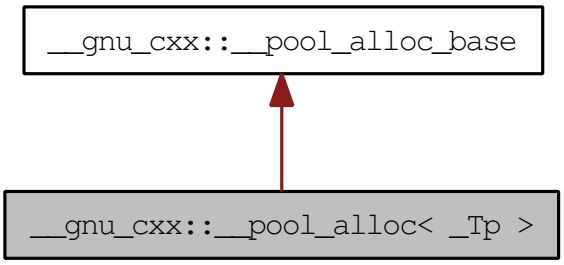
Definition at line 259 of file mt_allocator.h.

The documentation for this class was generated from the following file:

- mt_allocator.h

5.17 __gnu_cxx::__pool_alloc< _Tp > Class Template Reference

Allocator using a memory pool with a single lock. Inheritance diagram for __gnu_cxx::__pool_alloc< _Tp >:



Public Types

- typedef const _Tp * **const_pointer**
- typedef const _Tp & **const_reference**
- typedef ptrdiff_t **difference_type**
- typedef _Tp * **pointer**
- typedef _Tp & **reference**
- typedef size_t **size_type**
- typedef _Tp **value_type**

Public Member Functions

- template<typename _Tp1 >
  __pool_alloc (const __pool_alloc< _Tp1 > &) throw ()
- **__pool_alloc** (const __pool_alloc &) throw ()
- const_pointer **address** (const_reference __x) const
- pointer **address** (reference __x) const
- pointer **allocate** (size_type __n, const void *=0)
- template<typename... _Args>
  void **construct** (pointer __p, _Args &&...__args)
- void **construct** (pointer __p, const _Tp &__val)
- void **deallocate** (pointer __p, size_type __n)
- void **destroy** (pointer __p)
- size_type **max_size** () const throw ()

Private Types

- enum { **_S_align** }
- enum { **_S_max_bytes** }
- enum { **_S_free_list_size** }

Private Member Functions

- **__attribute__** ((__const__)) _Obj ∗volatile ∗_M_get_free_list(size_t __bytes) throw ()
- char ∗ **_M_allocate_chunk** (size_t __n, int &__nobjs)
- __mutex & **_M_get_mutex** () throw ()
- void ∗ **_M_refill** (size_t __n)
- size_t **_M_round_up** (size_t __bytes)

Static Private Attributes

- static char ∗ **_S_end_free**
- static _Obj ∗volatile **_S_free_list** [_S_free_list_size]
- static size_t **_S_heap_size**
- static char ∗ **_S_start_free**

5.17.1 Detailed Description

template<typename _Tp> class __gnu_cxx::__pool_alloc< _Tp >

Allocator using a memory pool with a single lock.

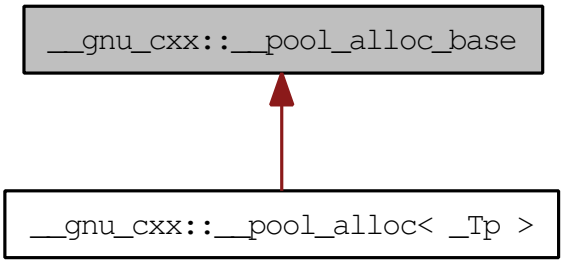
Definition at line 122 of file pool_allocator.h.

The documentation for this class was generated from the following file:

- pool_allocator.h

5.18 __gnu_cxx::__pool_alloc_base Class Reference

Base class for __pool_alloc. Inheritance diagram for __gnu_cxx::__pool_alloc_base:



Protected Types

- enum { **_S_align** }
- enum { **_S_max_bytes** }
- enum { **_S_free_list_size** }

Protected Member Functions

- **__attribute__** ((__const__)) _Obj ∗volatile ∗_M_get_free_list(size_t __bytes) throw ()
- char ∗ **_M_allocate_chunk** (size_t __n, int &__nobjs)
- __mutex & **_M_get_mutex** () throw ()
- void ∗ **_M_refill** (size_t __n)
- size_t **_M_round_up** (size_t __bytes)

Static Protected Attributes

- static char ∗ **_S_end_free**
- static _Obj ∗volatile **_S_free_list** [_S_free_list_size]
- static size_t **_S_heap_size**
- static char ∗ **_S_start_free**

5.18.1 Detailed Description

Base class for __pool_alloc. Uses various allocators to fulfill underlying requests (and makes as few requests as possible when in default high-speed pool mode).

Important implementation properties: 0. If globally mandated, then allocate objects from new 1. If the clients request an object of size > _S_max_bytes, the resulting object will be obtained directly from new 2. In all other cases, we allocate an object of size exactly _S_round_up(requested_size). Thus the client has enough size information that we can return the object to the proper free list without permanently losing part of the object.

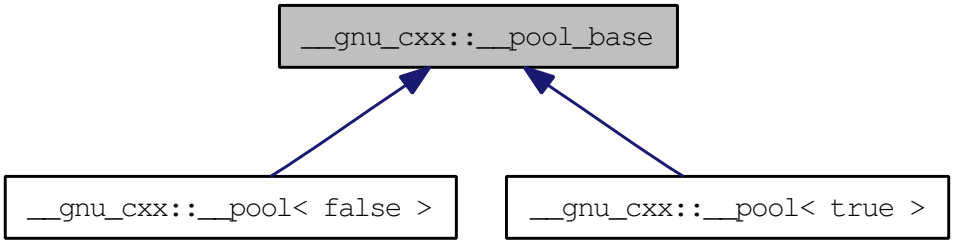
Definition at line 74 of file pool_allocator.h.

The documentation for this class was generated from the following file:

- pool_allocator.h

5.19 __gnu_cxx::__pool_base Struct Reference

Base class for pool object. Inheritance diagram for __gnu_cxx::__pool_base:



Public Types

- typedef unsigned short int **_Binmap_type**

Public Member Functions

- **__pool_base** (const _Tune &__options)
- bool **_M_check_threshold** (size_t __bytes)
- size_t **_M_get_align** ()
- size_t **_M_get_binmap** (size_t __bytes)
- const _Tune & **_M_get_options** () const
- void **_M_set_options** (_Tune __t)

Protected Attributes

- _Binmap_type * **_M_binmap**
- bool **_M_init**
- _Tune **_M_options**

5.19.1 Detailed Description

Base class for pool object.

Definition at line 47 of file mt_allocator.h.

The documentation for this struct was generated from the following file:

- mt_allocator.h

5.20 __gnu_cxx::__rc_string_base< _CharT, _Traits, _Alloc > Class Template Reference

Inherits __gnu_cxx::__vstring_utility< _CharT, _Traits, _Alloc >.

Public Types

- typedef _Util_Base::_CharT_alloc_type **_CharT_alloc_type**
- typedef __vstring_utility< _CharT, _Traits, _Alloc > **_Util_Base**
- typedef _Alloc **allocator_type**
- typedef _CharT_alloc_type::size_type **size_type**
- typedef _Traits **traits_type**
- typedef _Traits::char_type **value_type**

Public Member Functions

- template<typename _InputIterator >
  __rc_string_base (_InputIterator __beg, _InputIterator __end, const _Alloc &_-_a)
- **__rc_string_base** (size_type __n, _CharT __c, const _Alloc &__a)
- **__rc_string_base** (__rc_string_base &&__rcs)
- **__rc_string_base** (const __rc_string_base &__rcs)
- **__rc_string_base** (const _Alloc &__a)
- void **_M_assign** (const __rc_string_base &__rcs)
- size_type **_M_capacity** () const
- void **_M_clear** ()
- template<>
  bool **_M_compare** (const __rc_string_base &__rcs) const
- template<>
  bool **_M_compare** (const __rc_string_base &__rcs) const
- bool **_M_compare** (const __rc_string_base &) const
- _CharT * **_M_data** () const
- void **_M_erase** (size_type __pos, size_type __n)
- const allocator_type & **_M_get_allocator** () const
- allocator_type & **_M_get_allocator** ()
- bool **_M_is_shared** () const
- void **_M_leak** ()
- size_type **_M_length** () const
- size_type **_M_max_size** () const
- void **_M_mutate** (size_type __pos, size_type __len1, const _CharT *__s, size_-_type __len2)

- void **_M_reserve** (size_type __res)
- void **_M_set_leaked** ()
- void **_M_set_length** (size_type __n)
- void **_M_swap** (__rc_string_base &__rcs)
- template<typename _InIterator >
  _CharT * **_S_construct** (_InIterator __beg, _InIterator __end, const _Alloc &_-
  _a, std::forward_iterator_tag)

Protected Types

- typedef __gnu_cxx::__normal_iterator< const_pointer, __gnu_cxx::__versa_-
  string< _CharT, _Traits, _Alloc, __rc_string_base > > **__const_rc_iterator**
- typedef __gnu_cxx::__normal_iterator< const_pointer, __gnu_cxx::__versa_-
  string< _CharT, _Traits, _Alloc, __sso_string_base > > **__const_sso_iterator**

- typedef __gnu_cxx::__normal_iterator< pointer, __gnu_cxx::__versa_string<
  _CharT, _Traits, _Alloc, __rc_string_base > > **__rc_iterator**
- typedef __gnu_cxx::__normal_iterator< pointer, __gnu_cxx::__versa_string<
  _CharT, _Traits, _Alloc, __sso_string_base > > **__sso_iterator**
- typedef _CharT_alloc_type::const_pointer **const_pointer**
- typedef _CharT_alloc_type::difference_type **difference_type**
- typedef _CharT_alloc_type::pointer **pointer**

Static Protected Member Functions

- static void **_S_assign** (_CharT *__d, size_type __n, _CharT __c)
- static int **_S_compare** (size_type __n1, size_type __n2)
- static void **_S_copy** (_CharT *__d, const _CharT *__s, size_type __n)
- static void **_S_copy_chars** (_CharT *__p, const _CharT *__k1, const _CharT
  *__k2)
- static void **_S_copy_chars** (_CharT *__p, _CharT *__k1, _CharT *__k2)
- static void **_S_copy_chars** (_CharT *__p, __const_rc_iterator __k1, __const_-
  rc_iterator __k2)
- static void **_S_copy_chars** (_CharT *__p, __rc_iterator __k1, __rc_iterator __-
  k2)
- static void **_S_copy_chars** (_CharT *__p, __const_sso_iterator __k1, __const_-
  sso_iterator __k2)
- static void **_S_copy_chars** (_CharT *__p, __sso_iterator __k1, __sso_iterator
  __k2)
- template<typename _Iterator >
  static void **_S_copy_chars** (_CharT *__p, _Iterator __k1, _Iterator __k2)
- static void **_S_move** (_CharT *__d, const _CharT *__s, size_type __n)

5.20.1 Detailed Description

template<typename _CharT, typename _Traits, typename _Alloc> class __gnu_cxx::__rc_string_base< _CharT, _Traits, _Alloc >

Documentation? What's that? Nathan Myers <ncm@cantrip.org>.

A string looks like this:

```
                                    [_Rep]
                                    _M_length
[__rc_string_base<char_type>]       _M_capacity
_M_dataplus                         _M_refcount
_M_p ---------------->              unnamed array of char_type
```

Where the _M_p points to the first character in the string, and you cast it to a pointer-to-_Rep and subtract 1 to get a pointer to the header.

This approach has the enormous advantage that a string object requires only one allocation. All the ugliness is confined within a single pair of inline functions, which each compile to a single *add* instruction: _Rep::_M_refdata(), and __rc_string_base::_M_rep(); and the allocation function which gets a block of raw bytes and with room enough and constructs a _Rep object at the front.

The reason you want _M_data pointing to the character array and not the _Rep is so that the debugger can see the string contents. (Probably we should add a non-inline member to get the _Rep for the debugger to use, so users can check the actual string length.)

Note that the _Rep object is a POD so that you can have a static *empty string* _Rep object already *constructed* before static constructors have run. The reference-count encoding is chosen so that a 0 indicates one reference, so you never try to destroy the empty-string _Rep object.

All but the last paragraph is considered pretty conventional for a C++ string implementation.

Definition at line 82 of file rc_string_base.h.

The documentation for this class was generated from the following file:

- rc_string_base.h

5.21 __gnu_cxx::__scoped_lock Class Reference

Scoped lock idiom.

Public Types

- typedef __mutex **__mutex_type**

Public Member Functions

- **__scoped_lock** (__mutex_type &__name)

5.21.1 Detailed Description

Scoped lock idiom.

Definition at line 241 of file concurrence.h.

The documentation for this class was generated from the following file:

- concurrence.h

5.22 __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base > Class Template Reference

Template class __versa_string.

Data structure managing sequences of characters and character-like objects.

Inherits _Base< _CharT, _Traits, _Alloc >.

Public Types

- typedef _Alloc **allocator_type**
- typedef __gnu_cxx::__normal_iterator< const_pointer, __versa_string > **const_iterator**
- typedef _CharT_alloc_type::const_pointer **const_pointer**
- typedef _CharT_alloc_type::const_reference **const_reference**
- typedef std::reverse_iterator< const_iterator > **const_reverse_iterator**
- typedef _CharT_alloc_type::difference_type **difference_type**
- typedef __gnu_cxx::__normal_iterator< pointer, __versa_string > **iterator**
- typedef _CharT_alloc_type::pointer **pointer**
- typedef _CharT_alloc_type::reference **reference**
- typedef std::reverse_iterator< iterator > **reverse_iterator**
- typedef _CharT_alloc_type::size_type **size_type**
- typedef _Traits **traits_type**
- typedef _Traits::char_type **value_type**

Public Member Functions

- template<class _InputIterator >
  __versa_string (_InputIterator __beg, _InputIterator __end, const _Alloc &__a=_Alloc())
- __versa_string (size_type __n, _CharT __c, const _Alloc &__a=_Alloc())
- __versa_string (const _CharT *__s, const _Alloc &__a=_Alloc())
- __versa_string (const _CharT *__s, size_type __n, const _Alloc &__a=_Alloc())
- __versa_string (const __versa_string &__str, size_type __pos, size_type __n, const _Alloc &__a)
- __versa_string (const __versa_string &__str, size_type __pos, size_type __n=npos)
- __versa_string (std::initializer_list< _CharT > __l, const _Alloc &__a=_Alloc())
- __versa_string (__versa_string &&__str)
- __versa_string (const __versa_string &__str)
- __versa_string (const _Alloc &__a)

- __versa_string ()
- ~__versa_string ()
- template<class _InputIterator >
  __versa_string & append (_InputIterator __first, _InputIterator __last)
- __versa_string & append (std::initializer_list< _CharT > __l)
- __versa_string & append (size_type __n, _CharT __c)
- __versa_string & append (const _CharT *__s)
- __versa_string & append (const _CharT *__s, size_type __n)
- __versa_string & append (const __versa_string &__str, size_type __pos, size_type __n)
- __versa_string & append (const __versa_string &__str)
- __versa_string & assign (std::initializer_list< _CharT > __l)
- template<class _InputIterator >
  __versa_string & assign (_InputIterator __first, _InputIterator __last)
- __versa_string & assign (size_type __n, _CharT __c)
- __versa_string & assign (const _CharT *__s)
- __versa_string & assign (const _CharT *__s, size_type __n)
- __versa_string & assign (const __versa_string &__str, size_type __pos, size_type __n)
- __versa_string & assign (__versa_string &&__str)
- __versa_string & assign (const __versa_string &__str)
- reference at (size_type __n)
- const_reference at (size_type __n) const
- const_reference back () const
- reference back ()
- const_iterator begin () const
- iterator begin ()
- const _CharT * c_str () const
- size_type capacity () const
- const_iterator cbegin () const
- const_iterator cend () const
- void clear ()
- int compare (size_type __pos, size_type __n1, const _CharT *__s, size_type __n2) const
- int compare (size_type __pos, size_type __n1, const _CharT *__s) const
- int compare (const _CharT *__s) const
- int compare (size_type __pos1, size_type __n1, const __versa_string &__str, size_type __pos2, size_type __n2) const
- int compare (size_type __pos, size_type __n, const __versa_string &__str) const
- int compare (const __versa_string &__str) const
- size_type copy (_CharT *__s, size_type __n, size_type __pos=0) const
- const_reverse_iterator crbegin () const
- const_reverse_iterator crend () const

- const _CharT * data () const
- bool empty () const
- const_iterator end () const
- iterator end ()
- iterator erase (iterator __first, iterator __last)
- iterator erase (iterator __position)
- __versa_string & erase (size_type __pos=0, size_type __n=npos)
- size_type find (_CharT __c, size_type __pos=0) const
- size_type find (const _CharT *__s, size_type __pos=0) const
- size_type find (const __versa_string &__str, size_type __pos=0) const
- size_type find (const _CharT *__s, size_type __pos, size_type __n) const
- size_type find_first_not_of (_CharT __c, size_type __pos=0) const
- size_type find_first_not_of (const _CharT *__s, size_type __pos=0) const
- size_type find_first_not_of (const _CharT *__s, size_type __pos, size_type __n) const
- size_type find_first_not_of (const __versa_string &__str, size_type __pos=0) const
- size_type find_first_of (_CharT __c, size_type __pos=0) const
- size_type find_first_of (const _CharT *__s, size_type __pos=0) const
- size_type find_first_of (const _CharT *__s, size_type __pos, size_type __n) const
- size_type find_first_of (const __versa_string &__str, size_type __pos=0) const
- size_type find_last_not_of (_CharT __c, size_type __pos=npos) const
- size_type find_last_not_of (const _CharT *__s, size_type __pos=npos) const
- size_type find_last_not_of (const _CharT *__s, size_type __pos, size_type __n) const
- size_type find_last_not_of (const __versa_string &__str, size_type __pos=npos) const
- size_type find_last_of (_CharT __c, size_type __pos=npos) const
- size_type find_last_of (const _CharT *__s, size_type __pos=npos) const
- size_type find_last_of (const _CharT *__s, size_type __pos, size_type __n) const
- size_type find_last_of (const __versa_string &__str, size_type __pos=npos) const
- const_reference front () const
- reference front ()
- allocator_type get_allocator () const
- iterator insert (iterator __p, _CharT __c)
- __versa_string & insert (size_type __pos, size_type __n, _CharT __c)
- __versa_string & insert (size_type __pos, const _CharT *__s)
- __versa_string & insert (size_type __pos, const _CharT *__s, size_type __n)
- __versa_string & insert (size_type __pos1, const __versa_string &__str, size_type __pos2, size_type __n)

- __versa_string & insert (size_type __pos1, const __versa_string &__str)
- void insert (iterator __p, std::initializer_list< _CharT > __l)
- template<class _InputIterator >
  void insert (iterator __p, _InputIterator __beg, _InputIterator __end)
- void insert (iterator __p, size_type __n, _CharT __c)
- size_type length () const
- size_type max_size () const
- __versa_string & operator+= (std::initializer_list< _CharT > __l)
- __versa_string & operator+= (_CharT __c)
- __versa_string & operator+= (const _CharT *__s)
- __versa_string & operator+= (const __versa_string &__str)
- __versa_string & operator= (_CharT __c)
- __versa_string & operator= (const _CharT *__s)
- __versa_string & operator= (std::initializer_list< _CharT > __l)
- __versa_string & operator= (__versa_string &&__str)
- __versa_string & operator= (const __versa_string &__str)
- reference operator[ ] (size_type __pos)
- const_reference operator[ ] (size_type __pos) const
- void push_back (_CharT __c)
- const_reverse_iterator rbegin () const
- reverse_iterator rbegin ()
- const_reverse_iterator rend () const
- reverse_iterator rend ()
- __versa_string & replace (iterator __i1, iterator __i2, std::initializer_list< _CharT > __l)
- __versa_string & **replace** (iterator __i1, iterator __i2, const_iterator __k1, const_iterator __k2)
- __versa_string & **replace** (iterator __i1, iterator __i2, iterator __k1, iterator __k2)
- __versa_string & **replace** (iterator __i1, iterator __i2, const _CharT *__k1, const _CharT *__k2)
- __versa_string & **replace** (iterator __i1, iterator __i2, _CharT *__k1, _CharT *__k2)
- template<class _InputIterator >
  __versa_string & replace (iterator __i1, iterator __i2, _InputIterator __k1, _InputIterator __k2)
- __versa_string & replace (iterator __i1, iterator __i2, size_type __n, _CharT __c)
- __versa_string & replace (iterator __i1, iterator __i2, const _CharT *__s)
- __versa_string & replace (iterator __i1, iterator __i2, const _CharT *__s, size_type __n)
- __versa_string & replace (iterator __i1, iterator __i2, const __versa_string &__str)

- __versa_string & replace (size_type __pos, size_type __n1, size_type __n2, _CharT __c)
- __versa_string & replace (size_type __pos, size_type __n1, const _CharT *__s)
- __versa_string & replace (size_type __pos, size_type __n1, const _CharT *__s, size_type __n2)
- __versa_string & replace (size_type __pos1, size_type __n1, const __versa_string &__str, size_type __pos2, size_type __n2)
- __versa_string & replace (size_type __pos, size_type __n, const __versa_string &__str)
- void reserve (size_type __res_arg=0)
- void resize (size_type __n)
- void resize (size_type __n, _CharT __c)
- size_type rfind (_CharT __c, size_type __pos=npos) const
- size_type rfind (const _CharT *__s, size_type __pos=npos) const
- size_type rfind (const _CharT *__s, size_type __pos, size_type __n) const
- size_type rfind (const __versa_string &__str, size_type __pos=npos) const
- void shrink_to_fit ()
- size_type size () const
- __versa_string substr (size_type __pos=0, size_type __n=npos) const
- void swap (__versa_string &__s)

Static Public Attributes

- static const size_type npos

5.22.1 Detailed Description

template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> class __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >

Template class __versa_string.

Data structure managing sequences of characters and character-like objects.

Definition at line 52 of file vstring.h.

5.22.2 Constructor & Destructor Documentation

5.22.2.1 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::__versa_string () [inline]

Default constructor creates an empty string.

Definition at line 130 of file vstring.h.

5.22.2.2 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::__versa_string (const _Alloc & *__a*) [inline, explicit]

Construct an empty string using allocator *a*.

Definition at line 137 of file vstring.h.

5.22.2.3 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::__versa_string (const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__str*) [inline]

Construct string with copy of value of *str*.

Parameters:

__str Source string.

Definition at line 145 of file vstring.h.

5.22.2.4 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::__versa_string (__versa_string< _CharT, _Traits, _Alloc, _Base > && *__str*) [inline]

String move constructor.

Parameters:

__str Source string.

The newly-constructed string contains the exact contents of *str*. The contents of *str* are a valid, but unspecified string.

Definition at line 157 of file vstring.h.

5.22.2.5 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::__versa_string (std::initializer_list< _CharT > __l, const _Alloc & __a = _Alloc()) [inline]

Construct string from an initializer list.

Parameters:

__l std::initializer_list of characters.

__a Allocator to use (default is default allocator).

Definition at line 165 of file vstring.h.

5.22.2.6 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::__versa_string (const __versa_string< _CharT, _Traits, _Alloc, _Base > & __str, size_type __pos, size_type __n = npos) [inline]

Construct string as copy of a substring.

Parameters:

__str Source string.

__pos Index of first character to copy from.

__n Number of characters to copy (default remainder).

Definition at line 176 of file vstring.h.

5.22.2.7 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::__versa_string (const __versa_string< _CharT, _Traits, _Alloc, _Base > & __str, size_type __pos, size_type __n, const _Alloc & __a) [inline]

Construct string as copy of a substring.

Parameters:

__str Source string.

__pos Index of first character to copy from.

__n Number of characters to copy.

__a Allocator to use.

Definition at line 191 of file vstring.h.

5.22.2.8 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::__versa_string (const _CharT * __s, size_type __n, const _Alloc & __a = _Alloc()) [inline]

Construct string initialized by a character array.

Parameters:

__s Source character array.

__n Number of characters to copy.

__a Allocator to use (default is default allocator).

NB: *__s* must have at least *__n* characters, '\0' has no special meaning.

Definition at line 208 of file vstring.h.

5.22.2.9 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::__versa_string (const _CharT * __s, const _Alloc & __a = _Alloc()) [inline]

Construct string as copy of a C string.

Parameters:

__s Source C string.

__a Allocator to use (default is default allocator).

Definition at line 217 of file vstring.h.

5.22.2.10 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::__versa_string (size_type __n, _CharT __c, const _Alloc & __a = _Alloc()) [inline]

Construct string as multiple characters.

Parameters:

__n Number of characters.

__c Character to use.

__a Allocator to use (default is default allocator).

Definition at line 227 of file vstring.h.

5.22.2.11 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> template<class _InputIterator > __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::__versa_string (_InputIterator __beg, _InputIterator __end, const _Alloc & __a = _Alloc()) [inline]

Construct string as copy of a range.

Parameters:

__beg Start of range.

__end End of range.

__a Allocator to use (default is default allocator).

Definition at line 237 of file vstring.h.

5.22.2.12 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::~__versa_string () [inline]

Destroy the string instance.

Definition at line 244 of file vstring.h.

5.22.3 Member Function Documentation

5.22.3.1 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> template<class _InputIterator > __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::append (_InputIterator *__first*, _InputIterator *__last*) [inline]

Append a range of characters.

Parameters:

__first Iterator referencing the first character to append.

__last Iterator marking the end of the range.

Returns:

Reference to this string.

Appends characters in the range [first,last) to this string.

Definition at line 759 of file vstring.h.

5.22.3.2 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::append (std::initializer_list< _CharT > *__l*) [inline]

Append an initializer_list of characters.

Parameters:

__l The initializer_list of characters to append.

Returns:

Reference to this string.

Definition at line 745 of file vstring.h.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::append().

Referenced by __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::append().

5.22.3.3 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::append (size_type __n, _CharT __c) [inline]

Append multiple characters.

Parameters:

__n The number of characters to append.

__c The character to use.

Returns:

Reference to this string.

Appends n copies of c to this string.

Definition at line 735 of file vstring.h.

5.22.3.4 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::append (const _CharT * __s) [inline]

Append a C string.

Parameters:

__s The C string to append.

Returns:

Reference to this string.

Definition at line 718 of file vstring.h.

5.22.3.5 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::append (const _CharT * __s, size_type __n) [inline]

Append a C substring.

Parameters:

__s The C string to append.

__n The number of characters to append.

Returns:

Reference to this string.

Definition at line 705 of file vstring.h.

5.22.3.6 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::append (const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__str*, size_type *__pos*, size_type *__n*) [inline]

Append a substring.

Parameters:

__str The string to append.

__pos Index of the first character of str to append.

__n The number of characters to append.

Returns:

Reference to this string.

Exceptions:

std::out_of_range if *pos* is not a valid index.

This function appends *__n* characters from *__str* starting at *__pos* to this string. If *__n* is is larger than the number of available characters in *__str*, the remainder of *__str* is appended.

Definition at line 693 of file vstring.h.

5.22.3.7 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::append (const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__str*) [inline]

Append a string to this string.

Parameters:

__str The string to append.

Returns:

Reference to this string.

Definition at line 676 of file vstring.h.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size().

Referenced by std::getline(), and __gnu_cxx::operator+().

5.22.3.8 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::assign (std::initializer_list< _CharT > __l) [inline]

Set value to an initializer_list of characters.

Parameters:

__l The initializer_list of characters to assign.

Returns:

Reference to this string.

Definition at line 893 of file vstring.h.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::assign().

Referenced by __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::assign().

5.22.3.9 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> template<class _InputIterator > __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::assign (_InputIterator *__first*, _InputIterator *__last*) [inline]

Set value to a range of characters.

Parameters:

__first Iterator referencing the first character to append.

__last Iterator marking the end of the range.

Returns:

Reference to this string.

Sets value of string to characters in the range [first,last).

Definition at line 883 of file vstring.h.

5.22.3.10 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::assign (size_type __n, _CharT __c) [inline]

Set value to multiple characters.

Parameters:

__n Length of the resulting string.

__c The character to use.

Returns:

Reference to this string.

This function sets the value of this string to *__n* copies of character *__c*.

Definition at line 869 of file vstring.h.

5.22.3.11 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::assign (const _CharT * __s) [inline]

Set value to contents of a C string.

Parameters:

__s The C string to use.

Returns:

Reference to this string.

This function sets the value of this string to the value of *__s*. The data is copied, so there is no dependence on *__s* once the function returns.

Definition at line 852 of file vstring.h.

5.22.3.12 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::assign (const _CharT * __s, size_type __n) [inline]

Set value to a C substring.

Parameters:

__s The C string to use.

__n Number of characters to use.

Returns:

Reference to this string.

This function sets the value of this string to the first *__n* characters of *__s*. If *__n* is is larger than the number of available characters in *__s*, the remainder of *__s* is used.

Definition at line 836 of file vstring.h.

5.22.3.13 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::assign (const __versa_string< _CharT, _Traits, _Alloc, _Base > & __str, size_type __pos, size_type __n) [inline]

Set value to a substring of a string.

Parameters:

__str The string to use.

__pos Index of the first character of str.

__n Number of characters to use.

Returns:

Reference to this string.

Exceptions:

std::out_of_range if *__pos* is not a valid index.

This function sets this string to the substring of *__str* consisting of *__n* characters at *__pos*. If *__n* is is larger than the number of available characters in *__str*, the remainder of *__str* is used.

Definition at line 819 of file vstring.h.

5.22.3.14 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::assign (__versa_string< _CharT, _Traits, _Alloc, _Base > && *__str*) [inline]

Set value to contents of another string.

Parameters:

__str Source string to use.

Returns:

Reference to this string.

This function sets this string to the exact contents of *__str*. *__str* is a valid, but unspecified string.

Definition at line 798 of file vstring.h.

References std::swap().

5.22.3.15 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::assign (const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__str*) [inline]

Set value to contents of another string.

Parameters:

__str Source string to use.

Returns:

Reference to this string.

Definition at line 782 of file vstring.h.

5.22.3.16 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> reference __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::at (size_type *__n*) [inline]

Provides access to the data contained in the string.

Parameters:

__n The index of the character to access.

Returns:

Read/write reference to the character.

Exceptions:

std::out_of_range If *__n* is an invalid index.

This function provides for safer data access. The parameter is first checked that it is in the range of the string. The function throws out_of_range if the check fails. Success results in unsharing the string.

Definition at line 586 of file vstring.h.

5.22.3.17 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> const_reference __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::at (size_type __n) const [inline]

Provides access to the data contained in the string.

Parameters:

__n The index of the character to access.

Returns:

Read-only (const) reference to the character.

Exceptions:

std::out_of_range If *__n* is an invalid index.

This function provides for safer data access. The parameter is first checked that it is in the range of the string. The function throws out_of_range if the check fails.

Definition at line 567 of file vstring.h.

5.22.3.18 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> const_reference __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::back () const [inline]

Returns a read-only (constant) reference to the data at the last element of the string.

Definition at line 624 of file vstring.h.

5.22.3.19 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> reference __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::back () [inline]

Returns a read/write reference to the data at the last element of the string.

Definition at line 616 of file vstring.h.

5.22.3.20 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> const_iterator __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::begin () const [inline]

Returns a read-only (constant) iterator that points to the first character in the string.

Definition at line 321 of file vstring.h.

5.22.3.21 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> iterator __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::begin () [inline]

Returns a read/write iterator that points to the first character in the string. Unshares the string.

Definition at line 310 of file vstring.h.

5.22.3.22 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> const _CharT* __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::c_str () const [inline]

Return const pointer to null-terminated contents. This is a handle to internal data. Do not modify or dire things may happen.

Definition at line 1486 of file vstring.h.

5.22.3.23 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::capacity () const [inline]

Returns the total number of characters that the string can hold before needing to allocate more memory.

Definition at line 478 of file vstring.h.

5.22.3.24 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> const_iterator __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::cbegin () const [inline]

Returns a read-only (constant) iterator that points to the first character in the string.

Definition at line 385 of file vstring.h.

5.22.3.25 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> const_iterator __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::cend () const [inline]

Returns a read-only (constant) iterator that points one past the last character in the string.

Definition at line 393 of file vstring.h.

5.22.3.26 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> void __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::clear () [inline]

Erases the string, making it empty.

Definition at line 506 of file vstring.h.

5.22.3.27 template<typename _CharT, typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> int __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::compare (size_type *__pos*, size_type *__n1*, const _CharT * *__s*, size_type *__n2*) const [inline]

Compare substring against a character array.

Parameters:

__pos1 Index of first character of substring.

__n1 Number of characters in substring.

__s character array to compare against.

__n2 Number of characters of s.

Returns:

Integer < 0, 0, or > 0.

Form the substring of this string from the *__n1* characters starting at *__pos1*. Form a string from the first *__n2* characters of *__s*. Returns an integer < 0 if this substring is ordered before the string from *__s*, 0 if their values are equivalent, or > 0 if this substring is ordered after the string from *__s*. Determines the effective length rlen of the strings to compare as the smallest of the length of the substring and *__n2*. The function then compares the two strings by calling traits::compare(substring.data(),s,rlen). If the result of the comparison is nonzero returns it, otherwise the shorter one is ordered first.

NB: s must have at least n2 characters, *\0* has no special meaning.

Definition at line 527 of file vstring.tcc.

References std::min().

5.22.3.28 template<typename _CharT, typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> int __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::compare (size_type *__pos*, size_type *__n1*, const _CharT * *__s*) const [inline]

Compare substring to a C string.

Parameters:

__pos Index of first character of substring.

__n1 Number of characters in substring.

__s C string to compare against.

Returns:

Integer < 0, 0, or > 0.

Form the substring of this string from the *__n1* characters starting at *__pos*. Returns an integer < 0 if the substring is ordered before *__s*, 0 if their values are equivalent, or > 0 if the substring is ordered after *__s*. Determines the effective length rlen of the strings to compare as the smallest of the length of the substring and the length of a string constructed from *__s*. The function then compares the two string by calling traits::compare(substring.data(),s,rlen). If the result of the comparison is nonzero returns it, otherwise the shorter one is ordered first.

Definition at line 510 of file vstring.tcc.

References std::min().

5.22.3.29 template<typename _CharT, typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> int __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::compare (const _CharT * __s) const [inline]

Compare to a C string.

Parameters:

__s C string to compare against.

Returns:

Integer < 0, 0, or > 0.

Returns an integer < 0 if this string is ordered before *__s*, 0 if their values are equivalent, or > 0 if this string is ordered after *__s*. Determines the effective length rlen of the strings to compare as the smallest of size() and the length of a string constructed from *__s*. The function then compares the two strings by calling traits::compare(data(),s,rlen). If the result of the comparison is nonzero returns it, otherwise the shorter one is ordered first.

Definition at line 494 of file vstring.tcc.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::compare(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::length(), std::min(), and __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size().

5.22.3.30 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> int __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::compare (size_type *__pos1*, size_type *__n1*, const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__str*, size_type *__pos2*, size_type *__n2*) const [inline]

Compare substring to a substring.

Parameters:

__pos1 Index of first character of substring.

__n1 Number of characters in substring.

__str String to compare against.

__pos2 Index of first character of substring of str.

__n2 Number of characters in substring of str.

Returns:

Integer < 0, 0, or > 0.

Form the substring of this string from the *__n1* characters starting at *__pos1*. Form the substring of *__str* from the *__n2* characters starting at *__pos2*. Returns an integer < 0 if this substring is ordered before the substring of *__str*, 0 if their values are equivalent, or > 0 if this substring is ordered after the substring of *__str*. Determines the effective length rlen of the strings to compare as the smallest of the lengths of the substrings. The function then compares the two strings by calling traits::compare(substring.data(),str.substr(pos2,n2).data(),rlen). If the result of the comparison is nonzero returns it, otherwise the shorter one is ordered first.

Definition at line 475 of file vstring.tcc.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::compare(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::data(), and std::min().

5.22.3.31 template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> int __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::compare (size_type *__pos*, size_type *__n*, const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__str*) const [inline]

Compare substring to a string.

Parameters:

__pos Index of first character of substring.

__n Number of characters in substring.

__str String to compare against.

Returns:

Integer < 0, 0, or > 0.

Form the substring of this string from the *__n* characters starting at *__pos*. Returns an integer < 0 if the substring is ordered before *__str*, 0 if their values are equivalent, or > 0 if the substring is ordered after *__str*. Determines the effective length rlen of the strings to compare as the smallest of the length of the substring and *__str.size()*. The function then compares the two strings by calling traits::compare(substring.data(),str.data(),rlen). If the result of the comparison is nonzero returns it, otherwise the shorter one is ordered first.

Definition at line 458 of file vstring.tcc.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::compare(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::data(), std::min(), and __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size().

5.22.3.32 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> int __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::compare (const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__str*) const [inline]

Compare to a string.

Parameters:

__str String to compare against.

Returns:

Integer < 0, 0, or > 0.

Returns an integer < 0 if this string is ordered before *__str*, 0 if their values are equivalent, or > 0 if this string is ordered after *__str*. Determines the effective length rlen of the strings to compare as the smallest of size() and str.size(). The function then compares the two strings by calling traits::compare(data(), str.data(),rlen). If the result of the comparison is nonzero returns it, otherwise the shorter one is ordered first.

Definition at line 1905 of file vstring.h.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::data(), std::min(), and __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size().

Referenced by __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::compare(), __gnu_cxx::operator<(), __gnu_cxx::operator<=(), __gnu_cxx::operator==(), __gnu_cxx::operator>(), and __gnu_cxx::operator>=().

5.22.3.33 template<typename _CharT, typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> __versa_string< _CharT, _Traits, _Alloc, _Base >::size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::copy (_CharT * *__s*, size_type *__n*, size_type *__pos* = 0) const [inline]

Copy substring into C string.

Parameters:

__s C string to copy value into.

__n Number of characters to copy.

__pos Index of first character to copy.

Returns:

Number of characters actually copied

Exceptions:

std::out_of_range If pos > size().

Copies up to *__n* characters starting at *__pos* into the C string *s*. If *__pos* is greater than size(), out_of_range is thrown.

Definition at line 253 of file vstring.tcc.

5.22.3.34 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> const_reverse_iterator __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::crbegin () const [inline]

Returns a read-only (constant) reverse iterator that points to the last character in the string. Iteration is done in reverse element order.

Definition at line 402 of file vstring.h.

5.22.3.35 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> const_reverse_iterator __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::crend () const [inline]

Returns a read-only (constant) reverse iterator that points to one before the first character in the string. Iteration is done in reverse element order.

Definition at line 411 of file vstring.h.

5.22.3.36 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> const _CharT* __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::data () const [inline]

Return const pointer to contents. This is a handle to internal data. Do not modify or dire things may happen.

Definition at line 1496 of file vstring.h.

Referenced by __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::compare(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find(),

__gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_first_not_of(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_first_of(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_last_not_of(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_last_of(), and __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::rfind().

5.22.3.37 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> bool __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::empty () const [inline]

Returns true if the string is empty. Equivalent to `*this == ""`.

Definition at line 514 of file vstring.h.

5.22.3.38 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> const_iterator __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::end () const [inline]

Returns a read-only (constant) iterator that points one past the last character in the string.

Definition at line 340 of file vstring.h.

5.22.3.39 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> iterator __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::end () [inline]

Returns a read/write iterator that points one past the last character in the string. Unshares the string.

Definition at line 329 of file vstring.h.

5.22.3.40 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> iterator __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::erase (iterator *__first*, iterator *__last*) [inline]

Remove a range of characters.

Parameters:

__first Iterator referencing the first character to remove.

__last Iterator referencing the end of the range.

Returns:

Iterator referencing location of first after removal.

Removes the characters in the range [first,last) from this string. The value of the string doesn't change if an error is thrown.

Definition at line 1125 of file vstring.h.

5.22.3.41 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> iterator __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::erase (iterator *__position*) [inline]

Remove one character.

Parameters:

__position Iterator referencing the character to remove.

Returns:

iterator referencing same location after removal.

Removes the character at *__position* from this string. The value of the string doesn't change if an error is thrown.

Definition at line 1104 of file vstring.h.

5.22.3.42 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::erase (size_type *__pos* = 0, size_type *__n* = npos) [inline]

Remove characters.

Parameters:

__pos Index of first character to remove (default 0).

__n Number of characters to remove (default remainder).

Returns:

Reference to this string.

Exceptions:

std::out_of_range If *__pos* is beyond the end of this string.

Removes *__n* characters from this string starting at *__pos*. The length of the string is reduced by *__n*. If there are < *__n* characters to remove, the remainder of the string is truncated. If *__p* is beyond end of string, out_of_range is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1088 of file vstring.h.

Referenced by std::getline().

5.22.3.43 template<typename _CharT, typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> __versa_string< _CharT, _Traits, _Alloc, _Base >::size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find (_CharT __c, size_type __pos = 0) const [inline]

Find position of a character.

Parameters:

__c Character to locate.

__pos Index of character to search from (default 0).

Returns:

Index of first occurrence.

Starting from *__pos*, searches forward for *__c* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 292 of file vstring.tcc.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::npos, and __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size().

5.22.3.44 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find (const _CharT * __s, size_type __pos = 0) const [inline]

Find position of a C string.

Parameters:

__s C string to locate.

__pos Index of character to search from (default 0).

Returns:

Index of start of first occurrence.

Starting from *__pos*, searches forward for the value of *__s* within this string. If found, returns the index where it begins. If not found, returns npos.

Definition at line 1546 of file vstring.h.

5.22.3.45 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find (const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__str*, size_type *__pos* = 0) const [inline]

Find position of a string.

Parameters:

__str String to locate.

__pos Index of character to search from (default 0).

Returns:

Index of start of first occurrence.

Starting from *__pos*, searches forward for value of *__str* within this string. If found, returns the index where it begins. If not found, returns npos.

Definition at line 1532 of file vstring.h.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::data(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find(), and __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size().

Referenced by __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find().

5.22.3.46 template<typename _CharT, typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> __versa_string< _CharT, _Traits, _Alloc, _Base >::size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find (const _CharT * *__s*, size_type *__pos*, size_type *__n*) const [inline]

Find position of a C substring.

Parameters:

__s C string to locate.

__pos Index of character to search from.

__n Number of characters from *__s* to search for.

Returns:

Index of start of first occurrence.

Starting from *__pos*, searches forward for the first *__n* characters in *__s* within this string. If found, returns the index where it begins. If not found, returns npos.

Definition at line 268 of file vstring.tcc.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::npos, and __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size().

Referenced by __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find(), and __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_first_of().

5.22.3.47 template<typename _CharT, typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> __versa_string< _CharT, _Traits, _Alloc, _Base >::size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_first_not_of (_CharT *__c*, size_type *__pos* = 0) const [inline]

Find position of a different character.

Parameters:

__c Character to avoid.

__pos Index of character to search from (default 0).

Returns:

Index of first occurrence.

Starting from *__pos*, searches forward for a character other than *__c* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 403 of file vstring.tcc.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::npos, and __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size().

5.22.3.48 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_first_not_of (const _CharT * __s, size_type __pos = 0) const [inline]

Find position of a character not in C string.

Parameters:

__s C string containing characters to avoid.

__pos Index of character to search from (default 0).

Returns:

Index of first occurrence.

Starting from *__pos*, searches forward for a character not contained in *__s* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 1790 of file vstring.h.

5.22.3.49 template<typename _CharT, typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> __versa_string< _CharT, _Traits, _Alloc, _Base >::size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_first_not_of (const _CharT * __s, size_type __pos, size_type __n) const [inline]

Find position of a character not in C substring.

Parameters:

__s C string containing characters to avoid.

__pos Index of character to search from.

__n Number of characters from s to consider.

Returns:

Index of first occurrence.

Starting from *__pos*, searches forward for a character not contained in the first *__n* characters of *__s* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 390 of file vstring.tcc.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::npos, and __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size().

5.22.3.50 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_first_not_of (const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__str*, size_type *__pos* = 0) const [inline]

Find position of a character not in string.

Parameters:

__str String containing characters to avoid.

__pos Index of character to search from (default 0).

Returns:

Index of first occurrence.

Starting from *__pos*, searches forward for a character not contained in *__str* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 1760 of file vstring.h.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::data(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_first_not_of(), and __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size().

Referenced by __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_first_not_of().

5.22.3.51 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_first_of (_CharT *__c*, size_type *__pos* = 0) const [inline]

Find position of a character.

Parameters:

__c Character to locate.

__pos Index of character to search from (default 0).

Returns:

Index of first occurrence.

Starting from *__pos*, searches forward for the character *__c* within this string. If found, returns the index where it was found. If not found, returns npos.

Note: equivalent to find(c, pos).

Definition at line 1683 of file vstring.h.

5.22.3.52 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_first_of (const _CharT * __s, size_type __pos = 0) const [inline]

Find position of a character of C string.

Parameters:

__s String containing characters to locate.

__pos Index of character to search from (default 0).

Returns:

Index of first occurrence.

Starting from *__pos*, searches forward for one of the characters of *__s* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 1664 of file vstring.h.

5.22.3.53 template<typename _CharT, typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> __versa_string< _CharT, _Traits, _Alloc, _Base >::size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_first_of (const _CharT * __s, size_type __pos, size_type __n) const [inline]

Find position of a character of C substring.

Parameters:

__s String containing characters to locate.

__pos Index of character to search from.

__n Number of characters from s to search for.

Returns:

Index of first occurrence.

Starting from *__pos*, searches forward for one of the first *__n* characters of *__s* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 351 of file vstring.tcc.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::npos, and __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size().

5.22.3.54 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_first_of (const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__str*, size_type *__pos* = 0) const [inline]

Find position of a character of string.

Parameters:

__str String containing characters to locate.

__pos Index of character to search from (default 0).

Returns:

Index of first occurrence.

Starting from *__pos*, searches forward for one of the characters of *__str* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 1635 of file vstring.h.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::data(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_first_of(), and __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size().

Referenced by __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_first_of().

5.22.3.55 template<typename _CharT, typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> __versa_string< _CharT, _Traits, _Alloc, _Base >::size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_last_not_of (_CharT *__c*, size_type *__pos* = npos) const [inline]

Find last position of a different character.

Parameters:

__c Character to avoid.

__pos Index of character to search back from (default end).

Returns:

Index of last occurrence.

Starting from *__pos*, searches backward for a character other than *__c* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 437 of file vstring.tcc.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::npos, and __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size().

5.22.3.56 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_last_not_of (const _CharT * __s, size_type __pos = npos) const [inline]

Find last position of a character not in C string.

Parameters:

__s C string containing characters to avoid.

__pos Index of character to search back from (default end).

Returns:

Index of last occurrence.

Starting from *__pos*, searches backward for a character not contained in *__s* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 1852 of file vstring.h.

5.22.3.57 template<typename _CharT, typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> __versa_string< _CharT, _Traits, _Alloc, _Base >::size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_last_not_of (const _CharT * __s, size_type __pos, size_type __n) const [inline]

Find last position of a character not in C substring.

Parameters:

__s C string containing characters to avoid.

__pos Index of character to search back from.

__n Number of characters from s to consider.

Returns:

Index of last occurrence.

Starting from *__pos*, searches backward for a character not contained in the first *__n* characters of *__s* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 415 of file vstring.tcc.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::npos, and __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size().

5.22.3.58 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_last_not_of (const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__str*, size_type *__pos* = npos) const [inline]

Find last position of a character not in string.

Parameters:

__str String containing characters to avoid.

__pos Index of character to search back from (default end).

Returns:

Index of last occurrence.

Starting from *__pos*, searches backward for a character not contained in *__str* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 1821 of file vstring.h.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::data(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_last_not_of(), and __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size().

Referenced by __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_last_not_of().

5.22.3.59 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_last_of (_CharT *__c*, size_type *__pos* = npos) const [inline]

Find last position of a character.

Parameters:

__c Character to locate.

__pos Index of character to search back from (default end).

Returns:

Index of last occurrence.

Starting from *__pos*, searches backward for *__c* within this string. If found, returns the index where it was found. If not found, returns npos.

Note: equivalent to rfind(c, pos).

Definition at line 1746 of file vstring.h.

5.22.3.60 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_last_of (const _CharT * __s, size_type __pos = npos) const [inline]

Find last position of a character of C string.

Parameters:

__s C string containing characters to locate.

__pos Index of character to search back from (default end).

Returns:

Index of last occurrence.

Starting from *__pos*, searches backward for one of the characters of *__s* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 1727 of file vstring.h.

5.22.3.61 template<typename _CharT, typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> __versa_string< _CharT, _Traits, _Alloc, _Base >::size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_last_of (const _CharT * __s, size_type __pos, size_type __n) const [inline]

Find last position of a character of C substring.

Parameters:

__s C string containing characters to locate.

__pos Index of character to search back from.

__n Number of characters from s to search for.

Returns:

Index of last occurrence.

Starting from *__pos*, searches backward for one of the first *__n* characters of *__s* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 368 of file vstring.tcc.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::npos, and __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size().

5.22.3.62 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_last_of (const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__str*, size_type *__pos* = npos) const [inline]

Find last position of a character of string.

Parameters:

__str String containing characters to locate.

__pos Index of character to search back from (default end).

Returns:

Index of last occurrence.

Starting from *__pos*, searches backward for one of the characters of *__str* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 1698 of file vstring.h.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::data(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_last_of(), and __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size().

Referenced by __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_last_of().

5.22.3.63 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> const_reference __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::front () const [inline]

Returns a read-only (constant) reference to the data at the first element of the string.

Definition at line 608 of file vstring.h.

5.22.3.64 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> reference __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::front () [inline]

Returns a read/write reference to the data at the first element of the string.

Definition at line 600 of file vstring.h.

5.22.3.65 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> allocator_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::get_allocator () const [inline]

Return copy of allocator used to construct this string.

Definition at line 1503 of file vstring.h.

5.22.3.66 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> iterator __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::insert (iterator *__p*, _CharT *__c*) [inline]

Insert one character.

Parameters:

__p Iterator referencing position in string to insert at.

__c The character to insert.

Returns:

Iterator referencing newly inserted char.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Inserts character *__c* at position referenced by *__p*. If adding character causes the length to exceed max_size(), length_error is thrown. If *__p* is beyond end of string, out_of_range is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1063 of file vstring.h.

5.22.3.67 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::insert (size_type *__pos*, size_type *__n*, _CharT *__c*) [inline]

Insert multiple characters.

Parameters:

__pos Index in string to insert at.

__n Number of characters to insert

__c The character to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

std::out_of_range If *__pos* is beyond the end of this string.

Inserts *__n* copies of character *__c* starting at index *__pos*. If adding characters causes the length to exceed max_size(), length_error is thrown. If *__pos* > length(), out_of_range is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1045 of file vstring.h.

5.22.3.68 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::insert (size_type *__pos*, const _CharT * *__s*) [inline]

Insert a C string.

Parameters:

__pos Iterator referencing location in string to insert at.

__s The C string to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

std::out_of_range If *__pos* is beyond the end of this string.

Inserts the first *__n* characters of *__s* starting at *__pos*. If adding characters causes the length to exceed max_size(), length_error is thrown. If *__pos* is beyond end(), out_of_range is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1021 of file vstring.h.

5.22.3.69 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::insert (size_type *__pos*, const _CharT * *__s*, size_type *__n*) [inline]

Insert a C substring.

Parameters:

__pos Iterator referencing location in string to insert at.

__s The C string to insert.

__n The number of characters to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

std::out_of_range If *__pos* is beyond the end of this string.

Inserts the first *__n* characters of *__s* starting at *__pos*. If adding characters causes the length to exceed max_size(), length_error is thrown. If *__pos* is beyond end(), out_of_range is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1002 of file vstring.h.

5.22.3.70 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::insert (size_type *__pos1*, const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__str*, size_type *__pos2*, size_type *__n*) [inline]

Insert a substring.

Parameters:

__pos1 Iterator referencing location in string to insert at.

__str The string to insert.

__pos2 Start of characters in str to insert.

__n Number of characters to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

std::out_of_range If *__pos1* > size() or *__pos2* > *__str.size()*.

Starting at *__pos1*, insert *__n* character of *__str* beginning with *__pos2*. If adding characters causes the length to exceed max_size(), length_error is thrown. If *__pos1* is beyond the end of this string or *__pos2* is beyond the end of *__str*, out_of_range is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 979 of file vstring.h.

5.22.3.71 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::insert (size_type *__pos1*, const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__str*) [inline]

Insert value of a string.

Parameters:

__pos1 Iterator referencing location in string to insert at.

__str The string to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Inserts value of *__str* starting at *__pos1*. If adding characters causes the length to exceed max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 956 of file vstring.h.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size().

5.22.3.72 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> void __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::insert (iterator __p, std::initializer_list< _CharT > __l) [inline]

Insert an initializer_list of characters.

Parameters:

__p Iterator referencing location in string to insert at.

__l The initializer_list of characters to insert.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Definition at line 939 of file vstring.h.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::insert().

Referenced by __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::insert().

5.22.3.73 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> template<class _InputIterator > void __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::insert (iterator __p, _InputIterator __beg, _InputIterator __end) [inline]

Insert a range of characters.

Parameters:

__p Iterator referencing location in string to insert at.

__beg Start of range.

__end End of range.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Inserts characters in range [beg,end). If adding characters causes the length to exceed max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 928 of file vstring.h.

5.22.3.74 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> void __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::insert (iterator __p, size_type __n, _CharT __c) [inline]

Insert multiple characters.

Parameters:

__p Iterator referencing location in string to insert at.

__n Number of characters to insert

__c The character to insert.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Inserts *__n* copies of character *__c* starting at the position referenced by iterator *__p*. If adding characters causes the length to exceed max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 911 of file vstring.h.

5.22.3.75 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::length () const [inline]

Returns the number of characters in the string, not including any null-termination.

Definition at line 426 of file vstring.h.

Referenced by __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::compare().

5.22.3.76 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::max_size () const [inline]

Returns the size() of the largest possible string.

Definition at line 431 of file vstring.h.

Referenced by std::getline().

5.22.3.77 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::operator+= (std::initializer_list< _CharT > __l) [inline]

Append an initializer_list of characters.

Parameters:

__l The initializer_list of characters to be appended.

Returns:

Reference to this string.

Definition at line 666 of file vstring.h.

5.22.3.78 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::operator+= (_CharT __c) [inline]

Append a character.

Parameters:

__c The character to append.

Returns:

Reference to this string.

Definition at line 653 of file vstring.h.

5.22.3.79 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::operator+= (const _CharT * __s) [inline]

Append a C string.

Parameters:

__s The C string to append.

Returns:

Reference to this string.

Definition at line 644 of file vstring.h.

5.22.3.80 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::operator+= (const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__str*) [inline]

Append a string to this string.

Parameters:

__str The string to append.

Returns:

Reference to this string.

Definition at line 635 of file vstring.h.

5.22.3.81 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::operator= (_CharT *__c*) [inline]

Set value to string of length 1.

Parameters:

__c Source character.

Assigning to a character makes this string length 1 and (∗this)[0] == __*c*.

Definition at line 298 of file vstring.h.

5.22.3.82 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::operator= (const _CharT ∗ __*s*) [inline]

Copy contents of __*s* into this string.

Parameters:

__*s* Source null-terminated string.

Definition at line 287 of file vstring.h.

5.22.3.83 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::operator= (std::initializer_list< _CharT > __*l*) [inline]

Set value to string constructed from initializer list.

Parameters:

__*l* std::initializer_list.

Definition at line 275 of file vstring.h.

5.22.3.84 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::operator= (__versa_string< _CharT, _Traits, _Alloc, _Base > && __*str*) [inline]

String move assignment operator.

Parameters:

__*str* Source string.

The contents of __*str* are moved into this string (without copying). __*str* is a valid, but unspecified string.

Definition at line 263 of file vstring.h.

References std::swap().

5.22.3.85 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::operator= (const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__str*) [inline]

Assign the value of *str* to this string.

Parameters:

__str Source string.

Definition at line 251 of file vstring.h.

5.22.3.86 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> reference __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::operator[ ] (size_type *__pos*) [inline]

Subscript access to the data contained in the string.

Parameters:

__pos The index of the character to access.

Returns:

Read/write reference to the character.

This operator allows for easy, array-style, data access. Note that data access with this operator is unchecked and out_of_range lookups are not defined. (For checked lookups see at().) Unshares the string.

Definition at line 546 of file vstring.h.

5.22.3.87 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> const_reference __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::operator[ ] (size_type *__pos*) const [inline]

Subscript access to the data contained in the string.

Parameters:

__pos The index of the character to access.

Returns:

Read-only (constant) reference to the character.

This operator allows for easy, array-style, data access. Note that data access with this operator is unchecked and out_of_range lookups are not defined. (For checked lookups see at().)

Definition at line 529 of file vstring.h.

5.22.3.88 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> void __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::push_back (_CharT *__c*) [inline]

Append a single character.

Parameters:

__c Character to append.

Definition at line 767 of file vstring.h.

Referenced by __gnu_cxx::operator+().

5.22.3.89 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> const_reverse_iterator __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::rbegin () const [inline]

Returns a read-only (constant) reverse iterator that points to the last character in the string. Iteration is done in reverse element order.

Definition at line 358 of file vstring.h.

5.22.3.90 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> reverse_iterator __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::rbegin () [inline]

Returns a read/write reverse iterator that points to the last character in the string. Iteration is done in reverse element order. Unshares the string.

Definition at line 349 of file vstring.h.

5.22.3.91 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> const_reverse_iterator __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::rend () const [inline]

Returns a read-only (constant) reverse iterator that points to one before the first character in the string. Iteration is done in reverse element order.

Definition at line 376 of file vstring.h.

5.22.3.92 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> reverse_iterator __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::rend () [inline]

Returns a read/write reverse iterator that points to one before the first character in the string. Iteration is done in reverse element order. Unshares the string.

Definition at line 367 of file vstring.h.

5.22.3.93 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::replace (iterator *__i1*, iterator *__i2*, std::initializer_list< _CharT > *__l*) [inline]

Replace range of characters with initializer_list.

Parameters:

__i1 Iterator referencing start of range to replace.

__i2 Iterator referencing end of range to replace.

__l The initializer_list of characters to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [i1,i2). In place, characters in the range [k1,k2) are inserted. If the length of result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1422 of file vstring.h.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::replace().

Referenced by __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::replace().

5.22.3.94 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> template<class _InputIterator > __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::replace (iterator *__i1*, iterator *__i2*, _InputIterator *__k1*, _InputIterator *__k2*) [inline]

Replace range of characters with range.

Parameters:

__i1 Iterator referencing start of range to replace.

__i2 Iterator referencing end of range to replace.

__k1 Iterator referencing start of range to insert.

__k2 Iterator referencing end of range to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [i1,i2). In place, characters in the range [k1,k2) are inserted. If the length of result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1354 of file vstring.h.

5.22.3.95 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::replace (iterator *__i1*, iterator *__i2*, size_type *__n*, _CharT *__c*) [inline]

Replace range of characters with multiple characters.

Parameters:

__i1 Iterator referencing start of range to replace.

__i2 Iterator referencing end of range to replace.

__n Number of characters to insert.

__c Character to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [i1,i2). In place, *__n* copies of *__c* are inserted. If the length of result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1331 of file vstring.h.

5.22.3.96 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::replace (iterator *__i1*, iterator *__i2*, const _CharT * *__s*) [inline]

Replace range of characters with C string.

Parameters:

__i1 Iterator referencing start of range to replace.

__i2 Iterator referencing end of range to replace.

__s C string value to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [i1,i2). In place, the characters of *__s* are inserted. If the length of result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1310 of file vstring.h.

5.22.3.97 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::replace (iterator __i1, iterator __i2, const _CharT * __s, size_type __n) [inline]

Replace range of characters with C substring.

Parameters:

__i1 Iterator referencing start of range to replace.

__i2 Iterator referencing end of range to replace.

__s C string value to insert.

__n Number of characters from s to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [i1,i2). In place, the first *n* characters of *__s* are inserted. If the length of result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1289 of file vstring.h.

5.22.3.98 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::replace (iterator __i1, iterator __i2, const __versa_string< _CharT, _Traits, _Alloc, _Base > & __str) [inline]

Replace range of characters with string.

Parameters:

__i1 Iterator referencing start of range to replace.

__i2 Iterator referencing end of range to replace.

__str String value to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [i1,i2). In place, the value of *__str* is inserted. If the length of result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1271 of file vstring.h.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::replace(), and __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size().

Referenced by __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::replace().

5.22.3.99 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::replace (size_type *__pos*, size_type *__n1*, size_type *__n2*, _CharT *__c*) `[inline]`

Replace characters with multiple characters.

Parameters:

__pos Index of first character to replace.

__n1 Number of characters to be replaced.

__n2 Number of characters to insert.

__c Character to insert.

Returns:

Reference to this string.

Exceptions:

std::out_of_range If *__pos* > size().

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [pos,pos + n1) from this string. In place, *__n2* copies of *__c* are inserted. If *__pos* is beyond end of string, out_of_range is thrown. If the length of result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1253 of file vstring.h.

5.22.3.100 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::replace (size_type *__pos*, size_type *__n1*, const _CharT * *__s*) [inline]

Replace characters with value of a C string.

Parameters:

__pos Index of first character to replace.

__n1 Number of characters to be replaced.

__s C string to insert.

Returns:

Reference to this string.

Exceptions:

std::out_of_range If *__pos* > size().

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [pos,pos + n1) from this string. In place, the first *__n* characters of *__s* are inserted. If *pos* is beyond end of string, out_of_range is thrown. If the length of result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1229 of file vstring.h.

5.22.3.101 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::replace (size_type *__pos*, size_type *__n1*, const _CharT * *__s*, size_type *__n2*) [inline]

Replace characters with value of a C substring.

Parameters:

__pos Index of first character to replace.

__n1 Number of characters to be replaced.

__s C string to insert.

__n2 Number of characters from *__s* to use.

Returns:

Reference to this string.

Exceptions:

std::out_of_range If *__pos1* > size().

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [pos,pos + n1) from this string. In place, the first *__n2* characters of *__s* are inserted, or all of *__s* if *__n2* is too large. If *__pos* is beyond end of string, out_of_range is thrown. If the length of result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1204 of file vstring.h.

5.22.3.102 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::replace (size_type *__pos1*, size_type *__n1*, const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__str*, size_type *__pos2*, size_type *__n2*) `[inline]`

Replace characters with value from another string.

Parameters:

__pos1 Index of first character to replace.

__n1 Number of characters to be replaced.

__str String to insert.

__pos2 Index of first character of str to use.

__n2 Number of characters from str to use.

Returns:

Reference to this string.

Exceptions:

std::out_of_range If *__pos1* > size() or *__pos2* > str.size().

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [pos1,pos1 + n) from this string. In place, the value of *__str* is inserted. If *__pos* is beyond end of string, out_of_range is thrown. If the length of the result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1176 of file vstring.h.

5.22.3.103 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string& __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::replace (size_type *__pos*, size_type *__n*, const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__str*) [inline]

Replace characters with value from another string.

Parameters:

__pos Index of first character to replace.

__n Number of characters to be replaced.

__str String to insert.

Returns:

Reference to this string.

Exceptions:

std::out_of_range If *__pos* is beyond the end of this string.

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [pos,pos+n) from this string. In place, the value of *__str* is inserted. If *__pos* is beyond end of string, out_of_range is thrown. If the length of the result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1153 of file vstring.h.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::replace(), and __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size().

Referenced by __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::replace().

5.22.3.104 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> void __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::reserve (size_type *__res_arg* = 0) [inline]

Attempt to preallocate enough memory for specified number of characters.

Parameters:

__res_arg Number of characters required.

Exceptions:

std::length_error If *__res_arg* exceeds `max_size()`.

This function attempts to reserve enough memory for the string to hold the specified number of characters. If the number requested is more than max_size(), length_error is thrown.

The advantage of this function is that if optimal code is a necessity and the user can determine the string length that will be required, the user can reserve the memory in advance, and thus prevent a possible reallocation of memory and copying of string data.

Definition at line 499 of file vstring.h.

Referenced by __gnu_cxx::operator+().

5.22.3.105 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> void __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::resize (size_type __n) [inline]

Resizes the string to the specified number of characters.

Parameters:

__n Number of characters the string should contain.

This function will resize the string to the specified length. If the new size is smaller than the string's current size the string is truncated, otherwise the string is extended and new characters are default-constructed. For basic types such as char, this means setting them to 0.

Definition at line 458 of file vstring.h.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::resize().

Referenced by __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::resize().

5.22.3.106 template<typename _CharT, typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> void __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::resize (size_type __n, _CharT __c) [inline]

Resizes the string to the specified number of characters.

Parameters:

__n Number of characters the string should contain.

__c Character to fill any new elements.

This function will resize the string to the specified number of characters. If the number is smaller than the string's current size the string is truncated, otherwise the string is extended and new elements are set to *__c*.

Definition at line 49 of file vstring.tcc.

5.22.3.107 template<typename _CharT, typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> __versa_string< _CharT, _Traits, _Alloc, _Base >::size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::rfind (_CharT *__c*, size_type *__pos* = npos) const [inline]

Find last position of a character.

Parameters:

__c Character to locate.

__pos Index of character to search back from (default end).

Returns:

Index of last occurrence.

Starting from *__pos*, searches backward for *__c* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 333 of file vstring.tcc.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::npos, and __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size().

5.22.3.108 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::rfind (const _CharT * *__s*, size_type *__pos* = npos) const [inline]

Find last position of a C string.

Parameters:

__s C string to locate.

__pos Index of character to start search at (default end).

Returns:

Index of start of last occurrence.

Starting from *__pos*, searches backward for the value of *__s* within this string. If found, returns the index where it begins. If not found, returns npos.

Definition at line 1605 of file vstring.h.

5.22.3.109 template<typename _CharT, typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base> __versa_string< _CharT, _Traits, _Alloc, _Base >::size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::rfind (const _CharT * *__s*, size_type *__pos*, size_type *__n*) const [inline]

Find last position of a C substring.

Parameters:

__s C string to locate.

__pos Index of character to search back from.

__n Number of characters from s to search for.

Returns:

Index of start of last occurrence.

Starting from *__pos*, searches backward for the first *__n* characters in *__s* within this string. If found, returns the index where it begins. If not found, returns npos.

Definition at line 311 of file vstring.tcc.

References std::min(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::npos, and __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size().

5.22.3.110 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::rfind (const __versa_string< _CharT, _Traits, _Alloc, _Base > & *__str*, size_type *__pos* = npos) const [inline]

Find last position of a string.

Parameters:

__str String to locate.

__pos Index of character to search back from (default end).

Returns:

Index of start of last occurrence.

Starting from *__pos*, searches backward for value of *__str* within this string. If found, returns the index where it begins. If not found, returns npos.

Definition at line 1576 of file vstring.h.

References __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::data(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::rfind(), and __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size().

Referenced by __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::rfind().

5.22.3.111 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> void __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::shrink_to_fit () [inline]

A non-binding request to reduce capacity() to size().

Definition at line 464 of file vstring.h.

5.22.3.112 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::size () const [inline]

Returns the number of characters in the string, not including any null-termination.

Definition at line 420 of file vstring.h.

Referenced by __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::append(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::compare(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_first_not_of(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_first_of(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_last_not_of(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_last_of(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::insert(), __gnu_cxx::operator+(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::replace(), and __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::rfind().

5.22.3.113 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> __versa_string __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::substr (size_type *__pos* = 0, size_type *__n* = npos) const [inline]

Get a substring.

Parameters:

__pos Index of first character (default 0).

__n Number of characters in substring (default remainder).

Returns:

The new string.

Exceptions:

std::out_of_range If pos > size().

Construct and return a new string using the *__n* characters starting at *__pos*. If the string is too short, use the remainder of the characters. If *__pos* is beyond the end of the string, out_of_range is thrown.

Definition at line 1884 of file vstring.h.

5.22.3.114 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> void __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::swap (__versa_string< _CharT, _Traits, _Alloc, _Base > & *__s*) [inline]

Swap contents with another string.

Parameters:

__s String to swap with.

Exchanges the contents of this string with that of *__s* in constant time.

Definition at line 1475 of file vstring.h.

Referenced by __gnu_cxx::swap().

5.22.4 Member Data Documentation

5.22.4.1 template<typename _CharT, typename _Traits, typename _Alloc, template< typename, typename, typename > class _Base> const __versa_string< _CharT, _Traits, _Alloc, _Base >::size_type __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::npos [inline, static]

Value returned by various member functions when they fail.

Definition at line 77 of file vstring.h.

Referenced by __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_first_not_of(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_first_of(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_last_not_of(), __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::find_last_of(), and __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >::rfind().

The documentation for this class was generated from the following files:

- vstring.h
- vstring.tcc

5.23 __gnu_cxx::_Caster< _ToType > Struct Template Reference

Public Types

- typedef _ToType::element_type * **type**

5.23.1 Detailed Description

template<typename _ToType> struct __gnu_cxx::_Caster< _ToType >

These functions are here to allow containers to support non standard pointer types. For normal pointers, these resolve to the use of the standard cast operation. For other types the functions will perform the apprpriate cast to/from the custom pointer class so long as that class meets the following conditions: 1) has a typedef element_type which names tehe type it points to. 2) has a get() const method which returns element_type*. 3) has a constructor which can take one element_type* argument. This type supports the semantics of the pointer cast operators (below.)

Definition at line 45 of file cast.h.

The documentation for this struct was generated from the following file:

- cast.h

5.24 __gnu_cxx::_Char_types< _CharT > Struct Template Reference

Mapping from character type to associated types.

Public Types

- typedef unsigned long **int_type**
- typedef std::streamoff **off_type**
- typedef std::streampos **pos_type**
- typedef std::mbstate_t **state_type**

5.24.1 Detailed Description

template<typename _CharT> struct __gnu_cxx::_Char_types< _CharT >

Mapping from character type to associated types.

Note:

This is an implementation class for the generic version of char_traits. It defines int_type, off_type, pos_type, and state_type. By default these are unsigned long, streamoff, streampos, and mbstate_t. Users who need a different set of types, but who don't need to change the definitions of any function defined in char_traits, can specialize __gnu_cxx::_Char_types while leaving __gnu_cxx::char_traits alone.

Definition at line 65 of file char_traits.h.

The documentation for this struct was generated from the following file:

- char_traits.h

5.25 __gnu_cxx::_ExtPtr_allocator< _Tp > Class Template Reference

An example allocator which uses a non-standard pointer type.

This allocator specifies that containers use a 'relative pointer' as it's pointer type. (See ext/pointer.h) Memory allocation in this example is still performed using std::allocator.

Public Types

- typedef _Pointer_adapter< _Relative_pointer_impl< const _Tp > > **const_pointer**
- typedef const _Tp & **const_reference**
- typedef std::ptrdiff_t **difference_type**
- typedef _Pointer_adapter< _Relative_pointer_impl< _Tp > > **pointer**
- typedef _Tp & **reference**
- typedef std::size_t **size_type**
- typedef _Tp **value_type**

Public Member Functions

- template<typename _Up >
  _ExtPtr_allocator (const _ExtPtr_allocator< _Up > &__rarg) throw ()
- **_ExtPtr_allocator** (const _ExtPtr_allocator &__rarg) throw ()
- const std::allocator< _Tp > & **_M_getUnderlyingImp** () const
- const_pointer **address** (const_reference __x) const
- pointer **address** (reference __x) const
- pointer **allocate** (size_type __n, void *__hint=0)
- template<typename... _Args>
  void **construct** (pointer __p, _Args &&...__args)
- void **construct** (pointer __p, const _Tp &__val)
- void **deallocate** (pointer __p, size_type __n)
- void **destroy** (pointer __p)
- size_type **max_size** () const throw ()
- bool **operator!=** (const _ExtPtr_allocator &__rarg)
- template<typename _Up >
  bool **operator!=** (const _ExtPtr_allocator< _Up > &__rarg)
- bool **operator==** (const _ExtPtr_allocator &__rarg)
- template<typename _Up >
  bool **operator==** (const _ExtPtr_allocator< _Up > &__rarg)

Friends

- template<typename _Up >
  void **swap** (_ExtPtr_allocator< _Up > &, _ExtPtr_allocator< _Up > &)

5.25.1 Detailed Description

template<typename _Tp> class __gnu_cxx::_ExtPtr_allocator< _Tp >

An example allocator which uses a non-standard pointer type.

This allocator specifies that containers use a 'relative pointer' as it's pointer type. (See ext/pointer.h) Memory allocation in this example is still performed using std::allocator.

Definition at line 52 of file extptr_allocator.h.

The documentation for this class was generated from the following file:

- extptr_allocator.h

5.26 __gnu_cxx::_Invalid_type Struct Reference

5.26.1 Detailed Description

The specialization on this type helps resolve the problem of reference to void, and eliminates the need to specialize _Pointer_adapter for cases of void*, const void*, and so on.

Definition at line 205 of file pointer.h.

The documentation for this struct was generated from the following file:

- pointer.h

5.27 __gnu_cxx::_Pointer_adapter< _Storage_policy > Class Template Reference

Inherits _Storage_policy.

Public Types

- typedef std::ptrdiff_t **difference_type**
- typedef _Storage_policy::element_type **element_type**
- typedef std::random_access_iterator_tag **iterator_category**
- typedef _Pointer_adapter **pointer**
- typedef _Reference_type< element_type >::reference **reference**
- typedef _Unqualified_type< element_type >::type **value_type**

Public Member Functions

- template<typename _Up >
  _Pointer_adapter (const _Pointer_adapter< _Up > &__arg)
- template<typename _Up >
  _Pointer_adapter (_Up *__arg)
- **_Pointer_adapter** (const _Pointer_adapter &__arg)
- **_Pointer_adapter** (element_type *__arg=0)
- **operator __unspecified_bool_type** () const
- bool **operator!** () const
- reference **operator*** () const
- _Pointer_adapter **operator++** (int __unused)
- _Pointer_adapter & **operator++** ()
- _Pointer_adapter & **operator+=** (unsigned long __offset)
- _Pointer_adapter & **operator+=** (long __offset)
- _Pointer_adapter & **operator+=** (unsigned int __offset)
- _Pointer_adapter & **operator+=** (int __offset)
- _Pointer_adapter & **operator+=** (unsigned short __offset)
- _Pointer_adapter & **operator+=** (short __offset)
- template<typename _Up >
  std::ptrdiff_t **operator-** (const _Pointer_adapter< _Up > &__rhs) const
- _Pointer_adapter **operator--** (int)
- _Pointer_adapter & **operator--** ()
- _Pointer_adapter & **operator-=** (unsigned long __offset)
- _Pointer_adapter & **operator-=** (long __offset)
- _Pointer_adapter & **operator-=** (unsigned int __offset)
- _Pointer_adapter & **operator-=** (int __offset)

- _Pointer_adapter & **operator-=** (unsigned short __offset)
- _Pointer_adapter & **operator-=** (short __offset)
- element_type * **operator->** () const
- template<typename _Up >
  _Pointer_adapter & **operator=** (_Up *__arg)
- template<typename _Up >
  _Pointer_adapter & **operator=** (const _Pointer_adapter< _Up > &__arg)
- _Pointer_adapter & **operator=** (const _Pointer_adapter &__arg)
- reference **operator[ ]** (std::ptrdiff_t __index) const

Friends

- _Pointer_adapter **operator+** (unsigned long __offset, const _Pointer_adapter &__rhs)
- _Pointer_adapter **operator+** (const _Pointer_adapter &__lhs, unsigned long __offset)
- _Pointer_adapter **operator+** (long __offset, const _Pointer_adapter &__rhs)
- _Pointer_adapter **operator+** (const _Pointer_adapter &__lhs, long __offset)
- _Pointer_adapter **operator+** (unsigned int __offset, const _Pointer_adapter &__rhs)
- _Pointer_adapter **operator+** (const _Pointer_adapter &__lhs, unsigned int __offset)
- _Pointer_adapter **operator+** (int __offset, const _Pointer_adapter &__rhs)
- _Pointer_adapter **operator+** (const _Pointer_adapter &__lhs, int __offset)
- _Pointer_adapter **operator+** (unsigned short __offset, const _Pointer_adapter &__rhs)
- _Pointer_adapter **operator+** (const _Pointer_adapter &__lhs, unsigned short __offset)
- _Pointer_adapter **operator+** (short __offset, const _Pointer_adapter &__rhs)
- _Pointer_adapter **operator+** (const _Pointer_adapter &__lhs, short __offset)
- _Pointer_adapter **operator-** (const _Pointer_adapter &__lhs, unsigned long __offset)
- _Pointer_adapter **operator-** (const _Pointer_adapter &__lhs, long __offset)
- _Pointer_adapter **operator-** (const _Pointer_adapter &__lhs, unsigned int __offset)
- _Pointer_adapter **operator-** (const _Pointer_adapter &__lhs, int __offset)
- _Pointer_adapter **operator-** (const _Pointer_adapter &__lhs, unsigned short __offset)
- _Pointer_adapter **operator-** (const _Pointer_adapter &__lhs, short __offset)
- template<typename _Up >
  std::ptrdiff_t **operator-** (_Up *__lhs, const _Pointer_adapter &__rhs)
- template<typename _Up >
  std::ptrdiff_t **operator-** (const _Pointer_adapter &__lhs, _Up *__rhs)
- std::ptrdiff_t **operator-** (element_type *__lhs, const _Pointer_adapter &__rhs)
- std::ptrdiff_t **operator-** (const _Pointer_adapter &__lhs, element_type *__rhs)

5.27.1 Detailed Description

template<typename _Storage_policy> class __gnu_cxx::_Pointer_adapter< _-Storage_policy >

The following provides an 'alternative pointer' that works with the containers when specified as the pointer typedef of the allocator.

The pointer type used with the containers doesn't have to be this class, but it must support the implicit conversions, pointer arithmetic, comparison operators, etc. that are supported by this class, and avoid raising compile-time ambiguities. Because creating a working pointer can be challenging, this pointer template was designed to wrapper an easier storage policy type, so that it becomes reusable for creating other pointer types.

A key point of this class is also that it allows container writers to 'assume' Allocator::pointer is a typedef for a normal pointer. This class supports most of the conventions of a true pointer, and can, for instance handle implicit conversion to const and base class pointer types. The only impositions on container writers to support extended pointers are: 1) use the Allocator::pointer typedef appropriately for pointer types. 2) if you need pointer casting, use the __pointer_cast<> functions from ext/cast.h. This allows pointer cast operations to be overloaded is necessary by custom pointers.

Note: The const qualifier works with this pointer adapter as follows:

_Tp* == _Pointer_adapter<_Std_pointer_impl<_Tp> >; const _Tp* == _Pointer_-adapter<_Std_pointer_impl<const _Tp> >; _Tp* const == const _Pointer_-adapter<_Std_pointer_impl<_Tp> >; const _Tp* const == const _Pointer_-adapter<_Std_pointer_impl<const _Tp> >;

Definition at line 281 of file pointer.h.

The documentation for this class was generated from the following file:

- pointer.h

5.28 __gnu_cxx::_Relative_pointer_impl< _Tp > Class Template Reference

A storage policy for use with _Pointer_adapter<> which stores the pointer's address as an offset value which is relative to its own address.

Public Types

- typedef _Tp **element_type**

Public Member Functions

- _Tp * **get** () const
- bool **operator<** (const _Relative_pointer_impl &__rarg) const
- bool **operator==** (const _Relative_pointer_impl &__rarg) const
- void **set** (_Tp *__arg)

5.28.1 Detailed Description

template<typename _Tp> class __gnu_cxx::_Relative_pointer_impl< _Tp >

A storage policy for use with _Pointer_adapter<> which stores the pointer's address as an offset value which is relative to its own address. This is intended for pointers within shared memory regions which might be mapped at different addresses by different processes. For null pointers, a value of 1 is used. (0 is legitimate sometimes for nodes in circularly linked lists) This value was chosen as the least likely to generate an incorrect null, As there is no reason why any normal pointer would point 1 byte into its own pointer address.

Definition at line 101 of file pointer.h.

The documentation for this class was generated from the following file:

- pointer.h

5.29 __gnu_cxx::_Relative_pointer_impl< const _Tp > Class Template Reference

Public Types

- typedef const _Tp **element_type**

Public Member Functions

- const _Tp * **get** () const
- bool **operator<** (const _Relative_pointer_impl &__rarg) const
- bool **operator==** (const _Relative_pointer_impl &__rarg) const
- void **set** (const _Tp *__arg)

5.29.1 Detailed Description

template<typename _Tp> class __gnu_cxx::_Relative_pointer_impl< const _Tp >

Relative_pointer_impl needs a specialization for const T because of the casting done during pointer arithmetic.

Definition at line 153 of file pointer.h.

The documentation for this class was generated from the following file:

- pointer.h

5.30 __gnu_cxx::_Std_pointer_impl< _Tp > Class Template Reference

A storage policy for use with _Pointer_adapter<> which yields a standard pointer.

Public Types

- typedef _Tp **element_type**

Public Member Functions

- _Tp * **get** () const
- bool **operator<** (const _Std_pointer_impl &__rarg) const
- bool **operator==** (const _Std_pointer_impl &__rarg) const
- void **set** (element_type *__arg)

5.30.1 Detailed Description

template<typename _Tp> class __gnu_cxx::_Std_pointer_impl< _Tp >

A storage policy for use with _Pointer_adapter<> which yields a standard pointer. A _Storage_policy is required to provide 4 things: 1) A get() API for returning the stored pointer value. 2) An set() API for storing a pointer value. 3) An element_type typedef to define the type this points to. 4) An operator<() to support pointer comparison. 5) An operator==() to support pointer comparison.

Definition at line 58 of file pointer.h.

The documentation for this class was generated from the following file:

- pointer.h

5.31 __gnu_cxx::_Unqualified_type< _Tp > Struct Template Reference

Public Types

- typedef _Tp **type**

5.31.1 Detailed Description

template<typename _Tp> struct __gnu_cxx::_Unqualified_type< _Tp >

This structure accomodates the way in which std::iterator_traits<> is normally specialized for const T*, so that value_type is still T.

Definition at line 233 of file pointer.h.

The documentation for this struct was generated from the following file:

- pointer.h

5.32 __gnu_cxx::annotate_base Struct Reference

Base class for checking address and label information about allocations. Create a std::map between the allocated address (void∗) and a datum for annotations, which are a pair of numbers corresponding to label and allocated size. Inheritance diagram for __gnu_cxx::annotate_base:

Public Member Functions

- void **check_allocated** (size_t label)
- void **check_allocated** (void ∗p, size_t size)
- void **erase** (void ∗p, size_t size)
- void **insert** (void ∗p, size_t size)

Static Public Member Functions

- static size_t **get_label** ()
- static void **set_label** (size_t l)

Friends

- std::ostream & **operator**<< (std::ostream &, const annotate_base &)

5.32.1 Detailed Description

Base class for checking address and label information about allocations. Create a std::map between the allocated address (void∗) and a datum for annotations, which are a pair of numbers corresponding to label and allocated size.

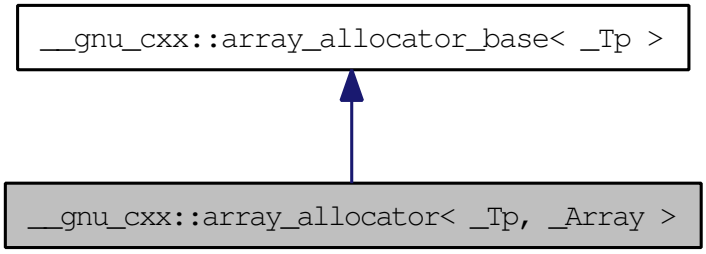
Definition at line 94 of file throw_allocator.h.

The documentation for this struct was generated from the following file:

- throw_allocator.h

5.33 __gnu_cxx::array_allocator< _Tp, _Array > Class Template Reference

An allocator that uses previously allocated memory. This memory can be externally, globally, or otherwise allocated. Inheritance diagram for __gnu_cxx::array_allocator< _Tp, _Array >:



Public Types

- typedef _Array **array_type**
- typedef const _Tp * **const_pointer**
- typedef const _Tp & **const_reference**
- typedef ptrdiff_t **difference_type**
- typedef _Tp * **pointer**
- typedef _Tp & **reference**
- typedef size_t **size_type**
- typedef _Tp **value_type**

Public Member Functions

- template<typename _Tp1 , typename _Array1 >
  array_allocator (const array_allocator< _Tp1, _Array1 > &) throw ()
- **array_allocator** (const array_allocator &__o) throw ()
- **array_allocator** (array_type *__array=NULL) throw ()
- const_pointer **address** (const_reference __x) const
- pointer **address** (reference __x) const
- pointer **allocate** (size_type __n, const void *=0)
- template<typename... _Args>
  void **construct** (pointer __p, _Args &&...__args)
- void **construct** (pointer __p, const _Tp &__val)
- void **deallocate** (pointer, size_type)
- void **destroy** (pointer __p)
- size_type **max_size** () const throw ()

5.33.1 Detailed Description

template<typename _Tp, typename _Array = std::tr1::array<_Tp, 1>> class __gnu_cxx::array_allocator< _Tp, _Array >

An allocator that uses previously allocated memory. This memory can be externally, globally, or otherwise allocated.

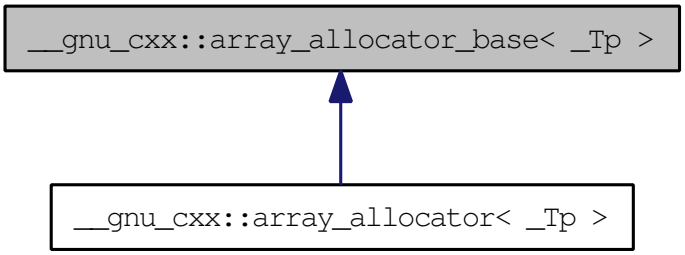
Definition at line 96 of file array_allocator.h.

The documentation for this class was generated from the following file:

- array_allocator.h

5.34 __gnu_cxx::array_allocator_base< _Tp > Class Template Reference

Base class. Inheritance diagram for __gnu_cxx::array_allocator_base< _Tp >:



Public Types

- typedef const _Tp * **const_pointer**
- typedef const _Tp & **const_reference**
- typedef ptrdiff_t **difference_type**
- typedef _Tp * **pointer**
- typedef _Tp & **reference**
- typedef size_t **size_type**
- typedef _Tp **value_type**

Public Member Functions

- const_pointer **address** (const_reference __x) const
- pointer **address** (reference __x) const
- template<typename... _Args>
  void **construct** (pointer __p, _Args &&...__args)
- void **construct** (pointer __p, const _Tp &__val)
- void **deallocate** (pointer, size_type)
- void **destroy** (pointer __p)
- size_type **max_size** () const throw ()

5.34.1 Detailed Description

template<typename _Tp> class __gnu_cxx::array_allocator_base< _Tp >

Base class.

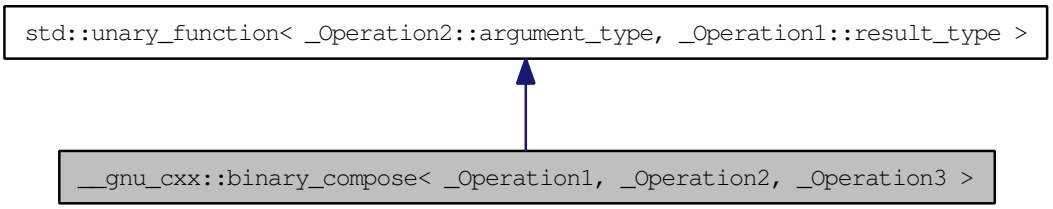
Definition at line 46 of file array_allocator.h.

The documentation for this class was generated from the following file:

- array_allocator.h

5.35 __gnu_cxx::binary_compose< _Operation1, _Operation2, _Operation3 > Class Template Reference

An SGI extension . Inheritance diagram for __gnu_cxx::binary_compose< _Operation1, _Operation2, _Operation3 >:



Public Types

- typedef _Arg argument_type
- typedef _Result result_type

Public Member Functions

- **binary_compose** (const _Operation1 &__x, const _Operation2 &__y, const _Operation3 &__z)
- _Operation1::result_type **operator()** (const typename _Operation2::argument_type &__x) const

Protected Attributes

- _Operation1 **_M_fn1**
- _Operation2 **_M_fn2**
- _Operation3 **_M_fn3**

5.35.1 Detailed Description

template<class _Operation1, class _Operation2, class _Operation3> class __gnu_cxx::binary_compose< _Operation1, _Operation2, _Operation3 >

An SGI extension .

Definition at line 150 of file ext/functional.

5.35.2 Member Typedef Documentation

5.35.2.1 template<typename _Arg, typename _Result> typedef _Arg std::unary_function< _Arg, _Result >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.35.2.2 template<typename _Arg, typename _Result> typedef _Result std::unary_function< _Arg, _Result >::result_type [inherited]

`result_type` is the return type

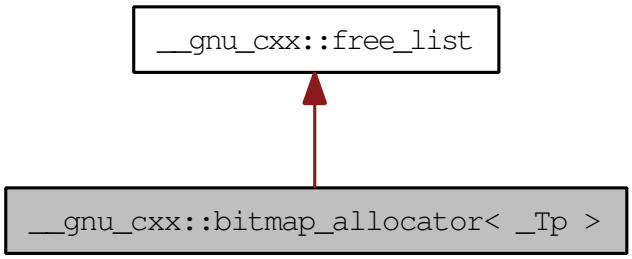
Definition at line 105 of file stl_function.h.

The documentation for this class was generated from the following file:

- ext/functional

5.36 __gnu_cxx::bitmap_allocator< _Tp > Class Template Reference

Bitmap Allocator, primary template. Inheritance diagram for __gnu_cxx::bitmap_allocator< _Tp >:



Public Types

- typedef free_list::__mutex_type **__mutex_type**
- typedef const _Tp * **const_pointer**
- typedef const _Tp & **const_reference**
- typedef ptrdiff_t **difference_type**
- typedef _Tp * **pointer**
- typedef _Tp & **reference**
- typedef size_t **size_type**
- typedef _Tp **value_type**

Public Member Functions

- template<typename _Tp1 >
  bitmap_allocator (const bitmap_allocator< _Tp1 > &) throw ()
- **bitmap_allocator** (const bitmap_allocator &)
- pointer _M_allocate_single_object () throw (std::bad_alloc)
- void _M_deallocate_single_object (pointer __p) throw ()
- const_pointer **address** (const_reference __r) const
- pointer **address** (reference __r) const
- pointer **allocate** (size_type __n, typename bitmap_allocator< void >::const_pointer)
- pointer **allocate** (size_type __n)
- template<typename... _Args>
  void **construct** (pointer __p, _Args &&...__args)
- void **construct** (pointer __p, const_reference __data)

- void **deallocate** (pointer __p, size_type __n) throw ()
- void **destroy** (pointer __p)
- size_type **max_size** () const throw ()

Private Types

- typedef vector_type::iterator **iterator**
- typedef __detail::__mini_vector< value_type > **vector_type**

Private Member Functions

- void _M_clear ()
- size_t * _M_get (size_t __sz) throw (std::bad_alloc)
- void _M_insert (size_t *__addr) throw ()

5.36.1 Detailed Description

template<typename _Tp> class __gnu_cxx::bitmap_allocator< _Tp >

Bitmap Allocator, primary template.

Definition at line 687 of file bitmap_allocator.h.

5.36.2 Member Function Documentation

5.36.2.1 template<typename _Tp > pointer __gnu_cxx::bitmap_allocator< _Tp >::_M_allocate_single_object () throw (std::bad_alloc) [inline]

Allocates memory for a single object of size sizeof(_Tp).

Exceptions:

std::bad_alloc. If memory can not be allocated.

Complexity: Worst case complexity is O(N), but that is hardly ever hit. If and when this particular case is encountered, the next few cases are guaranteed to have a worst case complexity of O(1)! That's why this function performs very well on average. You can consider this function to have a complexity referred to commonly as: Amortized Constant time.

Definition at line 821 of file bitmap_allocator.h.

References __gnu_cxx::__detail::__bit_allocate(), __gnu_cxx::__detail::__num_bitmaps(), and __gnu_cxx::_Bit_scan_forward().

5.36.2.2 template<typename _Tp > void __gnu_cxx::bitmap_allocator< _Tp >::_M_deallocate_single_object (pointer __p) throw () [inline]

Deallocates memory that belongs to a single object of size sizeof(_Tp). Complexity: O(lg(N)), but the worst case is not hit often! This is because containers usually deallocate memory close to each other and this case is handled in O(1) time by the deallocate function.

Definition at line 911 of file bitmap_allocator.h.

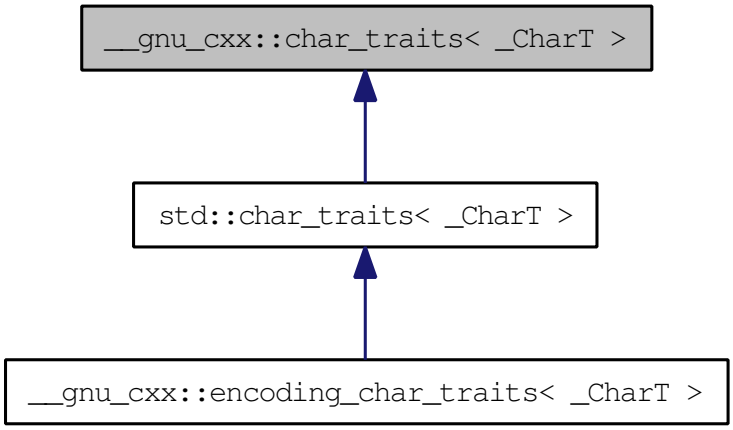
References __gnu_cxx::__detail::__bit_free(), __gnu_cxx::__detail::__num_bitmaps(), and std::__rotate().

The documentation for this class was generated from the following file:

- bitmap_allocator.h

5.37 __gnu_cxx::char_traits< _CharT > Struct Template Reference

Base class used to implement std::char_traits. Inheritance diagram for __gnu_cxx::char_traits< _CharT >:



Public Types

- typedef _CharT **char_type**
- typedef _Char_types< _CharT >::int_type **int_type**
- typedef _Char_types< _CharT >::off_type **off_type**
- typedef _Char_types< _CharT >::pos_type **pos_type**
- typedef _Char_types< _CharT >::state_type **state_type**

Static Public Member Functions

- static char_type * **assign** (char_type *__s, std::size_t __n, char_type __a)
- static void **assign** (char_type &__c1, const char_type &__c2)
- static int **compare** (const char_type *__s1, const char_type *__s2, std::size_t __n)
- static char_type * **copy** (char_type *__s1, const char_type *__s2, std::size_t __n)
- static int_type **eof** ()
- static bool **eq** (const char_type &__c1, const char_type &__c2)
- static bool **eq_int_type** (const int_type &__c1, const int_type &__c2)
- static const char_type * **find** (const char_type *__s, std::size_t __n, const char_type &__a)

- static std::size_t **length** (const char_type *__s)
- static bool **lt** (const char_type &__c1, const char_type &__c2)
- static char_type * **move** (char_type *__s1, const char_type *__s2, std::size_t __n)
- static int_type **not_eof** (const int_type &__c)
- static char_type **to_char_type** (const int_type &__c)
- static int_type **to_int_type** (const char_type &__c)

5.37.1 Detailed Description

template<typename _CharT> struct __gnu_cxx::char_traits< _CharT >

Base class used to implement std::char_traits.

Note:

For any given actual character type, this definition is probably wrong. (Most of the member functions are likely to be right, but the int_type and state_type typedefs, and the eof() member function, are likely to be wrong.) The reason this class exists is so users can specialize it. Classes in namespace std may not be specialized for fundamental types, but classes in namespace __gnu_cxx may be.

See http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt05ch13s03.html for advice on how to make use of this class for *unusual* character types. Also, check out include/ext/pod_char_traits.h.

Definition at line 90 of file char_traits.h.

The documentation for this struct was generated from the following file:

- char_traits.h

5.38 __gnu_cxx::character< V, I, S > Struct Template Reference

A POD class that serves as a character abstraction class.

Public Types

- typedef character< V, I, S > **char_type**
- typedef I **int_type**
- typedef S **state_type**
- typedef V **value_type**

Static Public Member Functions

- template<typename V2 >
  static char_type **from** (const V2 &v)
- template<typename V2 >
  static V2 **to** (const char_type &c)

Public Attributes

- value_type **value**

5.38.1 Detailed Description

template<typename V, typename I, typename S = std::mbstate_t> struct __gnu_cxx::character< V, I, S >

A POD class that serves as a character abstraction class.

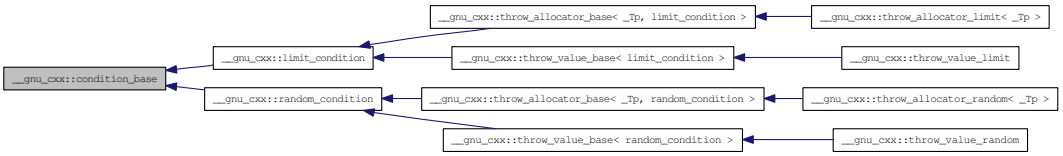
Definition at line 45 of file pod_char_traits.h.

The documentation for this struct was generated from the following file:

- pod_char_traits.h

5.39 __gnu_cxx::condition_base Struct Reference

Base struct for condition policy. Inheritance diagram for __gnu_cxx::condition_base:



5.39.1 Detailed Description

Base struct for condition policy. Requires a public member function with the signature void throw_conditionally()

Definition at line 253 of file throw_allocator.h.

The documentation for this struct was generated from the following file:

- throw_allocator.h

5.40 __gnu_cxx::constant_binary_fun< _Result, _Arg1, _Arg2 > Struct Template Reference

An SGI extension .

Inherits __gnu_cxx::_Constant_binary_fun< _Result, _Arg1, _Arg2 >.

Public Types

- typedef _Arg1 **first_argument_type**
- typedef _Result **result_type**
- typedef _Arg2 **second_argument_type**

Public Member Functions

- **constant_binary_fun** (const _Result &__v)
- const result_type & **operator()** (const _Arg1 &, const _Arg2 &) const

Public Attributes

- _Result **_M_val**

5.40.1 Detailed Description

template<class _Result, class _Arg1 = _Result, class _Arg2 = _Arg1> struct __gnu_cxx::constant_binary_fun< _Result, _Arg1, _Arg2 >

An SGI extension .

Definition at line 316 of file ext/functional.

The documentation for this struct was generated from the following file:

- ext/functional

5.41 __gnu_cxx::constant_unary_fun< _Result, _Argument > Struct Template Reference

An SGI extension .

Inherits __gnu_cxx::_Constant_unary_fun< _Result, _Argument >.

Public Types

- typedef _Argument **argument_type**
- typedef _Result **result_type**

Public Member Functions

- **constant_unary_fun** (const _Result &__v)
- const result_type & **operator()** (const _Argument &) const

Public Attributes

- result_type **_M_val**

5.41.1 Detailed Description

template<class _Result, class _Argument = _Result> struct __gnu_cxx::constant_unary_fun< _Result, _Argument >

An SGI extension .

Definition at line 308 of file ext/functional.

The documentation for this struct was generated from the following file:

- ext/functional

5.42 __gnu_cxx::constant_void_fun< _Result > Struct Template Reference

An SGI extension .

Inherits __gnu_cxx::_Constant_void_fun< _Result >.

Public Types

- typedef _Result **result_type**

Public Member Functions

- **constant_void_fun** (const _Result &__v)
- const result_type & **operator()** () const

Public Attributes

- result_type **_M_val**

5.42.1 Detailed Description

template<class _Result> struct __gnu_cxx::constant_void_fun< _Result >

An SGI extension .

Definition at line 299 of file ext/functional.

The documentation for this struct was generated from the following file:

- ext/functional

5.43 __gnu_cxx::debug_allocator< _Alloc > Class Template Reference

A meta-allocator with debugging bits, as per [20.4].

This is precisely the allocator defined in the C++ Standard.

- all allocation calls operator new
- all deallocation calls operator delete.

Public Types

- typedef _Alloc::const_pointer **const_pointer**
- typedef _Alloc::const_reference **const_reference**
- typedef _Alloc::difference_type **difference_type**
- typedef _Alloc::pointer **pointer**
- typedef _Alloc::reference **reference**
- typedef _Alloc::size_type **size_type**
- typedef _Alloc::value_type **value_type**

Public Member Functions

- pointer **allocate** (size_type __n, const void *__hint)
- pointer **allocate** (size_type __n)
- void **deallocate** (pointer __p, size_type __n)

5.43.1 Detailed Description

template<typename _Alloc> class __gnu_cxx::debug_allocator< _Alloc >

A meta-allocator with debugging bits, as per [20.4].

This is precisely the allocator defined in the C++ Standard.

- all allocation calls operator new
- all deallocation calls operator delete.

Definition at line 61 of file debug_allocator.h.

The documentation for this class was generated from the following file:

- debug_allocator.h

5.44 __gnu_cxx::enc_filebuf< _CharT > Class Template Reference

class enc_filebuf. Inheritance diagram for __gnu_cxx::enc_filebuf< _CharT >:

Public Types

- typedef codecvt< char_type, char, __state_type > **__codecvt_type**
- typedef __basic_file< char > **__file_type**
- typedef basic_filebuf< char_type, traits_type > **__filebuf_type**
- typedef traits_type::state_type **__state_type**
- typedef basic_streambuf< char_type, traits_type > __streambuf_type
- typedef _CharT char_type
- typedef traits_type::int_type int_type
- typedef traits_type::off_type off_type
- typedef traits_type::pos_type pos_type
- typedef traits_type::state_type **state_type**
- typedef encoding_char_traits< _CharT > traits_type

Public Member Functions

- **enc_filebuf** (state_type &__state)
- __filebuf_type * close ()
- streamsize in_avail ()
- bool is_open () const throw ()
- __filebuf_type * open (const std::string &__s, ios_base::openmode __mode)
- __filebuf_type * open (const char *__s, ios_base::openmode __mode)
- int_type sbumpc ()
- int_type sgetc ()
- streamsize sgetn (char_type *__s, streamsize __n)
- int_type snextc ()
- int_type sputbackc (char_type __c)
- int_type sputc (char_type __c)
- streamsize sputn (const char_type *__s, streamsize __n)
- void stossc ()
- int_type sungetc ()

Protected Member Functions

- void **_M_allocate_internal_buffer** ()
- bool **_M_convert_to_external** (char_type *, streamsize)
- void _M_create_pback ()
- void **_M_destroy_internal_buffer** () throw ()
- void _M_destroy_pback () throw ()
- pos_type **_M_seek** (off_type __off, ios_base::seekdir __way, __state_type __state)
- void _M_set_buffer (streamsize __off)
- bool **_M_terminate_output** ()
- void gbump (int __n)
- virtual void imbue (const locale &__loc)
- virtual int_type overflow (int_type __c=encoding_char_traits< _CharT >::eof())
- virtual int_type pbackfail (int_type __c=encoding_char_traits< _CharT >::eof())
- void pbump (int __n)
- virtual pos_type seekoff (off_type __off, ios_base::seekdir __way, ios_base::openmode __mode=ios_base::in|ios_base::out)
- virtual pos_type seekpos (pos_type __pos, ios_base::openmode __mode=ios_base::in|ios_base::out)
- virtual __streambuf_type * setbuf (char_type *__s, streamsize __n)
- void setg (char_type *__gbeg, char_type *__gnext, char_type *__gend)
- void setp (char_type *__pbeg, char_type *__pend)
- virtual streamsize showmanyc ()
- virtual int sync ()
- virtual int_type uflow ()
- virtual int_type underflow ()
- virtual streamsize xsgetn (char_type *__s, streamsize __n)
- virtual streamsize xsputn (const char_type *__s, streamsize __n)

Protected Attributes

- char_type * _M_buf
- bool **_M_buf_allocated**
- size_t _M_buf_size
- const __codecvt_type * **_M_codecvt**
- char * _M_ext_buf
- streamsize _M_ext_buf_size
- char * **_M_ext_end**
- const char * _M_ext_next
- __file_type **_M_file**
- __c_lock **_M_lock**

- ios_base::openmode _M_mode
- bool _M_reading
- __state_type **_M_state_beg**
- __state_type **_M_state_cur**
- __state_type **_M_state_last**
- bool **_M_writing**

- char_type _M_pback
- char_type * _M_pback_cur_save
- char_type * _M_pback_end_save
- bool _M_pback_init

Friends

- __gnu_cxx::__enable_if< __is_char< _CharT2 >::__value, _CharT2 * >::__type **__copy_move_a2** (istreambuf_iterator< _CharT2 >, istreambuf_iterator< _CharT2 >, _CharT2 *)
- streamsize **__copy_streambufs_eof** (__streambuf_type *, __streambuf_type *, bool &)
- class **basic_ios< char_type, traits_type >**
- class **basic_istream< char_type, traits_type >**
- class **basic_ostream< char_type, traits_type >**
- __gnu_cxx::__enable_if< __is_char< _CharT2 >::__value, istreambuf_iterator< _CharT2 > >::__type **find** (istreambuf_iterator< _CharT2 >, istreambuf_iterator< _CharT2 >, const _CharT2 &)
- basic_istream< _CharT2, _Traits2 > & **getline** (basic_istream< _CharT2, _Traits2 > &, basic_string< _CharT2, _Traits2, _Alloc > &, _CharT2)
- class **ios_base**
- class **istreambuf_iterator< char_type, traits_type >**
- basic_istream< _CharT2, _Traits2 > & **operator>>** (basic_istream< _CharT2, _Traits2 > &, basic_string< _CharT2, _Traits2, _Alloc > &)
- basic_istream< _CharT2, _Traits2 > & **operator>>** (basic_istream< _CharT2, _Traits2 > &, _CharT2 *)
- class **ostreambuf_iterator< char_type, traits_type >**

- locale getloc () const
- locale pubimbue (const locale &__loc)
- pos_type pubseekoff (off_type __off, ios_base::seekdir __way, ios_base::openmode __mode=ios_base::in|ios_base::out)
- pos_type pubseekpos (pos_type __sp, ios_base::openmode __mode=ios_base::in|ios_base::out)
- __streambuf_type * pubsetbuf (char_type *__s, streamsize __n)

- int pubsync ()
- locale _M_buf_locale
- char_type * _M_in_beg
- char_type * _M_in_cur
- char_type * _M_in_end
- char_type * _M_out_beg
- char_type * _M_out_cur
- char_type * _M_out_end
- char_type * eback () const
- char_type * egptr () const
- char_type * epptr () const
- char_type * gptr () const
- char_type * pbase () const
- char_type * pptr () const

5.44.1 Detailed Description

template<typename _CharT> class __gnu_cxx::enc_filebuf< _CharT >

class enc_filebuf.

Definition at line 40 of file enc_filebuf.h.

5.44.2 Member Typedef Documentation

5.44.2.1 typedef basic_streambuf<char_type, traits_type> std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::__streambuf_type [inherited]

This is a non-standard type.

Reimplemented from std::basic_streambuf< _CharT, encoding_char_traits< _CharT > >.

Definition at line 77 of file fstream.

5.44.2.2 typedef _CharT std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::char_type [inherited]

These are standard types. They permit a standardized way of referring to names of (or names dependant on) the template parameters, which are specific to the implementation.

Reimplemented from std::basic_streambuf< _CharT, encoding_char_traits< _CharT > >.

Definition at line 71 of file fstream.

5.44.2.3 typedef traits_type::int_type std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::int_type [inherited]

This is a non-standard type.

Reimplemented from std::basic_streambuf< _CharT, encoding_char_traits< _CharT > >.

Definition at line 73 of file fstream.

5.44.2.4 typedef traits_type::off_type std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::off_type [inherited]

This is a non-standard type.

Reimplemented from std::basic_streambuf< _CharT, encoding_char_traits< _CharT > >.

Definition at line 75 of file fstream.

5.44.2.5 template<typename _CharT > typedef traits_type::pos_type __gnu_cxx::enc_filebuf< _CharT >::pos_type

This is a non-standard type.

Reimplemented from std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >.

Definition at line 46 of file enc_filebuf.h.

5.44.2.6 template<typename _CharT > typedef encoding_char_traits<_CharT> __gnu_cxx::enc_filebuf< _CharT >::traits_type

This is a non-standard type.

Reimplemented from std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >.

Definition at line 44 of file enc_filebuf.h.

5.44.3 Member Function Documentation

5.44.3.1 void std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::_M_create_pback () [inline, protected, inherited]

Initializes pback buffers, and moves normal buffers to safety. Assumptions: _M_in_cur has already been moved back

Definition at line 172 of file fstream.

5.44.3.2 void std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::_M_destroy_pback () throw () [inline, protected, inherited]

Deactivates pback buffer contents, and restores normal buffer. Assumptions: The pback buffer has only moved forward.

Definition at line 189 of file fstream.

5.44.3.3 void std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::_M_set_buffer (streamsize *__off*) [inline, protected, inherited]

This function sets the pointers of the internal buffer, both get and put areas. Typically:

__off == egptr() - eback() upon underflow/uflow (**read** mode); __off == 0 upon overflow (**write** mode); __off == -1 upon open, setbuf, seekoff/pos (**uncommitted** mode).

NB: epptr() - pbase() == _M_buf_size - 1, since _M_buf_size reflects the actual allocated memory and the last cell is reserved for the overflow char of a full put area.

Definition at line 387 of file fstream.

5.44.3.4 __filebuf_type* std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::close () [inherited]

Closes the currently associated file.

Returns:

`this` on success, NULL on failure

If no file is currently open, this function immediately fails.

If a *put buffer area* exists, `overflow(eof)` is called to flush all the characters. The file is then closed.

If any operations fail, this function also fails.

5.44.3.5 char_type* std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::eback () const [inline, protected, inherited]

Access to the get area. These functions are only available to other protected functions, including derived classes.

- eback() returns the beginning pointer for the input sequence
- gptr() returns the next pointer for the input sequence
- egptr() returns the end pointer for the input sequence

Definition at line 460 of file streambuf.

5.44.3.6 char_type* std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::egptr () const [inline, protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 466 of file streambuf.

5.44.3.7 char_type* std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::epptr () const [inline, protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 513 of file streambuf.

5.44.3.8 void std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::gbump (int __n) [inline, protected, inherited]

Moving the read position.

Parameters:

n The delta by which to move.

This just advances the read position without returning any data.

Definition at line 476 of file streambuf.

5.44.3.9 locale std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::getloc () const [inline, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 222 of file streambuf.

5.44.3.10 char_type* std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::gptr () const [inline, protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 463 of file streambuf.

5.44.3.11 virtual void std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::imbue (const locale &) [protected, virtual, inherited]

Changes translations.

Parameters:

loc A new locale.

Translations done during I/O which depend on the current locale are changed by this call. The standard adds, *Between invocations of this function a class derived from streambuf can safely cache results of calls to locale functions and to members of facets so obtained.*

Note:

Base class version does nothing.

Reimplemented from std::basic_streambuf< _CharT, encoding_char_traits< _CharT > >.

5.44.3.12 streamsize std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::in_avail () [inline, inherited]

Looking ahead into the stream.

Returns:

The number of characters available.

If a read position is available, returns the number of characters available for reading before the buffer must be refilled. Otherwise returns the derived `showmanyc()`.

Definition at line 262 of file streambuf.

5.44.3.13 bool std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::is_open () const throw () [inline, inherited]

Returns true if the external file is open.

Definition at line 222 of file fstream.

5.44.3.14 __filebuf_type* std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::open (const std::string & *__s*, ios_base::openmode *__mode*) [inline, inherited]

Opens an external file.

Parameters:

s The name of the file.

mode The open mode flags.

Returns:

`this` on success, NULL on failure

Definition at line 275 of file fstream.

5.44.3.15 __filebuf_type* std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::open (const char * __s, ios_base::openmode __mode) [inherited]

Opens an external file.

Parameters:

s The name of the file.

mode The open mode flags.

Returns:

`this` on success, NULL on failure

If a file is already open, this function immediately fails. Otherwise it tries to open the file named *s* using the flags given in *mode*.

Table 92, adapted here, gives the relation between openmode combinations and the equivalent fopen() flags. (NB: lines app, in|out|app, in|app, binary|app, binary|in|out|app, and binary|in|app per DR 596) +---------- ---------+ | ios_base Flag combination stdio equivalent | |binary in out trunc app | +----------+ | + w | | + + a | | + a | | + + w | | + r | | + + r+ | | + + + w+ | | + + + a+ | | + + a+ | +---------- ----------+ | + + wb | | + + + ab | | + + ab | | + + + wb | | + + rb | | + + + r+b | | + + + + w+b | | + + + + a+b | | + + + a+b | +----------+

5.44.3.16 virtual int_type std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::overflow (int_type = _Traits::eof()) [protected, virtual, inherited]

Consumes data from the buffer; writes to the controlled sequence.

Parameters:

c An additional character to consume.

Returns:

eof() to indicate failure, something else (usually *c*, or not_eof())

Informally, this function is called when the output buffer is full (or does not exist, as buffering need not actually be done). If a buffer exists, it is *consumed*, with *some effect* on the controlled sequence. (Typically, the buffer is written out to the sequence verbatim.) In either case, the character *c* is also written out, if *c* is not `eof()`.

For a formal definition of this function, see a good text such as Langer & Kreft, or [27.5.2.4.5]/3-7.

A functioning output streambuf can be created by overriding only this function (no buffer area will be used).

Note:

Base class version does nothing, returns eof().

Reimplemented from std::basic_streambuf< _CharT, encoding_char_traits< _CharT > >.

5.44.3.17 virtual int_type std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::pbackfail (int_type = _Traits::eof()) [protected, virtual, inherited]

Tries to back up the input sequence.

Parameters:

c The character to be inserted back into the sequence.

Returns:

eof() on failure, *some other value* on success

Postcondition:

The constraints of `gptr()`, `eback()`, and `pptr()` are the same as for `underflow()`.

Note:

Base class version does nothing, returns eof().

Reimplemented from std::basic_streambuf< _CharT, encoding_char_traits< _CharT > >.

5.44.3.18 char_type* std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::pbase () const [inline, protected, inherited]

Access to the put area. These functions are only available to other protected functions, including derived classes.

- pbase() returns the beginning pointer for the output sequence
- pptr() returns the next pointer for the output sequence
- epptr() returns the end pointer for the output sequence

Definition at line 507 of file streambuf.

5.44.3.19 void std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::pbump (int __n) [inline, protected, inherited]

Moving the write position.

Parameters:

n The delta by which to move.

This just advances the write position without returning any data.

Definition at line 523 of file streambuf.

5.44.3.20 char_type* std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::pptr () const [inline, protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 510 of file streambuf.

5.44.3.21 locale std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::pubimbue (const locale & __loc) [inline, inherited]

Entry point for imbue().

Parameters:

loc The new locale.

Returns:

The previous locale.

Calls the derived imbue(loc).

Definition at line 205 of file streambuf.

5.44.3.22 pos_type std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::pubseekoff (off_type *__off*, ios_base::seekdir *__way*, ios_base::openmode *__mode* = ios_base::in | ios_base::out) [inline, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 239 of file streambuf.

5.44.3.23 pos_type std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::pubseekpos (pos_type *__sp*, ios_base::openmode *__mode* = ios_base::in | ios_base::out) [inline, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 244 of file streambuf.

5.44.3.24 __streambuf_type* std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::pubsetbuf (char_type * *__s*, streamsize *__n*) [inline, inherited]

Entry points for derived buffer functions. The public versions of `pubfoo` dispatch to the protected derived `foo` member functions, passing the arguments (if any) and returning the result unchanged.

Definition at line 235 of file streambuf.

5.44.3.25 int std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::pubsync () [inline, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 249 of file streambuf.

5.44.3.26 int_type std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::sbumpc () [inline, inherited]

Getting the next character.

Returns:

The next character, or eof.

If the input read position is available, returns that character and increments the read pointer, otherwise calls and returns `uflow()`.

Definition at line 294 of file streambuf.

5.44.3.27 virtual pos_type std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::seekoff (off_type, ios_base::seekdir, ios_base::openmode = ios_base::in | ios_base::out) [protected, virtual, inherited]

Alters the stream positions. Each derived class provides its own appropriate behavior.

Note:

Base class version does nothing, returns a `pos_type` that represents an invalid stream position.

Reimplemented from std::basic_streambuf< _CharT, encoding_char_traits< _CharT > >.

5.44.3.28 virtual pos_type std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::seekpos (pos_type, ios_base::openmode = ios_base::in | ios_base::out) [protected, virtual, inherited]

Alters the stream positions. Each derived class provides its own appropriate behavior.

Note:

Base class version does nothing, returns a `pos_type` that represents an invalid stream position.

Reimplemented from std::basic_streambuf< _CharT, encoding_char_traits< _CharT > >.

5.44.3.29 virtual __streambuf_type* std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::setbuf (char_type * __s, streamsize __n) [protected, virtual, inherited]

Manipulates the buffer.

Parameters:

s Pointer to a buffer area.

n Size of *s*.

Returns:

`this`

If no file has been opened, and both *s* and *n* are zero, then the stream becomes unbuffered. Otherwise, `s` is used as a buffer; see http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch25s02.html for more.

Reimplemented from std::basic_streambuf< _CharT, encoding_char_traits< _CharT > >.

5.44.3.30 void std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::setg (char_type * __gbeg, char_type * __gnext, char_type * __gend) [inline, protected, inherited]

Setting the three read area pointers.

Parameters:

gbeg A pointer.

gnext A pointer.

gend A pointer.

Postcondition:

gbeg == `eback()`, *gnext* == `gptr()`, and *gend* == `egptr()`

Definition at line 487 of file streambuf.

5.44.3.31 void std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::setp (char_type * *__pbeg*, char_type * *__pend*) [inline, protected, inherited]

Setting the three write area pointers.

Parameters:

pbeg A pointer.

pend A pointer.

Postcondition:

pbeg == `pbase()`, *pbeg* == `pptr()`, and *pend* == `epptr()`

Definition at line 533 of file streambuf.

5.44.3.32 int_type std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::sgetc () [inline, inherited]

Getting the next character.

Returns:

The next character, or eof.

If the input read position is available, returns that character, otherwise calls and returns `underflow()`. Does not move the read position after fetching the character.

Definition at line 316 of file streambuf.

5.44.3.33 streamsize std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::sgetn (char_type * *__s*, streamsize *__n*) [inline, inherited]

Entry point for xsgetn.

Parameters:

s A buffer area.

n A count.

Returns xsgetn(s,n). The effect is to fill *s*[0] through *s*[n-1] with characters from the input sequence, if possible.

Definition at line 335 of file streambuf.

5.44.3.34 virtual streamsize std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::showmanyc () [protected, virtual, inherited]

Investigating the data available.

Returns:

An estimate of the number of characters available in the input sequence, or -1.

If it returns a positive value, then successive calls to `underflow()` *will not return* `traits::eof()` *until at least that number of characters have been supplied. If* `showmanyc()` *returns -1, then calls to* `underflow()` *or* `uflow()` *will fail.* [27.5.2.4.3]/1

Note:

Base class version does nothing, returns zero.
The standard adds that *the intention is not only that the calls [to underflow or uflow] will not return* `eof()` *but that they will return immediately.*
The standard adds that *the morphemes of* `showmanyc` *are* ***es-how-many-see****, not* ***show-manic****.*

Reimplemented from std::basic_streambuf< _CharT, encoding_char_traits< _CharT > >.

5.44.3.35 int_type std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::snextc () [inline, inherited]

Getting the next character.

Returns:

The next character, or eof.

Calls `sbumpc()`, and if that function returns `traits::eof()`, so does this function. Otherwise, `sgetc()`.

Definition at line 276 of file streambuf.

5.44.3.36 int_type std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::sputbackc (char_type __c) [inline, inherited]

Pushing characters back into the input stream.

Parameters:

c The character to push back.

Returns:

The previous character, if possible.

Similar to sungetc(), but *c* is pushed onto the stream instead of *the previous character.* If successful, the next character fetched from the input stream will be *c*.

Definition at line 350 of file streambuf.

5.44.3.37 int_type std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::sputc (char_type __c) [inline, inherited]

Entry point for all single-character output functions.

Parameters:

c A character to output.

Returns:

c, if possible.

One of two public output functions.

If a write position is available for the output sequence (i.e., the buffer is not full), stores *c* in that position, increments the position, and returns `traits::to_int_type(c)`. If a write position is not available, returns `overflow(c)`.

Definition at line 402 of file streambuf.

5.44.3.38 streamsize std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::sputn (const char_type * __s, streamsize __n) [inline, inherited]

Entry point for all single-character output functions.

Parameters:

s A buffer read area.

n A count.

One of two public output functions.

Returns xsputn(s,n). The effect is to write *s*[0] through *s*[n-1] to the output sequence, if possible.

Definition at line 428 of file streambuf.

5.44.3.39 void std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::stossc () [inline, inherited]

Tosses a character. Advances the read pointer, ignoring the character that would have been read.

See http://gcc.gnu.org/ml/libstdc++/2002-05/msg00168.html

Definition at line 761 of file streambuf.

5.44.3.40 int_type std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::sungetc () [inline, inherited]

Moving backwards in the input stream.

Returns:

The previous character, if possible.

If a putback position is available, this function decrements the input pointer and returns that character. Otherwise, calls and returns pbackfail(). The effect is to *unget* the last character *gotten*.

Definition at line 375 of file streambuf.

5.44.3.41 virtual int std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::sync (void) [protected, virtual, inherited]

Synchronizes the buffer arrays with the controlled sequences.

Returns:

-1 on failure.

Each derived class provides its own appropriate behavior, including the definition of *failure*.

Note:

Base class version does nothing, returns zero.

Reimplemented from std::basic_streambuf< _CharT, encoding_char_traits< _CharT > >.

5.44.3.42 virtual int_type std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::uflow () [inline, protected, virtual, inherited]

Fetches more data from the controlled sequence.

Returns:

The first character from the *pending sequence*.

Informally, this function does the same thing as `underflow()`, and in fact is required to call that function. It also returns the new character, like `underflow()` does. However, this function also moves the read position forward by one.

Definition at line 678 of file streambuf.

5.44.3.43 virtual int_type std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::underflow () [protected, virtual, inherited]

Fetches more data from the controlled sequence.

Returns:

The first character from the *pending sequence*.

Informally, this function is called when the input buffer is exhausted (or does not exist, as buffering need not actually be done). If a buffer exists, it is *refilled*. In either case, the next available character is returned, or `traits::eof()` to indicate a null pending sequence.

For a formal definition of the pending sequence, see a good text such as Langer & Kreft, or [27.5.2.4.3]/7-14.

A functioning input streambuf can be created by overriding only this function (no buffer area will be used). For an example, see http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch25.html

Note:

Base class version does nothing, returns eof().

Reimplemented from std::basic_streambuf< _CharT, encoding_char_traits< _CharT > >.

5.44.3.44 virtual streamsize std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::xsgetn (char_type * __s, streamsize __n) [protected, virtual, inherited]

Multiple character extraction.

Parameters:

s A buffer area.

n Maximum number of characters to assign.

Returns:

The number of characters assigned.

Fills *s*[0] through *s*[n-1] with characters from the input sequence, as if by `sbumpc()`. Stops when either *n* characters have been copied, or when `traits::eof()` would be copied.

It is expected that derived classes provide a more efficient implementation by overriding this definition.

Reimplemented from std::basic_streambuf< _CharT, encoding_char_traits< _CharT > >.

5.44.3.45 virtual streamsize std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::xsputn (const char_type * __s, streamsize __n) [protected, virtual, inherited]

Multiple character insertion.

Parameters:

s A buffer area.

n Maximum number of characters to write.

Returns:

The number of characters written.

Writes *s*[0] through *s*[n-1] to the output sequence, as if by `sputc()`. Stops when either *n* characters have been copied, or when `sputc()` would return `traits::eof()`.

It is expected that derived classes provide a more efficient implementation by overriding this definition.

Reimplemented from std::basic_streambuf< _CharT, encoding_char_traits< _CharT > >.

5.44.4 Member Data Documentation

5.44.4.1 char_type* std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::_M_buf [protected, inherited]

Pointer to the beginning of internal buffer.

Definition at line 109 of file fstream.

5.44.4.2 locale std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::_M_buf_locale [protected, inherited]

Current locale setting.

Definition at line 188 of file streambuf.

5.44.4.3 size_t std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::_M_buf_size [protected, inherited]

Actual size of internal buffer. This number is equal to the size of the put area + 1 position, reserved for the overflow char of a full area.

Definition at line 116 of file fstream.

5.44.4.4 char* std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::_M_ext_buf [protected, inherited]

Buffer for external characters. Used for input when codecvt::always_noconv() == false. When valid, this corresponds to eback().

Definition at line 151 of file fstream.

5.44.4.5 streamsize std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::_M_ext_buf_size [protected, inherited]

Size of buffer held by _M_ext_buf.

Definition at line 156 of file fstream.

5.44.4.6 const char* std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::_M_ext_next [protected, inherited]

Pointers into the buffer held by _M_ext_buf that delimit a subsequence of bytes that have been read but not yet converted. When valid, _M_ext_next corresponds to egptr().

Definition at line 163 of file fstream.

5.44.4.7 char_type* std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::_M_in_beg [protected, inherited]

This is based on _IO_FILE, just reordered to be more consistent, and is intended to be the most minimal abstraction for an internal buffer.

- get == input == read
- put == output == write

Definition at line 180 of file streambuf.

5.44.4.8 char_type* std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::_M_in_cur [protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 181 of file streambuf.

5.44.4.9 char_type* std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::_M_in_end [protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 182 of file streambuf.

5.44.4.10 ios_base::openmode std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::_M_mode [protected, inherited]

Place to stash in || out || in | out settings for current filebuf.

Definition at line 94 of file fstream.

5.44.4.11 char_type* std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::_M_out_beg [protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 183 of file streambuf.

5.44.4.12 char_type* std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::_M_out_cur [protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 184 of file streambuf.

5.44.4.13 char_type* std::basic_streambuf< _CharT , encoding_char_traits< _CharT > >::_M_out_end [protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 185 of file streambuf.

5.44.4.14 char_type std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::_M_pback [protected, inherited]

Necessary bits for putback buffer management.

Note:

pbacks of over one character are not currently supported.

Definition at line 137 of file fstream.

5.44.4.15 char_type* std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::_M_pback_cur_save [protected, inherited]

Necessary bits for putback buffer management.

Note:

pbacks of over one character are not currently supported.

Definition at line 138 of file fstream.

5.44.4.16 char_type* std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::_M_pback_end_save [protected, inherited]

Necessary bits for putback buffer management.

Note:

pbacks of over one character are not currently supported.

Definition at line 139 of file fstream.

5.44.4.17 bool std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::_M_pback_init [protected, inherited]

Necessary bits for putback buffer management.

Note:

pbacks of over one character are not currently supported.

Definition at line 140 of file fstream.

5.44.4.18 bool std::basic_filebuf< _CharT , encoding_char_traits< _CharT > >::_M_reading [protected, inherited]

_M_reading == false && _M_writing == false for **uncommitted** mode; _M_reading == true for **read** mode; _M_writing == true for **write** mode;

NB: _M_reading == true && _M_writing == true is unused.

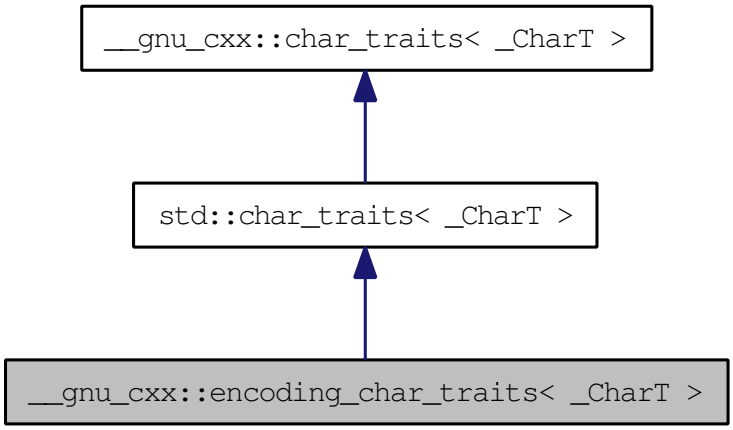
Definition at line 128 of file fstream.

The documentation for this class was generated from the following file:

- enc_filebuf.h

5.45 __gnu_cxx::encoding_char_traits< _CharT > Struct Template Reference

encoding_char_traits Inheritance diagram for __gnu_cxx::encoding_char_traits< _CharT >:



Public Types

- typedef _CharT **char_type**
- typedef _Char_types< _CharT >::int_type **int_type**
- typedef _Char_types< _CharT >::off_type **off_type**
- typedef std::fpos< state_type > **pos_type**
- typedef encoding_state **state_type**

Static Public Member Functions

- static char_type * **assign** (char_type *__s, std::size_t __n, char_type __a)
- static void **assign** (char_type &__c1, const char_type &__c2)
- static int **compare** (const char_type *__s1, const char_type *__s2, std::size_t __n)
- static char_type * **copy** (char_type *__s1, const char_type *__s2, std::size_t __n)
- static int_type **eof** ()
- static bool **eq** (const char_type &__c1, const char_type &__c2)
- static bool **eq_int_type** (const int_type &__c1, const int_type &__c2)
- static const char_type * **find** (const char_type *__s, std::size_t __n, const char_type &__a)

- static std::size_t **length** (const char_type *__s)
- static bool **lt** (const char_type &__c1, const char_type &__c2)
- static char_type * **move** (char_type *__s1, const char_type *__s2, std::size_t __n)
- static int_type **not_eof** (const int_type &__c)
- static char_type **to_char_type** (const int_type &__c)
- static int_type **to_int_type** (const char_type &__c)

5.45.1 Detailed Description

template<typename _CharT> struct __gnu_cxx::encoding_char_traits< _CharT >

encoding_char_traits

Definition at line 209 of file codecvt_specializations.h.

The documentation for this struct was generated from the following file:

- codecvt_specializations.h

5.46 __gnu_cxx::encoding_state Class Reference

Extension to use iconv for dealing with character encodings.

Public Types

- typedef iconv_t **descriptor_type**

Public Member Functions

- **encoding_state** (const encoding_state &__obj)
- **encoding_state** (const char *__int, const char *__ext, int __ibom=0, int __ebom=0, int __bytes=1)
- int **character_ratio** () const
- int **external_bom** () const
- const std::string **external_encoding** () const
- bool **good** () const throw ()
- const descriptor_type & **in_descriptor** () const
- int **internal_bom** () const
- const std::string **internal_encoding** () const
- encoding_state & **operator=** (const encoding_state &__obj)
- const descriptor_type & **out_descriptor** () const

Protected Member Functions

- void **construct** (const encoding_state &__obj)
- void **destroy** () throw ()
- void **init** ()

Protected Attributes

- int **_M_bytes**
- int **_M_ext_bom**
- std::string **_M_ext_enc**
- descriptor_type **_M_in_desc**
- int **_M_int_bom**
- std::string **_M_int_enc**
- descriptor_type **_M_out_desc**

5.46.1 Detailed Description

Extension to use iconv for dealing with character encodings.

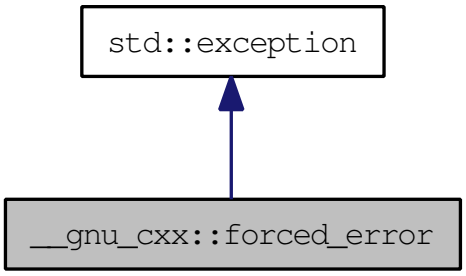
Definition at line 49 of file codecvt_specializations.h.

The documentation for this class was generated from the following file:

- codecvt_specializations.h

5.47 __gnu_cxx::forced_error Struct Reference

Thown by exception safety machinery. Inheritance diagram for __gnu_cxx::forced_-error:



Public Member Functions

- virtual const char ∗ what () const throw ()

5.47.1 Detailed Description

Thown by exception safety machinery.

Definition at line 73 of file throw_allocator.h.

5.47.2 Member Function Documentation

5.47.2.1 virtual const char∗ std::exception::what () const throw () [virtual, inherited]

Returns a C-style character string describing the general cause of the current error.

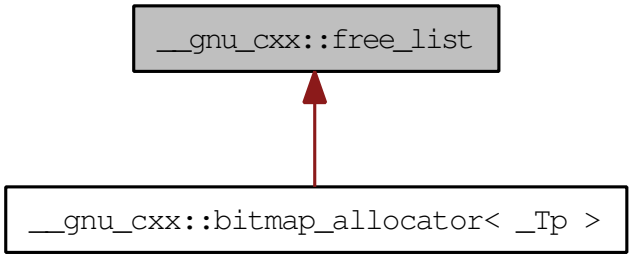
Reimplemented in std::bad_exception, std::bad_alloc, std::bad_cast, std::bad_-typeid, std::future_error, std::logic_error, std::runtime_error, std::bad_weak_ptr, and std::ios_base::failure.

The documentation for this struct was generated from the following file:

- throw_allocator.h

5.48 __gnu_cxx::free_list Class Reference

The free list class for managing chunks of memory to be given to and returned by the bitmap_allocator. Inheritance diagram for __gnu_cxx::free_list:



Public Types

- typedef __mutex **__mutex_type**
- typedef vector_type::iterator **iterator**
- typedef size_t * **value_type**
- typedef __detail::__mini_vector< value_type > **vector_type**

Public Member Functions

- void _M_clear ()
- size_t * _M_get (size_t __sz) throw (std::bad_alloc)
- void _M_insert (size_t *__addr) throw ()

5.48.1 Detailed Description

The free list class for managing chunks of memory to be given to and returned by the bitmap_allocator.

Definition at line 521 of file bitmap_allocator.h.

5.48.2 Member Function Documentation

5.48.2.1 void __gnu_cxx::free_list::_M_clear ()

This function just clears the internal Free List, and gives back all the memory to the OS.

5.48.2.2 size_t* __gnu_cxx::free_list::_M_get (size_t __sz) throw (std::bad_alloc)

This function gets a block of memory of the specified size from the free list.

Parameters:

__sz The size in bytes of the memory required.

Returns:

A pointer to the new memory block of size at least equal to that requested.

5.48.2.3 void __gnu_cxx::free_list::_M_insert (size_t * __addr) throw () [inline]

This function returns the block of memory to the internal free list.

Parameters:

__addr The pointer to the memory block that was given by a call to the _M_get function.

Definition at line 631 of file bitmap_allocator.h.

The documentation for this class was generated from the following file:

- bitmap_allocator.h

5.49 __gnu_cxx::hash_map< _Key, _Tp, _HashFn, _EqualKey, _Alloc > Class Template Reference

Public Types

- typedef _Ht::allocator_type **allocator_type**
- typedef _Ht::const_iterator **const_iterator**
- typedef _Ht::const_pointer **const_pointer**
- typedef _Ht::const_reference **const_reference**
- typedef _Tp **data_type**
- typedef _Ht::difference_type **difference_type**
- typedef _Ht::hasher **hasher**
- typedef _Ht::iterator **iterator**
- typedef _Ht::key_equal **key_equal**
- typedef _Ht::key_type **key_type**
- typedef _Tp **mapped_type**
- typedef _Ht::pointer **pointer**
- typedef _Ht::reference **reference**
- typedef _Ht::size_type **size_type**
- typedef _Ht::value_type **value_type**

Public Member Functions

- template<class _InputIterator >
  hash_map (_InputIterator __f, _InputIterator __l, size_type __n, const hasher &__hf, const key_equal &__eql, const allocator_type &__a=allocator_type())
- template<class _InputIterator >
  hash_map (_InputIterator __f, _InputIterator __l, size_type __n, const hasher &__hf)
- template<class _InputIterator >
  hash_map (_InputIterator __f, _InputIterator __l, size_type __n)
- template<class _InputIterator >
  hash_map (_InputIterator __f, _InputIterator __l)
- **hash_map** (size_type __n, const hasher &__hf, const key_equal &__eql, const allocator_type &__a=allocator_type())
- **hash_map** (size_type __n, const hasher &__hf)
- **hash_map** (size_type __n)
- const_iterator **begin** () const
- iterator **begin** ()
- size_type **bucket_count** () const
- void **clear** ()
- size_type **count** (const key_type &__key) const

- size_type **elems_in_bucket** (size_type __n) const
- bool **empty** () const
- const_iterator **end** () const
- iterator **end** ()
- pair< const_iterator, const_iterator > **equal_range** (const key_type &__key) const
- pair< iterator, iterator > **equal_range** (const key_type &__key)
- void **erase** (iterator __f, iterator __l)
- void **erase** (iterator __it)
- size_type **erase** (const key_type &__key)
- const_iterator **find** (const key_type &__key) const
- iterator **find** (const key_type &__key)
- allocator_type **get_allocator** () const
- hasher **hash_funct** () const
- template<class _InputIterator >
  void **insert** (_InputIterator __f, _InputIterator __l)
- pair< iterator, bool > **insert** (const value_type &__obj)
- pair< iterator, bool > **insert_noresize** (const value_type &__obj)
- key_equal **key_eq** () const
- size_type **max_bucket_count** () const
- size_type **max_size** () const
- _Tp & **operator[ ]** (const key_type &__key)
- void **resize** (size_type __hint)
- size_type **size** () const
- void **swap** (hash_map &__hs)

Friends

- template<class _K1 , class _T1 , class _HF , class _EqK , class _Al >
  bool **operator==** (const hash_map< _K1, _T1, _HF, _EqK, _Al > &, const hash_map< _K1, _T1, _HF, _EqK, _Al > &)

5.49.1 Detailed Description

template<class _Key, class _Tp, class _HashFn = hash<_Key>, class _EqualKey = equal_to<_Key>, class _Alloc = allocator<_Tp>> class __gnu_cxx::hash_map< _Key, _Tp, _HashFn, _EqualKey, _Alloc >

This is an SGI extension.

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Definition at line 78 of file hash_map.

The documentation for this class was generated from the following file:

- hash_map

5.50 __gnu_cxx::hash_multimap< _Key, _Tp, _HashFn, _EqualKey, _Alloc > Class Template Reference

Public Types

- typedef _Ht::allocator_type **allocator_type**
- typedef _Ht::const_iterator **const_iterator**
- typedef _Ht::const_pointer **const_pointer**
- typedef _Ht::const_reference **const_reference**
- typedef _Tp **data_type**
- typedef _Ht::difference_type **difference_type**
- typedef _Ht::hasher **hasher**
- typedef _Ht::iterator **iterator**
- typedef _Ht::key_equal **key_equal**
- typedef _Ht::key_type **key_type**
- typedef _Tp **mapped_type**
- typedef _Ht::pointer **pointer**
- typedef _Ht::reference **reference**
- typedef _Ht::size_type **size_type**
- typedef _Ht::value_type **value_type**

Public Member Functions

- template<class _InputIterator >
  hash_multimap (_InputIterator __f, _InputIterator __l, size_type __n, const hasher &__hf, const key_equal &__eql, const allocator_type &__a=allocator_type())
- template<class _InputIterator >
  hash_multimap (_InputIterator __f, _InputIterator __l, size_type __n, const hasher &__hf)
- template<class _InputIterator >
  hash_multimap (_InputIterator __f, _InputIterator __l, size_type __n)
- template<class _InputIterator >
  hash_multimap (_InputIterator __f, _InputIterator __l)
- **hash_multimap** (size_type __n, const hasher &__hf, const key_equal &__eql, const allocator_type &__a=allocator_type())
- **hash_multimap** (size_type __n, const hasher &__hf)
- **hash_multimap** (size_type __n)
- const_iterator **begin** () const
- iterator **begin** ()
- size_type **bucket_count** () const

- void **clear** ()
- size_type **count** (const key_type &__key) const
- size_type **elems_in_bucket** (size_type __n) const
- bool **empty** () const
- const_iterator **end** () const
- iterator **end** ()
- pair< const_iterator, const_iterator > **equal_range** (const key_type &__key) const
- pair< iterator, iterator > **equal_range** (const key_type &__key)
- void **erase** (iterator __f, iterator __l)
- void **erase** (iterator __it)
- size_type **erase** (const key_type &__key)
- const_iterator **find** (const key_type &__key) const
- iterator **find** (const key_type &__key)
- allocator_type **get_allocator** () const
- hasher **hash_funct** () const
- template<class _InputIterator >
  void **insert** (_InputIterator __f, _InputIterator __l)
- iterator **insert** (const value_type &__obj)
- iterator **insert_noresize** (const value_type &__obj)
- key_equal **key_eq** () const
- size_type **max_bucket_count** () const
- size_type **max_size** () const
- void **resize** (size_type __hint)
- size_type **size** () const
- void **swap** (hash_multimap &__hs)

Friends

- template<class _K1 , class _T1 , class _HF , class _EqK , class _Al >
  bool **operator==** (const hash_multimap< _K1, _T1, _HF, _EqK, _Al > &, const hash_multimap< _K1, _T1, _HF, _EqK, _Al > &)

5.50.1 Detailed Description

template<class _Key, class _Tp, class _HashFn = hash<_Key>, class _EqualKey = equal_to<_Key>, class _Alloc = allocator<_Tp>> class __gnu_cxx::hash_multimap< _Key, _Tp, _HashFn, _EqualKey, _Alloc >

This is an SGI extension.

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Definition at line 291 of file hash_map.

The documentation for this class was generated from the following file:

- hash_map

5.51 __gnu_cxx::hash_multiset< _Value, _HashFcn, _EqualKey, _Alloc > Class Template Reference

Public Types

- typedef _Ht::allocator_type **allocator_type**
- typedef _Ht::const_iterator **const_iterator**
- typedef _Alloc::const_pointer **const_pointer**
- typedef _Alloc::const_reference **const_reference**
- typedef _Ht::difference_type **difference_type**
- typedef _Ht::hasher **hasher**
- typedef _Ht::const_iterator **iterator**
- typedef _Ht::key_equal **key_equal**
- typedef _Ht::key_type **key_type**
- typedef _Alloc::pointer **pointer**
- typedef _Alloc::reference **reference**
- typedef _Ht::size_type **size_type**
- typedef _Ht::value_type **value_type**

Public Member Functions

- template<class _InputIterator >
  hash_multiset (_InputIterator __f, _InputIterator __l, size_type __n, const hasher &__hf, const key_equal &__eql, const allocator_type &__a=allocator_type())
- template<class _InputIterator >
  hash_multiset (_InputIterator __f, _InputIterator __l, size_type __n, const hasher &__hf)
- template<class _InputIterator >
  hash_multiset (_InputIterator __f, _InputIterator __l, size_type __n)
- template<class _InputIterator >
  hash_multiset (_InputIterator __f, _InputIterator __l)
- **hash_multiset** (size_type __n, const hasher &__hf, const key_equal &__eql, const allocator_type &__a=allocator_type())
- **hash_multiset** (size_type __n, const hasher &__hf)
- **hash_multiset** (size_type __n)
- iterator **begin** () const
- size_type **bucket_count** () const
- void **clear** ()
- size_type **count** (const key_type &__key) const
- size_type **elems_in_bucket** (size_type __n) const
- bool **empty** () const

- iterator **end** () const
- pair< iterator, iterator > **equal_range** (const key_type &__key) const
- void **erase** (iterator __f, iterator __l)
- void **erase** (iterator __it)
- size_type **erase** (const key_type &__key)
- iterator **find** (const key_type &__key) const
- allocator_type **get_allocator** () const
- hasher **hash_funct** () const
- template<class _InputIterator >
  void **insert** (_InputIterator __f, _InputIterator __l)
- iterator **insert** (const value_type &__obj)
- iterator **insert_noresize** (const value_type &__obj)
- key_equal **key_eq** () const
- size_type **max_bucket_count** () const
- size_type **max_size** () const
- void **resize** (size_type __hint)
- size_type **size** () const
- void **swap** (hash_multiset &hs)

Friends

- template<class _Val , class _HF , class _EqK , class _Al >
  bool **operator==** (const hash_multiset< _Val, _HF, _EqK, _Al > &, const hash_multiset< _Val, _HF, _EqK, _Al > &)

5.51.1 Detailed Description

template<class _Value, class _HashFcn = hash<_Value>, class _EqualKey = equal_to<_Value>, class _Alloc = allocator<_Value>> class __gnu_cxx::hash_multiset< _Value, _HashFcn, _EqualKey, _Alloc >

This is an SGI extension.

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Definition at line 280 of file hash_set.

The documentation for this class was generated from the following file:

- hash_set

5.52 __gnu_cxx::hash_set< _Value, _HashFcn, _EqualKey, _Alloc > Class Template Reference

Public Types

- typedef _Ht::allocator_type **allocator_type**
- typedef _Ht::const_iterator **const_iterator**
- typedef _Alloc::const_pointer **const_pointer**
- typedef _Alloc::const_reference **const_reference**
- typedef _Ht::difference_type **difference_type**
- typedef _Ht::hasher **hasher**
- typedef _Ht::const_iterator **iterator**
- typedef _Ht::key_equal **key_equal**
- typedef _Ht::key_type **key_type**
- typedef _Alloc::pointer **pointer**
- typedef _Alloc::reference **reference**
- typedef _Ht::size_type **size_type**
- typedef _Ht::value_type **value_type**

Public Member Functions

- template<class _InputIterator >
  hash_set (_InputIterator __f, _InputIterator __l, size_type __n, const hasher &__hf, const key_equal &__eql, const allocator_type &__a=allocator_type())
- template<class _InputIterator >
  hash_set (_InputIterator __f, _InputIterator __l, size_type __n, const hasher &__hf)
- template<class _InputIterator >
  hash_set (_InputIterator __f, _InputIterator __l, size_type __n)
- template<class _InputIterator >
  hash_set (_InputIterator __f, _InputIterator __l)
- **hash_set** (size_type __n, const hasher &__hf, const key_equal &__eql, const allocator_type &__a=allocator_type())
- **hash_set** (size_type __n, const hasher &__hf)
- **hash_set** (size_type __n)
- iterator **begin** () const
- size_type **bucket_count** () const
- void **clear** ()
- size_type **count** (const key_type &__key) const
- size_type **elems_in_bucket** (size_type __n) const
- bool **empty** () const
- iterator **end** () const

- pair< iterator, iterator > **equal_range** (const key_type &__key) const
- void **erase** (iterator __f, iterator __l)
- void **erase** (iterator __it)
- size_type **erase** (const key_type &__key)
- iterator **find** (const key_type &__key) const
- allocator_type **get_allocator** () const
- hasher **hash_funct** () const
- template<class _InputIterator >
  void **insert** (_InputIterator __f, _InputIterator __l)
- pair< iterator, bool > **insert** (const value_type &__obj)
- pair< iterator, bool > **insert_noresize** (const value_type &__obj)
- key_equal **key_eq** () const
- size_type **max_bucket_count** () const
- size_type **max_size** () const
- void **resize** (size_type __hint)
- size_type **size** () const
- void **swap** (hash_set &__hs)

Friends

- template<class _Val , class _HF , class _EqK , class _Al >
  bool **operator==** (const hash_set< _Val, _HF, _EqK, _Al > &, const hash_set< _Val, _HF, _EqK, _Al > &)

5.52.1 Detailed Description

template<class _Value, class _HashFcn = hash<_Value>, class _EqualKey = equal_to<_Value>, class _Alloc = allocator<_Value>> class __gnu_cxx::hash_set< _Value, _HashFcn, _EqualKey, _Alloc >

This is an SGI extension.

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

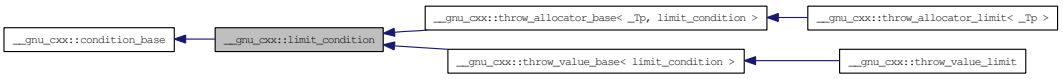
Definition at line 79 of file hash_set.

The documentation for this class was generated from the following file:

- hash_set

5.53 __gnu_cxx::limit_condition Struct Reference

Base class for incremental control and throw. Inheritance diagram for __gnu_cxx::limit_condition:



Classes

- struct always_adjustor

  Always enter the condition.

- struct limit_adjustor

  Enter the nth condition.

- struct never_adjustor

  Never enter the condition.

Static Public Member Functions

- static size_t & **count** ()
- static size_t & **limit** ()
- static void **set_limit** (const size_t __l)
- static void **throw_conditionally** ()

5.53.1 Detailed Description

Base class for incremental control and throw.

Definition at line 262 of file throw_allocator.h.

The documentation for this struct was generated from the following file:

- throw_allocator.h

5.54 __gnu_cxx::limit_condition::always_adjustor Struct Reference

Always enter the condition.

Inherits __gnu_cxx::limit_condition::adjustor_base.

5.54.1 Detailed Description

Always enter the condition.

Definition at line 286 of file throw_allocator.h.

The documentation for this struct was generated from the following file:

- throw_allocator.h

5.55 __gnu_cxx::limit_condition::limit_adjustor Struct Reference

Enter the nth condition.

Inherits __gnu_cxx::limit_condition::adjustor_base.

Public Member Functions

- **limit_adjustor** (const size_t __l)

5.55.1 Detailed Description

Enter the nth condition.

Definition at line 292 of file throw_allocator.h.

The documentation for this struct was generated from the following file:

- throw_allocator.h

5.56 __gnu_cxx::limit_condition::never_adjustor Struct Reference

Never enter the condition.

Inherits __gnu_cxx::limit_condition::adjustor_base.

5.56.1 Detailed Description

Never enter the condition.

Definition at line 280 of file throw_allocator.h.

The documentation for this struct was generated from the following file:

- throw_allocator.h

5.57 __gnu_cxx::malloc_allocator< _Tp > Class Template Reference

An allocator that uses malloc.

This is precisely the allocator defined in the C++ Standard.

- all allocation calls malloc
- all deallocation calls free.

Public Types

- typedef const _Tp * **const_pointer**
- typedef const _Tp & **const_reference**
- typedef ptrdiff_t **difference_type**
- typedef _Tp * **pointer**
- typedef _Tp & **reference**
- typedef size_t **size_type**
- typedef _Tp **value_type**

Public Member Functions

- template<typename _Tp1 >
  malloc_allocator (const malloc_allocator< _Tp1 > &) throw ()
- **malloc_allocator** (const malloc_allocator &) throw ()
- const_pointer **address** (const_reference __x) const
- pointer **address** (reference __x) const
- pointer **allocate** (size_type __n, const void *=0)
- template<typename... _Args>
  void **construct** (pointer __p, _Args &&...__args)
- void **construct** (pointer __p, const _Tp &__val)
- void **deallocate** (pointer __p, size_type)
- void **destroy** (pointer __p)
- size_type **max_size** () const throw ()

5.57.1 Detailed Description

template<typename _Tp> class __gnu_cxx::malloc_allocator< _Tp >

An allocator that uses malloc.

This is precisely the allocator defined in the C++ Standard.

- all allocation calls malloc
- all deallocation calls free.

Definition at line 52 of file malloc_allocator.h.

The documentation for this class was generated from the following file:

- malloc_allocator.h

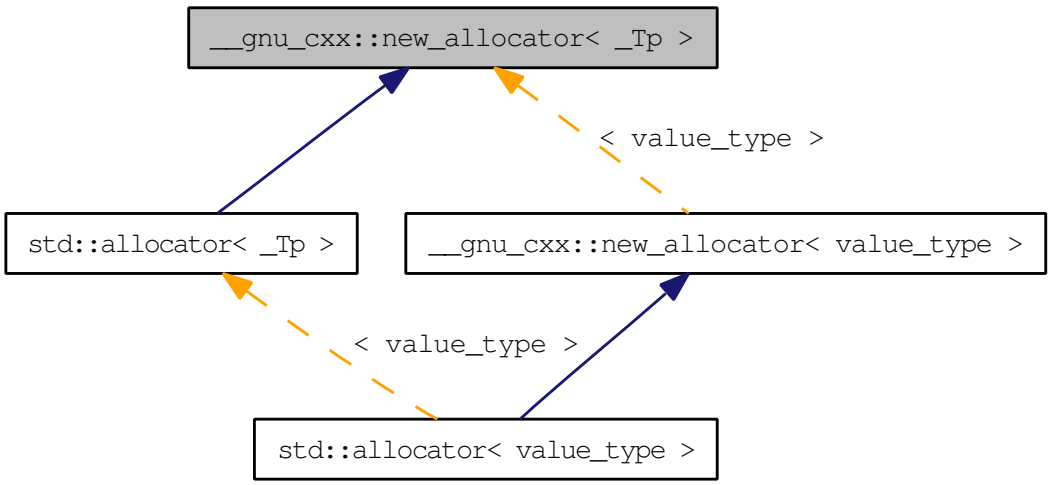
5.58 __gnu_cxx::new_allocator< _Tp > Class Template Reference

An allocator that uses global new, as per [20.4].

This is precisely the allocator defined in the C++ Standard.

- all allocation calls operator new
- all deallocation calls operator delete.

Inheritance diagram for __gnu_cxx::new_allocator< _Tp >:



Public Types

- typedef const _Tp * **const_pointer**
- typedef const _Tp & **const_reference**
- typedef ptrdiff_t **difference_type**
- typedef _Tp * **pointer**
- typedef _Tp & **reference**
- typedef size_t **size_type**
- typedef _Tp **value_type**

Public Member Functions

- template<typename _Tp1 >
  new_allocator (const new_allocator< _Tp1 > &) throw ()

- **new_allocator** (const new_allocator &) throw ()
- const_pointer **address** (const_reference __x) const
- pointer **address** (reference __x) const
- pointer **allocate** (size_type __n, const void *=0)
- template<typename... _Args>
  void **construct** (pointer __p, _Args &&...__args)
- void **construct** (pointer __p, const _Tp &__val)
- void **deallocate** (pointer __p, size_type)
- void **destroy** (pointer __p)
- size_type **max_size** () const throw ()

5.58.1 Detailed Description

template<typename _Tp> class __gnu_cxx::new_allocator< _Tp >

An allocator that uses global new, as per [20.4].

This is precisely the allocator defined in the C++ Standard.

- all allocation calls operator new
- all deallocation calls operator delete.

Definition at line 51 of file new_allocator.h.

The documentation for this class was generated from the following file:

- new_allocator.h

5.59 __gnu_cxx::project1st< _Arg1, _Arg2 > Struct Template Reference

An SGI extension .

Inherits __gnu_cxx::_Project1st< _Arg1, _Arg2 >.

Public Types

- typedef _Arg1 first_argument_type
- typedef _Result result_type
- typedef _Arg2 second_argument_type

Public Member Functions

- _Arg1 **operator()** (const _Arg1 &__x, const _Arg2 &) const

5.59.1 Detailed Description

template<class _Arg1, class _Arg2> struct __gnu_cxx::project1st< _Arg1, _Arg2 >

An SGI extension .

Definition at line 233 of file ext/functional.

5.59.2 Member Typedef Documentation

5.59.2.1 template<typename _Arg1, typename _Arg2, typename _Result> typedef _Arg1 std::binary_function< _Arg1, _Arg2, _Result >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.59.2.2 template<typename _Arg1, typename _Arg2, typename _Result> typedef _Result std::binary_function< _Arg1, _Arg2, _Result >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.59.2.3 template<typename _Arg1, typename _Arg2, typename _Result> typedef _Arg2 std::binary_function< _Arg1, _Arg2, _Result >::second_argument_type [inherited]

the type of the second argument

Definition at line 117 of file stl_function.h.

The documentation for this struct was generated from the following file:

- ext/functional

5.60 __gnu_cxx::project2nd< _Arg1, _Arg2 > Struct Template Reference

An SGI extension .

Inherits __gnu_cxx::_Project2nd< _Arg1, _Arg2 >.

Public Types

- typedef _Arg1 first_argument_type
- typedef _Result result_type
- typedef _Arg2 second_argument_type

Public Member Functions

- _Arg2 **operator()** (const _Arg1 &, const _Arg2 &__y) const

5.60.1 Detailed Description

template<class _Arg1, class _Arg2> struct __gnu_cxx::project2nd< _Arg1, _Arg2 >

An SGI extension .

Definition at line 237 of file ext/functional.

5.60.2 Member Typedef Documentation

5.60.2.1 template<typename _Arg1, typename _Arg2, typename _Result> typedef _Arg1 std::binary_function< _Arg1, _Arg2, _Result >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.60.2.2 template<typename _Arg1, typename _Arg2, typename _Result> typedef _Result std::binary_function< _Arg1, _Arg2, _Result >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.60.2.3 template<typename _Arg1, typename _Arg2, typename _Result> typedef _Arg2 std::binary_function< _Arg1, _Arg2, _Result >::second_argument_type [inherited]

the type of the second argument

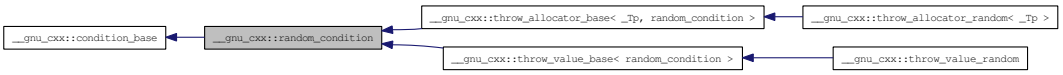
Definition at line 117 of file stl_function.h.

The documentation for this struct was generated from the following file:

- ext/functional

5.61 __gnu_cxx::random_condition Struct Reference

Base class for random probability control and throw. Inheritance diagram for __gnu_-cxx::random_condition:



Classes

- struct always_adjustor

  Always enter the condition.

- struct group_adjustor

  Group condition.

- struct never_adjustor

  Never enter the condition.

Public Member Functions

- void **seed** (unsigned long __s)

Static Public Member Functions

- static void **set_probability** (double __p)
- static void **throw_conditionally** ()

5.61.1 Detailed Description

Base class for random probability control and throw.

Definition at line 334 of file throw_allocator.h.

The documentation for this struct was generated from the following file:

- throw_allocator.h

5.62 __gnu_cxx::random_condition::always_adjustor Struct Reference

Always enter the condition.

Inherits __gnu_cxx::random_condition::adjustor_base.

5.62.1 Detailed Description

Always enter the condition.

Definition at line 367 of file throw_allocator.h.

The documentation for this struct was generated from the following file:

- throw_allocator.h

5.63 __gnu_cxx::random_condition::group_adjustor Struct Reference

Group condition.

Inherits __gnu_cxx::random_condition::adjustor_base.

Public Member Functions

- **group_adjustor** (size_t size)

5.63.1 Detailed Description

Group condition.

Definition at line 352 of file throw_allocator.h.

The documentation for this struct was generated from the following file:

- throw_allocator.h

5.64 __gnu_cxx::random_condition::never_adjustor Struct Reference

Never enter the condition.

Inherits __gnu_cxx::random_condition::adjustor_base.

5.64.1 Detailed Description

Never enter the condition.

Definition at line 361 of file throw_allocator.h.

The documentation for this struct was generated from the following file:

- throw_allocator.h

5.65 __gnu_cxx::rb_tree< _Key, _Value, _KeyOfValue, _Compare, _Alloc > Struct Template Reference

Inherits std::_Rb_tree< _Key, _Value, _KeyOfValue, _Compare, _Alloc >.

Public Types

- typedef _Rb_tree< _Key, _Value, _KeyOfValue, _Compare, _Alloc > **_Base**
- typedef const _Rb_tree_node< _Val > * **_Const_Link_type**
- typedef _Rb_tree_node< _Val > * **_Link_type**
- typedef _Base::allocator_type **allocator_type**
- typedef _Rb_tree_const_iterator< value_type > **const_iterator**
- typedef const value_type * **const_pointer**
- typedef const value_type & **const_reference**
- typedef std::reverse_iterator< const_iterator > **const_reverse_iterator**
- typedef ptrdiff_t **difference_type**
- typedef _Rb_tree_iterator< value_type > **iterator**
- typedef _Key **key_type**
- typedef value_type * **pointer**
- typedef value_type & **reference**
- typedef std::reverse_iterator< iterator > **reverse_iterator**
- typedef size_t **size_type**
- typedef _Val **value_type**

Public Member Functions

- **rb_tree** (const _Compare &__comp=_Compare(), const allocator_type &__a=allocator_type())
- bool **__rb_verify** () const
- const _Node_allocator & **_M_get_Node_allocator** () const
- _Node_allocator & **_M_get_Node_allocator** ()
- template<class _II >
  void **_M_insert_equal** (_II __first, _II __last)
- template<typename _InputIterator >
  void **_M_insert_equal** (_InputIterator __first, _InputIterator __last)
- iterator **_M_insert_equal** (const value_type &__x)
- iterator **_M_insert_equal_** (const_iterator __position, const value_type &__x)
- template<class _II >
  void **_M_insert_unique** (_II __first, _II __last)

- template<typename _InputIterator >
  void **_M_insert_unique** (_InputIterator __first, _InputIterator __last)
- pair< iterator, bool > **_M_insert_unique** (const value_type &__x)
- iterator **_M_insert_unique_** (const_iterator __position, const value_type &__x)

- const_iterator **begin** () const
- iterator **begin** ()
- void **clear** ()
- size_type **count** (const key_type &__k) const
- bool **empty** () const
- const_iterator **end** () const
- iterator **end** ()
- pair< const_iterator, const_iterator > **equal_range** (const key_type &__k) const

- pair< iterator, iterator > **equal_range** (const key_type &__k)
- void **erase** (const key_type *__first, const key_type *__last)
- const_iterator **erase** (const_iterator __first, const_iterator __last)
- iterator **erase** (iterator __first, iterator __last)
- size_type **erase** (const key_type &__x)
- const_iterator **erase** (const_iterator __position)
- iterator **erase** (iterator __position)
- const_iterator **find** (const key_type &__k) const
- iterator **find** (const key_type &__k)
- allocator_type **get_allocator** () const
- _Compare **key_comp** () const
- const_iterator **lower_bound** (const key_type &__k) const
- iterator **lower_bound** (const key_type &__k)
- size_type **max_size** () const
- const_reverse_iterator **rbegin** () const
- reverse_iterator **rbegin** ()
- const_reverse_iterator **rend** () const
- reverse_iterator **rend** ()
- size_type **size** () const
- void **swap** (_Rb_tree &__t)
- const_iterator **upper_bound** (const key_type &__k) const
- iterator **upper_bound** (const key_type &__k)

Protected Types

- typedef _Rb_tree_node_base * **_Base_ptr**
- typedef const _Rb_tree_node_base * **_Const_Base_ptr**

Protected Member Functions

- _Const_Link_type **_M_begin** () const
- _Link_type **_M_begin** ()
- _Link_type **_M_clone_node** (_Const_Link_type __x)
- template<typename... _Args>
  _Link_type **_M_create_node** (_Args &&...__args)
- void **_M_destroy_node** (_Link_type __p)
- _Const_Link_type **_M_end** () const
- _Link_type **_M_end** ()
- _Link_type **_M_get_node** ()
- _Const_Base_ptr **_M_leftmost** () const
- _Base_ptr & **_M_leftmost** ()
- void **_M_put_node** (_Link_type __p)
- _Const_Base_ptr **_M_rightmost** () const
- _Base_ptr & **_M_rightmost** ()
- _Const_Base_ptr **_M_root** () const
- _Base_ptr & **_M_root** ()

Static Protected Member Functions

- static const _Key & **_S_key** (_Const_Base_ptr __x)
- static const _Key & **_S_key** (_Const_Link_type __x)
- static _Const_Link_type **_S_left** (_Const_Base_ptr __x)
- static _Link_type **_S_left** (_Base_ptr __x)
- static _Const_Base_ptr **_S_maximum** (_Const_Base_ptr __x)
- static _Base_ptr **_S_maximum** (_Base_ptr __x)
- static _Const_Base_ptr **_S_minimum** (_Const_Base_ptr __x)
- static _Base_ptr **_S_minimum** (_Base_ptr __x)
- static _Const_Link_type **_S_right** (_Const_Base_ptr __x)
- static _Link_type **_S_right** (_Base_ptr __x)
- static const_reference **_S_value** (_Const_Base_ptr __x)
- static const_reference **_S_value** (_Const_Link_type __x)

Protected Attributes

- _Rb_tree_impl< _Compare > **_M_impl**

5.65.1 Detailed Description

template<class _Key, class _Value, class _KeyOfValue, class _Compare, class _Alloc = allocator<_Value>> struct __gnu_cxx::rb_tree< _Key, _Value, _KeyOfValue, _Compare, _Alloc >

This is an SGI extension.

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Definition at line 78 of file rb_tree.

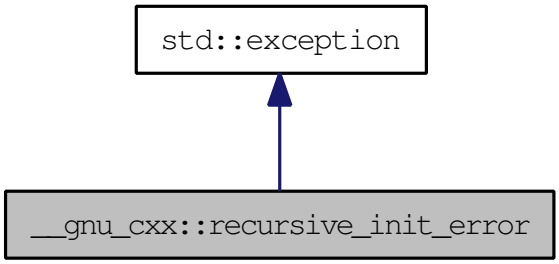
The documentation for this struct was generated from the following file:

- rb_tree

5.66 __gnu_cxx::recursive_init_error Class Reference

Exception thrown by __cxa_guard_acquire.

6.7[stmt.dcl]/4: If control re-enters the declaration (recursively) while the object is being initialized, the behavior is undefined. Inheritance diagram for __gnu_cxx::recursive_init_error:



Public Member Functions

- virtual const char * what () const throw ()

5.66.1 Detailed Description

Exception thrown by __cxa_guard_acquire.

6.7[stmt.dcl]/4: If control re-enters the declaration (recursively) while the object is being initialized, the behavior is undefined. Since we already have a library function to handle locking, we might as well check for this situation and throw an exception. We use the second byte of the guard variable to remember that we're in the middle of an initialization.

Definition at line 620 of file cxxabi.h.

5.66.2 Member Function Documentation

5.66.2.1 virtual const char* std::exception::what () const throw () [virtual, inherited]

Returns a C-style character string describing the general cause of the current error.

Reimplemented in std::bad_exception, std::bad_alloc, std::bad_cast, std::bad_typeid, std::future_error, std::logic_error, std::runtime_error, std::bad_weak_ptr, and std::ios_base::failure.

The documentation for this class was generated from the following file:

- cxxabi.h

5.67 __gnu_cxx::rope< _CharT, _Alloc > Class Template Reference

Inherits __gnu_cxx::_Rope_base< _CharT, _Alloc >.

Public Types

- typedef _Rope_RopeConcatenation< _CharT, _Alloc > **__C**
- typedef _Rope_RopeFunction< _CharT, _Alloc > **__F**
- typedef _Rope_RopeLeaf< _CharT, _Alloc > **__L**
- typedef _Rope_RopeSubstring< _CharT, _Alloc > **__S**
- typedef _Alloc::template rebind< __C >::other **_CAlloc**
- typedef _Alloc::template rebind< _CharT >::other **_DataAlloc**
- typedef _Alloc::template rebind< __F >::other **_FAlloc**
- typedef _Alloc::template rebind< __L >::other **_LAlloc**
- typedef _Alloc::template rebind< __S >::other **_SAlloc**
- typedef _Rope_const_iterator< _CharT, _Alloc > **const_iterator**
- typedef const _CharT * **const_pointer**
- typedef _CharT **const_reference**
- typedef std::reverse_iterator< const_iterator > **const_reverse_iterator**
- typedef ptrdiff_t **difference_type**
- typedef _Rope_iterator< _CharT, _Alloc > **iterator**
- typedef _Rope_char_ptr_proxy< _CharT, _Alloc > **pointer**
- typedef _Rope_char_ref_proxy< _CharT, _Alloc > **reference**
- typedef std::reverse_iterator< iterator > **reverse_iterator**
- typedef size_t **size_type**
- typedef _CharT **value_type**

Public Member Functions

- **rope** (const rope &__x, const allocator_type &__a=allocator_type())
- **rope** (char_producer< _CharT > *__fn, size_t __len, bool __delete_fn, const allocator_type &__a=allocator_type())
- **rope** (const allocator_type &__a=allocator_type())
- **rope** (size_t __n, _CharT __c, const allocator_type &__a=allocator_type())
- **rope** (_CharT __c, const allocator_type &__a=allocator_type())
- **rope** (const iterator &__s, const iterator &__e, const allocator_type &__a=allocator_type())
- **rope** (const const_iterator &__s, const const_iterator &__e, const allocator_type &__a=allocator_type())
- **rope** (const _CharT *__s, const _CharT *__e, const allocator_type &__a=allocator_type())

- **rope** (const _CharT *__s, size_t __len, const allocator_type &__a=allocator_type())
- **rope** (const _CharT *__s, const allocator_type &__a=allocator_type())
- const allocator_type & **_M_get_allocator** () const
- allocator_type & **_M_get_allocator** ()
- rope & **append** (size_t __n, _CharT __c)
- rope & **append** (const rope &__y)
- rope & **append** ()
- rope & **append** (_CharT __c)
- rope & **append** (const_iterator __s, const_iterator __e)
- rope & **append** (const _CharT *__s, const _CharT *__e)
- rope & **append** (const _CharT *__c_string)
- rope & **append** (const _CharT *__iter, size_t __n)
- void **apply_to_pieces** (size_t __begin, size_t __end, _Rope_char_consumer< _CharT > &__c) const
- _CharT **at** (size_type __pos) const
- _CharT **back** () const
- void **balance** ()
- const_iterator **begin** ()
- const_iterator **begin** () const
- const _CharT * **c_str** () const
- void **clear** ()
- int **compare** (const rope &__y) const
- const_iterator **const_begin** () const
- const_iterator **const_end** () const
- const_reverse_iterator **const_rbegin** () const
- const_reverse_iterator **const_rend** () const
- size_type **copy** (size_type __pos, size_type __n, _CharT *__buffer) const
- void **copy** (_CharT *__buffer) const
- void **delete_c_str** ()
- void **dump** ()
- bool **empty** () const
- const_iterator **end** ()
- const_iterator **end** () const
- iterator **erase** (const iterator &__p)
- iterator **erase** (const iterator &__p, const iterator &__q)
- void **erase** (size_t __p)
- void **erase** (size_t __p, size_t __n)
- size_type **find** (const _CharT *__s, size_type __pos=0) const
- size_type **find** (_CharT __c, size_type __pos=0) const
- _CharT **front** () const
- allocator_type **get_allocator** () const
- iterator **insert** (const iterator &__p, const iterator &__i, const iterator &__j)

- iterator **insert** (const iterator &__p, const const_iterator &__i, const const_-iterator &__j)
- iterator **insert** (const iterator &__p, const _CharT *__i, const _CharT *__j)
- iterator **insert** (const iterator &__p, const _CharT *__i, size_t __n)
- iterator **insert** (const iterator &__p, const _CharT *c_string)
- iterator **insert** (const iterator &__p)
- iterator **insert** (const iterator &__p, _CharT __c)
- iterator **insert** (const iterator &__p, size_t __n, _CharT __c)
- iterator **insert** (const iterator &__p, const rope &__r)
- void **insert** (size_t __p, const iterator &__i, const iterator &__j)
- void **insert** (size_t __p, const const_iterator &__i, const const_iterator &__j)
- void **insert** (size_t __p, const _CharT *__i, const _CharT *__j)
- void **insert** (size_t __p)
- void **insert** (size_t __p, _CharT __c)
- void **insert** (size_t __p, const _CharT *__c_string)
- void **insert** (size_t __p, const _CharT *__i, size_t __n)
- void **insert** (size_t __p, size_t __n, _CharT __c)
- void **insert** (size_t __p, const rope &__r)
- size_type **length** () const
- size_type **max_size** () const
- iterator **mutable_begin** ()
- iterator **mutable_end** ()
- reverse_iterator **mutable_rbegin** ()
- reference **mutable_reference_at** (size_type __pos)
- reverse_iterator **mutable_rend** ()
- rope & **operator=** (const rope &__x)
- _CharT **operator[ ]** (size_type __pos) const
- void **pop_back** ()
- void **pop_front** ()
- void **push_back** (_CharT __x)
- void **push_front** (_CharT __x)
- const_reverse_iterator **rbegin** ()
- const_reverse_iterator **rbegin** () const
- const_reverse_iterator **rend** ()
- const_reverse_iterator **rend** () const
- void **replace** (const iterator &__p, iterator __i, iterator __j)
- void **replace** (const iterator &__p, const_iterator __i, const_iterator __j)
- void **replace** (const iterator &__p, const _CharT *__i, const _CharT *__j)
- void **replace** (const iterator &__p, const _CharT *__i, size_t __n)
- void **replace** (const iterator &__p, const _CharT *__c_string)
- void **replace** (const iterator &__p, _CharT __c)
- void **replace** (const iterator &__p, const rope &__r)

- void **replace** (const iterator &__p, const iterator &__q, const iterator &__i, const iterator &__j)
- void **replace** (const iterator &__p, const iterator &__q, const const_iterator &_-_i, const const_iterator &__j)
- void **replace** (const iterator &__p, const iterator &__q, const _CharT *__i, const _CharT *__j)
- void **replace** (const iterator &__p, const iterator &__q, const _CharT *__i, size_t __n)
- void **replace** (const iterator &__p, const iterator &__q, const _CharT *__c_-string)
- void **replace** (const iterator &__p, const iterator &__q, _CharT __c)
- void **replace** (const iterator &__p, const iterator &__q, const rope &__r)
- void **replace** (size_t __p, const iterator &__i, const iterator &__j)
- void **replace** (size_t __p, const const_iterator &__i, const const_iterator &__j)
- void **replace** (size_t __p, const _CharT *__i, const _CharT *__j)
- void **replace** (size_t __p, const _CharT *__c_string)
- void **replace** (size_t __p, const _CharT *__i, size_t __i_len)
- void **replace** (size_t __p, const rope &__r)
- void **replace** (size_t __p, _CharT __c)
- void **replace** (size_t __p, size_t __n, const iterator &__i, const iterator &__j)
- void **replace** (size_t __p, size_t __n, const const_iterator &__i, const const_-iterator &__j)
- void **replace** (size_t __p, size_t __n, const _CharT *__i, const _CharT *__j)
- void **replace** (size_t __p, size_t __n, const _CharT *__c_string)
- void **replace** (size_t __p, size_t __n, _CharT __c)
- void **replace** (size_t __p, size_t __n, const _CharT *__i, size_t __i_len)
- void **replace** (size_t __p, size_t __n, const rope &__r)
- const _CharT * **replace_with_c_str** ()
- size_type **size** () const
- rope< _CharT, _Alloc > **substr** (const_iterator __start)
- rope **substr** (const_iterator __start, const_iterator __end) const
- rope **substr** (iterator __start) const
- rope **substr** (iterator __start, iterator __end) const
- rope **substr** (size_t __start, size_t __len=1) const
- void **swap** (rope &__b)

Static Public Member Functions

- static __C * **_C_allocate** (size_t __n)
- static void **_C_deallocate** (__C *__p, size_t __n)
- static _CharT * **_Data_allocate** (size_t __n)
- static void **_Data_deallocate** (_CharT *__p, size_t __n)
- static __F * **_F_allocate** (size_t __n)

- static void **_F_deallocate** (__F *__p, size_t __n)
- static __L * **_L_allocate** (size_t __n)
- static void **_L_deallocate** (__L *__p, size_t __n)
- static __S * **_S_allocate** (size_t __n)
- static void **_S_deallocate** (__S *__p, size_t __n)

Public Attributes

- _RopeRep * **_M_tree_ptr**

Static Public Attributes

- static const size_type **npos**

Protected Types

- enum { **_S_copy_max** }
- typedef _Rope_base< _CharT, _Alloc > **_Base**
- typedef _CharT * **_Cstrptr**
- typedef _Rope_RopeConcatenation< _CharT, _Alloc > **_RopeConcatenation**
- typedef _Rope_RopeFunction< _CharT, _Alloc > **_RopeFunction**
- typedef _Rope_RopeLeaf< _CharT, _Alloc > **_RopeLeaf**
- typedef _Rope_RopeRep< _CharT, _Alloc > **_RopeRep**
- typedef _Rope_RopeSubstring< _CharT, _Alloc > **_RopeSubstring**
- typedef _Rope_self_destruct_ptr< _CharT, _Alloc > **_Self_destruct_ptr**
- typedef _Base::allocator_type **allocator_type**

Static Protected Member Functions

- static size_t **_S_allocated_capacity** (size_t __n)
- static bool **_S_apply_to_pieces** (_Rope_char_consumer< _CharT > &__c, const _RopeRep *__r, size_t __begin, size_t __end)
- static _RopeRep * **_S_concat** (_RopeRep *__left, _RopeRep *__right)
- static _RopeRep * **_S_concat_char_iter** (_RopeRep *__r, const _CharT *__iter, size_t __slen)
- static _RopeRep * **_S_destr_concat_char_iter** (_RopeRep *__r, const _CharT *__iter, size_t __slen)
- static _RopeLeaf * **_S_destr_leaf_concat_char_iter** (_RopeLeaf *__r, const _CharT *__iter, size_t __slen)
- static _CharT **_S_fetch** (_RopeRep *__r, size_type __pos)
- static _CharT * **_S_fetch_ptr** (_RopeRep *__r, size_type __pos)

- static bool **_S_is0** (_CharT __c)
- static _RopeLeaf * **_S_leaf_concat_char_iter** (_RopeLeaf *__r, const _CharT *__iter, size_t __slen)
- static _RopeConcatenation * **_S_new_RopeConcatenation** (_RopeRep *__left, _RopeRep *__right, allocator_type &__a)
- static _RopeFunction * **_S_new_RopeFunction** (char_producer< _CharT > *__f, size_t __size, bool __d, allocator_type &__a)
- static _RopeLeaf * **_S_new_RopeLeaf** (_CharT *__s, size_t __size, allocator_type &__a)
- static _RopeSubstring * **_S_new_RopeSubstring** (_Rope_RopeRep< _CharT, _Alloc > *__b, size_t __s, size_t __l, allocator_type &__a)
- static void **_S_ref** (_RopeRep *__t)
- static _RopeLeaf * **_S_RopeLeaf_from_unowned_char_ptr** (const _CharT *__s, size_t __size, allocator_type &__a)
- static size_t **_S_rounded_up_size** (size_t __n)
- static _RopeRep * **_S_substring** (_RopeRep *__base, size_t __start, size_t __endp1)
- static _RopeRep * **_S_tree_concat** (_RopeRep *__left, _RopeRep *__right)
- static void **_S_unref** (_RopeRep *__t)
- static _RopeRep * **replace** (_RopeRep *__old, size_t __pos1, size_t __pos2, _RopeRep *__r)

Static Protected Attributes

- static _CharT **_S_empty_c_str** [1]

Friends

- class **_Rope_char_ptr_proxy**< **_CharT, _Alloc** >
- class **_Rope_char_ref_proxy**< **_CharT, _Alloc** >
- class **_Rope_const_iterator**< **_CharT, _Alloc** >
- class **_Rope_iterator**< **_CharT, _Alloc** >
- class **_Rope_iterator_base**< **_CharT, _Alloc** >
- struct **_Rope_RopeRep**< **_CharT, _Alloc** >
- struct **_Rope_RopeSubstring**< **_CharT, _Alloc** >
- template<class _CharT2 , class _Alloc2 >
  rope< _CharT2, _Alloc2 > **operator+** (const rope< _CharT2, _Alloc2 > &__left, _CharT2 __right)
- template<class _CharT2 , class _Alloc2 >
  rope< _CharT2, _Alloc2 > **operator+** (const rope< _CharT2, _Alloc2 > &__left, const _CharT2 *__right)
- template<class _CharT2 , class _Alloc2 >
  rope< _CharT2, _Alloc2 > **operator+** (const rope< _CharT2, _Alloc2 > &__left, const rope< _CharT2, _Alloc2 > &__right)

5.67.1 Detailed Description

template<class _CharT, class _Alloc> class __gnu_cxx::rope< _CharT, _Alloc >

This is an SGI extension.

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg0000 for more.

Definition at line 1508 of file rope.

The documentation for this class was generated from the following files:

- rope
- ropeimpl.h

5.68 __gnu_cxx::select1st< _Pair > Struct Template Reference

An SGI extension .

Inherits std::_Select1st< _Pair >.

Public Types

- typedef _Pair argument_type
- typedef _Pair::first_type result_type

Public Member Functions

- const _Pair::first_type & **operator()** (const _Pair &__x) const
- _Pair::first_type & **operator()** (_Pair &__x) const

5.68.1 Detailed Description

template<class _Pair> struct __gnu_cxx::select1st< _Pair >

An SGI extension .

Definition at line 199 of file ext/functional.

5.68.2 Member Typedef Documentation

5.68.2.1 typedef _Pair std::unary_function< _Pair , _Pair::first_type >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.68.2.2 typedef _Pair::first_type std::unary_function< _Pair , _Pair::first_type >::result_type [inherited]

`result_type` is the return type

Definition at line 105 of file stl_function.h.

The documentation for this struct was generated from the following file:

- ext/functional

5.69 __gnu_cxx::select2nd< _Pair > Struct Template Reference

An SGI extension .

Inherits std::_Select2nd< _Pair >.

Public Types

- typedef _Pair argument_type
- typedef _Pair::second_type result_type

Public Member Functions

- const _Pair::second_type & **operator()** (const _Pair &__x) const
- _Pair::second_type & **operator()** (_Pair &__x) const

5.69.1 Detailed Description

template<class _Pair> struct __gnu_cxx::select2nd< _Pair >

An SGI extension .

Definition at line 203 of file ext/functional.

5.69.2 Member Typedef Documentation

5.69.2.1 typedef _Pair std::unary_function< _Pair , _Pair::second_type >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.69.2.2 typedef _Pair::second_type std::unary_function< _Pair , _Pair::second_type >::result_type [inherited]

`result_type` is the return type

Definition at line 105 of file stl_function.h.

The documentation for this struct was generated from the following file:

- ext/functional

5.70 __gnu_cxx::slist< _Tp, _Alloc > Class Template Reference

Inherits __gnu_cxx::_Slist_base< _Tp, _Alloc >.

Public Types

- typedef _Base::allocator_type **allocator_type**
- typedef _Slist_iterator< _Tp, const _Tp &, const _Tp * > **const_iterator**
- typedef const value_type * **const_pointer**
- typedef const value_type & **const_reference**
- typedef ptrdiff_t **difference_type**
- typedef _Slist_iterator< _Tp, _Tp &, _Tp * > **iterator**
- typedef value_type * **pointer**
- typedef value_type & **reference**
- typedef size_t **size_type**
- typedef _Tp **value_type**

Public Member Functions

- **slist** (const slist &__x)
- template<class _InputIterator >
  slist (_InputIterator __first, _InputIterator __last, const allocator_type &__a=allocator_type())
- **slist** (size_type __n)
- **slist** (size_type __n, const value_type &__x, const allocator_type &__a=allocator_type())
- **slist** (const allocator_type &__a=allocator_type())
- template<class _InputIterator >
  void **_M_assign_dispatch** (_InputIterator __first, _InputIterator __last, __false_type)
- template<class _Integer >
  void **_M_assign_dispatch** (_Integer __n, _Integer __val, __true_type)
- void **_M_fill_assign** (size_type __n, const _Tp &__val)
- template<class _InputIterator >
  void **assign** (_InputIterator __first, _InputIterator __last)
- void **assign** (size_type __n, const _Tp &__val)
- const_iterator **before_begin** () const
- iterator **before_begin** ()
- const_iterator **begin** () const
- iterator **begin** ()
- void **clear** ()

- bool **empty** () const
- const_iterator **end** () const
- iterator **end** ()
- iterator **erase** (iterator __first, iterator __last)
- iterator **erase** (iterator __pos)
- iterator **erase_after** (iterator __before_first, iterator __last)
- iterator **erase_after** (iterator __pos)
- const_reference **front** () const
- reference **front** ()
- allocator_type **get_allocator** () const
- template<class _InIterator >
  void **insert** (iterator __pos, _InIterator __first, _InIterator __last)
- void **insert** (iterator __pos, size_type __n, const value_type &__x)
- iterator **insert** (iterator __pos)
- iterator **insert** (iterator __pos, const value_type &__x)
- template<class _InIterator >
  void **insert_after** (iterator __pos, _InIterator __first, _InIterator __last)
- void **insert_after** (iterator __pos, size_type __n, const value_type &__x)
- iterator **insert_after** (iterator __pos)
- iterator **insert_after** (iterator __pos, const value_type &__x)
- size_type **max_size** () const
- template<class _StrictWeakOrdering >
  void **merge** (slist &, _StrictWeakOrdering)
- void **merge** (slist &__x)
- slist & **operator=** (const slist &__x)
- void **pop_front** ()
- const_iterator **previous** (const_iterator __pos) const
- iterator **previous** (const_iterator __pos)
- void **push_front** ()
- void **push_front** (const value_type &__x)
- void **remove** (const _Tp &__val)
- template<class _Predicate >
  void **remove_if** (_Predicate __pred)
- void **resize** (size_type new_size)
- void **resize** (size_type new_size, const _Tp &__x)
- void **reverse** ()
- size_type **size** () const
- template<class _StrictWeakOrdering >
  void **sort** (_StrictWeakOrdering __comp)
- void **sort** ()
- void **splice** (iterator __pos, slist &__x, iterator __first, iterator __last)
- void **splice** (iterator __pos, slist &__x, iterator __i)
- void **splice** (iterator __pos, slist &__x)

- void **splice_after** (iterator __pos, slist &__x)
- void **splice_after** (iterator __pos, iterator __prev)
- void **splice_after** (iterator __pos, iterator __before_first, iterator __before_last)
- void **swap** (slist &__x)
- template<class _BinaryPredicate >
  void **unique** (_BinaryPredicate __pred)
- void **unique** ()

Private Types

- typedef _Alloc::template rebind< _Slist_node< _Tp > >::other **_Node_alloc**

Private Member Functions

- _Slist_node_base * **_M_erase_after** (_Slist_node_base *, _Slist_node_base *)
- _Slist_node_base * **_M_erase_after** (_Slist_node_base *__pos)
- _Slist_node< _Tp > * **_M_get_node** ()
- void **_M_put_node** (_Slist_node< _Tp > *__p)

Private Attributes

- _Slist_node_base **_M_head**

5.70.1 Detailed Description

template<class _Tp, class _Alloc = allocator<_Tp>> class __gnu_cxx::slist< _Tp, _Alloc >

This is an SGI extension.

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Definition at line 291 of file slist.

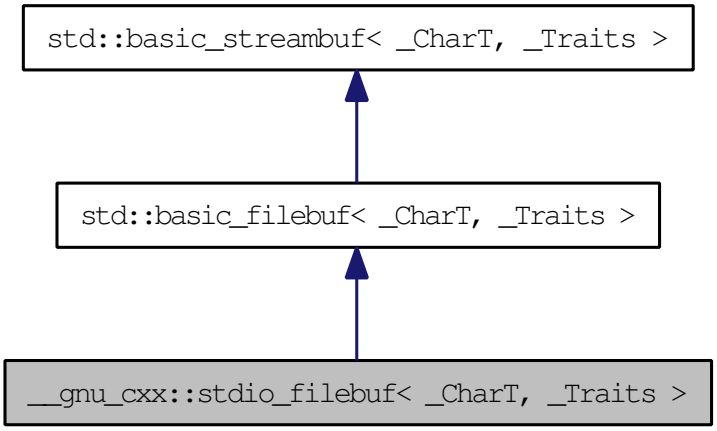
The documentation for this class was generated from the following file:

- slist

5.71 __gnu_cxx::stdio_filebuf< _CharT, _Traits > Class Template Reference

Provides a layer of compatibility for C/POSIX.

This GNU extension provides extensions for working with standard C FILE*'s and POSIX file descriptors. It must be instantiated by the user with the type of character used in the file stream, e.g., stdio_filebuf<char>. Inheritance diagram for __gnu_cxx::stdio_filebuf< _CharT, _Traits >:



Public Types

- typedef codecvt< char_type, char, __state_type > **__codecvt_type**
- typedef __basic_file< char > **__file_type**
- typedef basic_filebuf< char_type, traits_type > **__filebuf_type**
- typedef traits_type::state_type **__state_type**
- typedef basic_streambuf< char_type, traits_type > __streambuf_type
- typedef _CharT char_type
- typedef traits_type::int_type int_type
- typedef traits_type::off_type off_type
- typedef traits_type::pos_type pos_type
- typedef std::size_t **size_t**
- typedef _Traits traits_type

Public Member Functions

- stdio_filebuf (std::__c_file *__f, std::ios_base::openmode __mode, size_t __size=static_cast< size_t >(BUFSIZ))

- stdio_filebuf (int __fd, std::ios_base::openmode __mode, size_t __size=static_cast< size_t >(BUFSIZ))
- stdio_filebuf ()
- virtual ~stdio_filebuf ()
- __filebuf_type * close ()
- int fd ()
- std::__c_file * file ()
- streamsize in_avail ()
- bool is_open () const throw ()
- __filebuf_type * open (const std::string &__s, ios_base::openmode __mode)
- __filebuf_type * open (const char *__s, ios_base::openmode __mode)
- int_type sbumpc ()
- int_type sgetc ()
- streamsize sgetn (char_type *__s, streamsize __n)
- int_type snextc ()
- int_type sputbackc (char_type __c)
- int_type sputc (char_type __c)
- streamsize sputn (const char_type *__s, streamsize __n)
- void stossc ()
- int_type sungetc ()

Protected Member Functions

- void **_M_allocate_internal_buffer** ()
- bool **_M_convert_to_external** (char_type *, streamsize)
- void _M_create_pback ()
- void **_M_destroy_internal_buffer** () throw ()
- void _M_destroy_pback () throw ()
- pos_type **_M_seek** (off_type __off, ios_base::seekdir __way, __state_type __state)
- void _M_set_buffer (streamsize __off)
- bool **_M_terminate_output** ()
- void gbump (int __n)
- virtual void imbue (const locale &__loc)
- virtual int_type overflow (int_type __c=_Traits::eof())
- virtual int_type pbackfail (int_type __c=_Traits::eof())
- void pbump (int __n)
- virtual pos_type seekoff (off_type __off, ios_base::seekdir __way, ios_base::openmode __mode=ios_base::in|ios_base::out)
- virtual pos_type seekpos (pos_type __pos, ios_base::openmode __mode=ios_base::in|ios_base::out)
- virtual __streambuf_type * setbuf (char_type *__s, streamsize __n)

- void setg (char_type *__gbeg, char_type *__gnext, char_type *__gend)
- void setp (char_type *__pbeg, char_type *__pend)
- virtual streamsize showmanyc ()
- virtual int sync ()
- virtual int_type uflow ()
- virtual int_type underflow ()
- virtual streamsize xsgetn (char_type *__s, streamsize __n)
- virtual streamsize xsputn (const char_type *__s, streamsize __n)

Protected Attributes

- char_type * _M_buf
- bool **_M_buf_allocated**
- size_t _M_buf_size
- const __codecvt_type * **_M_codecvt**
- char * _M_ext_buf
- streamsize _M_ext_buf_size
- char * **_M_ext_end**
- const char * _M_ext_next
- __file_type **_M_file**
- __c_lock **_M_lock**
- ios_base::openmode _M_mode
- bool _M_reading
- __state_type **_M_state_beg**
- __state_type **_M_state_cur**
- __state_type **_M_state_last**
- bool **_M_writing**

  - char_type _M_pback
  - char_type * _M_pback_cur_save
  - char_type * _M_pback_end_save
  - bool _M_pback_init

Friends

- template<bool _IsMove, typename _CharT2 >
  __gnu_cxx::__enable_if< __is_char< _CharT2 >::__value, _CharT2 * >::__-
  type **__copy_move_a2** (istreambuf_iterator< _CharT2 >, istreambuf_iterator<
  _CharT2 >, _CharT2 *)
- streamsize **__copy_streambufs_eof** (__streambuf_type *, __streambuf_type *,
  bool &)
- class **basic_ios< char_type, traits_type >**

- class **basic_istream< char_type, traits_type >**
- class **basic_ostream< char_type, traits_type >**
- template<typename _CharT2 > __gnu_cxx::__enable_if< __is_char< _CharT2 >::__value, istreambuf_iterator< _CharT2 > >::__type **find** (istreambuf_iterator< _CharT2 >, istreambuf_iterator< _CharT2 >, const _CharT2 &)
- template<typename _CharT2 , typename _Traits2 , typename _Alloc > basic_istream< _CharT2, _Traits2 > & **getline** (basic_istream< _CharT2, _Traits2 > &, basic_string< _CharT2, _Traits2, _Alloc > &, _CharT2)
- class **ios_base**
- class **istreambuf_iterator< char_type, traits_type >**
- template<typename _CharT2 , typename _Traits2 , typename _Alloc > basic_istream< _CharT2, _Traits2 > & **operator>>** (basic_istream< _CharT2, _Traits2 > &, basic_string< _CharT2, _Traits2, _Alloc > &)
- template<typename _CharT2 , typename _Traits2 > basic_istream< _CharT2, _Traits2 > & **operator>>** (basic_istream< _CharT2, _Traits2 > &, _CharT2 *)
- class **ostreambuf_iterator< char_type, traits_type >**

- locale getloc () const
- locale pubimbue (const locale &__loc)
- pos_type pubseekoff (off_type __off, ios_base::seekdir __way, ios_base::openmode __mode=ios_base::in|ios_base::out)
- pos_type pubseekpos (pos_type __sp, ios_base::openmode __mode=ios_base::in|ios_base::out)
- __streambuf_type * pubsetbuf (char_type *__s, streamsize __n)
- int pubsync ()
- locale _M_buf_locale
- char_type * _M_in_beg
- char_type * _M_in_cur
- char_type * _M_in_end
- char_type * _M_out_beg
- char_type * _M_out_cur
- char_type * _M_out_end
- char_type * eback () const
- char_type * egptr () const
- char_type * epptr () const
- char_type * gptr () const
- char_type * pbase () const
- char_type * pptr () const

5.71.1 Detailed Description

template<typename _CharT, typename _Traits = std::char_traits<_CharT>> class __gnu_cxx::stdio_filebuf< _CharT, _Traits >

Provides a layer of compatibility for C/POSIX.

This GNU extension provides extensions for working with standard C FILE*'s and POSIX file descriptors. It must be instantiated by the user with the type of character used in the file stream, e.g., stdio_filebuf<char>.

Definition at line 49 of file stdio_filebuf.h.

5.71.2 Member Typedef Documentation

5.71.2.1 template<typename _CharT, typename _Traits> typedef basic_streambuf<char_type, traits_type> std::basic_filebuf< _CharT, _Traits >::__streambuf_type [inherited]

This is a non-standard type.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 77 of file fstream.

5.71.2.2 template<typename _CharT , typename _Traits = std::char_traits<_CharT>> typedef _CharT __gnu_cxx::stdio_filebuf< _CharT, _Traits >::char_type

These are standard types. They permit a standardized way of referring to names of (or names dependant on) the template parameters, which are specific to the implementation.

Reimplemented from std::basic_filebuf< _CharT, _Traits >.

Definition at line 53 of file stdio_filebuf.h.

5.71.2.3 template<typename _CharT , typename _Traits = std::char_traits<_CharT>> typedef traits_type::int_type __gnu_cxx::stdio_filebuf< _CharT, _Traits >::int_type

This is a non-standard type.

Reimplemented from std::basic_filebuf< _CharT, _Traits >.

Definition at line 55 of file stdio_filebuf.h.

5.71.2.4 template<typename _CharT , typename _Traits = std::char_traits<_CharT>> typedef traits_type::off_type __gnu_cxx::stdio_filebuf< _CharT, _Traits >::off_type

This is a non-standard type.

Reimplemented from std::basic_filebuf< _CharT, _Traits >.

Definition at line 57 of file stdio_filebuf.h.

5.71.2.5 template<typename _CharT , typename _Traits = std::char_traits<_CharT>> typedef traits_type::pos_type __gnu_cxx::stdio_filebuf< _CharT, _Traits >::pos_type

This is a non-standard type.

Reimplemented from std::basic_filebuf< _CharT, _Traits >.

Definition at line 56 of file stdio_filebuf.h.

5.71.2.6 template<typename _CharT , typename _Traits = std::char_traits<_CharT>> typedef _Traits __gnu_cxx::stdio_filebuf< _CharT, _Traits >::traits_type

This is a non-standard type.

Reimplemented from std::basic_filebuf< _CharT, _Traits >.

Definition at line 54 of file stdio_filebuf.h.

5.71.3 Constructor & Destructor Documentation

5.71.3.1 template<typename _CharT , typename _Traits = std::char_traits<_CharT>> __gnu_cxx::stdio_filebuf< _CharT, _Traits >::stdio_filebuf () [inline]

deferred initialization

Definition at line 64 of file stdio_filebuf.h.

5.71.3.2 template<typename _CharT , typename _Traits > __gnu_cxx::stdio_filebuf< _CharT, _Traits >::stdio_filebuf (int *__fd*, std::ios_base::openmode *__mode*, size_t *__size* = static_cast<size_t>(BUFSIZ)) [inline]

Parameters:

fd An open file descriptor.

mode Same meaning as in a standard filebuf.

size Optimal or preferred size of internal buffer, in chars.

This constructor associates a file stream buffer with an open POSIX file descriptor. The file descriptor will be automatically closed when the stdio_filebuf is closed/destroyed.

Definition at line 126 of file stdio_filebuf.h.

References std::basic_filebuf< _CharT, _Traits >::_M_buf_size, std::basic_filebuf< _CharT, _Traits >::_M_mode, std::basic_filebuf< _CharT, _Traits >::_M_reading, std::basic_filebuf< _CharT, _Traits >::_M_set_buffer(), and std::basic_filebuf< _CharT, _Traits >::is_open().

5.71.3.3 template<typename _CharT , typename _Traits > __gnu_cxx::stdio_filebuf< _CharT, _Traits >::stdio_filebuf (std::__c_file * *__f*, std::ios_base::openmode *__mode*, size_t *__size* = static_cast<size_t>(BUFSIZ)) [inline]

Parameters:

f An open `FILE*`.

mode Same meaning as in a standard filebuf.

size Optimal or preferred size of internal buffer, in chars. Defaults to system's `BUFSIZ`.

This constructor associates a file stream buffer with an open C `FILE*`. The `FILE*` will not be automatically closed when the stdio_filebuf is closed/destroyed.

Definition at line 142 of file stdio_filebuf.h.

References std::basic_filebuf< _CharT, _Traits >::_M_buf_size, std::basic_filebuf< _CharT, _Traits >::_M_mode, std::basic_filebuf< _CharT, _Traits >::_M_reading, std::basic_filebuf< _CharT, _Traits >::_M_set_buffer(), and std::basic_filebuf< _CharT, _Traits >::is_open().

5.71.3.4 template<typename _CharT , typename _Traits > __gnu_cxx::stdio_filebuf< _CharT, _Traits >::~stdio_filebuf () [inline, virtual]

Closes the external data stream if the file descriptor constructor was used.

Definition at line 121 of file stdio_filebuf.h.

5.71.4 Member Function Documentation

5.71.4.1 template<typename _CharT, typename _Traits> void std::basic_filebuf< _CharT, _Traits >::_M_create_pback () [inline, protected, inherited]

Initializes pback buffers, and moves normal buffers to safety. Assumptions: _M_in_cur has already been moved back

Definition at line 172 of file fstream.

Referenced by std::basic_filebuf< _CharT, _Traits >::pbackfail().

5.71.4.2 template<typename _CharT, typename _Traits> void std::basic_filebuf< _CharT, _Traits >::_M_destroy_pback () throw () [inline, protected, inherited]

Deactivates pback buffer contents, and restores normal buffer. Assumptions: The pback buffer has only moved forward.

Definition at line 189 of file fstream.

Referenced by std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekpos(), std::basic_filebuf< _CharT, _Traits >::underflow(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.71.4.3 template<typename _CharT, typename _Traits> void std::basic_filebuf< _CharT, _Traits >::_M_set_buffer (streamsize *__off*) [inline, protected, inherited]

This function sets the pointers of the internal buffer, both get and put areas. Typically:

__off == egptr() - eback() upon underflow/uflow (**read** mode); __off == 0 upon overflow (**write** mode); __off == -1 upon open, setbuf, seekoff/pos (**uncommitted** mode).

NB: epptr() - pbase() == _M_buf_size - 1, since _M_buf_size reflects the actual allocated memory and the last cell is reserved for the overflow char of a full put area.

Definition at line 387 of file fstream.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_filebuf< _CharT, _Traits >::open(), std::basic_filebuf< _CharT, _Traits >::overflow(), __gnu_cxx::stdio_filebuf< _CharT, _Traits >::stdio_filebuf(), std::basic_filebuf< _CharT, _Traits >::underflow(), std::basic_filebuf< _CharT, _Traits >::xsgetn(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.71.4.4 template<typename _CharT , typename _Traits > basic_filebuf< _CharT, _Traits >::__filebuf_type * std::basic_filebuf< _CharT, _Traits >::close () [inline, inherited]

Closes the currently associated file.

Returns:

`this` on success, NULL on failure

If no file is currently open, this function immediately fails.

If a *put buffer area* exists, `overflow(eof)` is called to flush all the characters. The file is then closed.

If any operations fail, this function also fails.

Definition at line 128 of file fstream.tcc.

References std::basic_filebuf< _CharT, _Traits >::is_open().

Referenced by std::basic_filebuf< _CharT, _Traits >::open().

5.71.4.5 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::eback () const [inline, protected, inherited]

Access to the get area. These functions are only available to other protected functions, including derived classes.

- eback() returns the beginning pointer for the input sequence
- gptr() returns the next pointer for the input sequence
- egptr() returns the end pointer for the input sequence

Definition at line 460 of file streambuf.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::underflow(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.71.4.6 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::egptr () const [inline, protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 466 of file streambuf.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::showmanyc(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::underflow(), std::basic_filebuf< _CharT, _Traits >::underflow(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.71.4.7 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::epptr () const [inline, protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 513 of file streambuf.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_streambuf< _CharT, _Traits >::xsputn(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.71.4.8 template<typename _CharT , typename _Traits = std::char_traits<_CharT>> int __gnu_cxx::stdio_filebuf< _CharT, _Traits >::fd () [inline]

Returns:

The underlying file descriptor.

Once associated with an external data stream, this function can be used to access the underlying POSIX file descriptor. Note that there is no way for the library to track what you do with the descriptor, so be careful.

Definition at line 107 of file stdio_filebuf.h.

5.71.4.9 template<typename _CharT , typename _Traits = std::char_traits<_CharT>> std::__c_file* __gnu_cxx::stdio_filebuf< _CharT, _Traits >::file () [inline]

Returns:

The underlying FILE*.

This function can be used to access the underlying "C" file pointer. Note that there is no way for the library to track what you do with the file, so be careful.

Definition at line 117 of file stdio_filebuf.h.

5.71.4.10 template<typename _CharT, typename _Traits> void std::basic_streambuf< _CharT, _Traits >::gbump (int __n) [inline, protected, inherited]

Moving the read position.

Parameters:

n The delta by which to move.

This just advances the read position without returning any data.

Definition at line 476 of file streambuf.

Referenced by std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.71.4.11 template<typename _CharT, typename _Traits> locale std::basic_streambuf< _CharT, _Traits >::getloc () const [inline, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 222 of file streambuf.

5.71.4.12 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::gptr () const [inline, protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 463 of file streambuf.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::showmanyc(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::underflow(), std::basic_filebuf< _CharT, _Traits >::underflow(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.71.4.13 template<typename _CharT , typename _Traits > void std::basic_filebuf< _CharT, _Traits >::imbue (const locale &) [inline, protected, virtual, inherited]

Changes translations.

Parameters:

loc A new locale.

Translations done during I/O which depend on the current locale are changed by this call. The standard adds, *Between invocations of this function a class derived from streambuf can safely cache results of calls to locale functions and to members of facets so obtained.*

Note:

Base class version does nothing.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 855 of file fstream.tcc.

References std::basic_filebuf< _CharT, _Traits >::_M_ext_buf, std::basic_filebuf< _CharT, _Traits >::_M_ext_next, std::basic_filebuf< _CharT, _Traits >::_M_mode, std::basic_filebuf< _CharT, _Traits >::_M_reading, std::basic_filebuf< _CharT, _Traits >::_M_set_buffer(), std::ios_base::cur, std::basic_streambuf< _CharT, _Traits >::eback(), std::basic_streambuf< _CharT, _Traits >::gptr(), std::basic_filebuf< _CharT, _Traits >::is_open(), and std::basic_filebuf< _CharT, _Traits >::seekoff().

5.71.4.14 template<typename _CharT, typename _Traits> streamsize std::basic_streambuf< _CharT, _Traits >::in_avail () [inline, inherited]

Looking ahead into the stream.

Returns:

The number of characters available.

If a read position is available, returns the number of characters available for reading before the buffer must be refilled. Otherwise returns the derived `showmanyc()`.

Definition at line 262 of file streambuf.

5.71.4.15 template<typename _CharT, typename _Traits> bool std::basic_filebuf< _CharT, _Traits >::is_open () const throw () [inline, inherited]

Returns true if the external file is open.

Definition at line 222 of file fstream.

Referenced by std::basic_filebuf< _CharT, _Traits >::close(), std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_filebuf< _CharT, _Traits >::open(), std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekpos(), std::basic_filebuf< _CharT, _Traits >::setbuf(), std::basic_filebuf< _CharT, _Traits >::showmanyc(), and __gnu_cxx::stdio_filebuf< _CharT, _Traits >::stdio_filebuf().

5.71.4.16 template<typename _CharT, typename _Traits> __filebuf_type* std::basic_filebuf< _CharT, _Traits >::open (const std::string & __*s*, ios_base::openmode __*mode*) [inline, inherited]

Opens an external file.

Parameters:

s The name of the file.

mode The open mode flags.

Returns:

`this` on success, NULL on failure

Definition at line 275 of file fstream.

Referenced by std::basic_filebuf< char_type, traits_type >::open().

5.71.4.17 template<typename _CharT , typename _Traits > basic_filebuf< _CharT, _Traits >::__filebuf_type * std::basic_filebuf< _CharT, _Traits >::open (const char * __s, ios_base::openmode __mode) [inline, inherited]

Opens an external file.

Parameters:

s The name of the file.

mode The open mode flags.

Returns:

`this` on success, NULL on failure

If a file is already open, this function immediately fails. Otherwise it tries to open the file named *s* using the flags given in *mode*.

Table 92, adapted here, gives the relation between openmode combinations and the equivalent fopen() flags. (NB: lines app, in|out|app, in|app, binary|app, binary|in|out|app, and binary|in|app per DR 596) +---------+ | ios_base Flag combination stdio equivalent | |binary in out trunc app | +---------+ | + w | | + + a | | + a | | + + w | | + r | | + + r+ | | + + + w+ | | + + + a+ | | + + a+ | +---------+ | + + wb | | + + + ab | | + + ab | | + + + wb | | + + rb | | + + + r+b | | + + + + w+b | | + + + + a+b | | + + + a+b | +---------+

Definition at line 94 of file fstream.tcc.

References std::basic_filebuf< _CharT, _Traits >::_M_mode, std::basic_filebuf< _CharT, _Traits >::_M_reading, std::basic_filebuf< _CharT, _Traits >::_M_set_buffer(), std::ios_base::ate, std::basic_filebuf< _CharT, _Traits >::close(), std::ios_base::end, std::basic_filebuf< _CharT, _Traits >::is_open(), and std::basic_filebuf< _CharT, _Traits >::seekoff().

5.71.4.18 template<typename _CharT , typename _Traits > basic_filebuf< _CharT, _Traits >::int_type std::basic_filebuf< _CharT, _Traits >::overflow (int_type = `_Traits::eof()`) [inline, protected, virtual, inherited]

Consumes data from the buffer; writes to the controlled sequence.

Parameters:

c An additional character to consume.

Returns:

eof() to indicate failure, something else (usually *c*, or not_eof())

Informally, this function is called when the output buffer is full (or does not exist, as buffering need not actually be done). If a buffer exists, it is *consumed*, with *some effect* on the controlled sequence. (Typically, the buffer is written out to the sequence verbatim.) In either case, the character *c* is also written out, if *c* is not `eof()`.

For a formal definition of this function, see a good text such as Langer & Kreft, or [27.5.2.4.5]/3-7.

A functioning output streambuf can be created by overriding only this function (no buffer area will be used).

Note:

Base class version does nothing, returns eof().

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 408 of file fstream.tcc.

References std::basic_filebuf< _CharT, _Traits >::_M_buf_size, std::basic_filebuf< _CharT, _Traits >::_M_mode, std::basic_filebuf< _CharT, _Traits >::_M_reading, std::basic_filebuf< _CharT, _Traits >::_M_set_buffer(), std::ios_base::out, std::basic_streambuf< _CharT, _Traits >::pbase(), std::basic_streambuf< _CharT, _Traits >::pbump(), and std::basic_streambuf< _CharT, _Traits >::pptr().

Referenced by std::basic_filebuf< _CharT, _Traits >::sync().

5.71.4.19 template<typename _CharT , typename _Traits > basic_filebuf< _CharT, _Traits >::int_type std::basic_filebuf< _CharT, _Traits >::pbackfail (int_type = `_Traits::eof()`) [inline, protected, virtual, inherited]

Tries to back up the input sequence.

Parameters:

c The character to be inserted back into the sequence.

Returns:

eof() on failure, *some other value* on success

Postcondition:

The constraints of `gptr()`, `eback()`, and `pptr()` are the same as for `underflow()`.

Note:

Base class version does nothing, returns eof().

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 356 of file fstream.tcc.

References std::basic_filebuf< _CharT, _Traits >::_M_create_pback(), std::basic_filebuf< _CharT, _Traits >::_M_mode, std::basic_filebuf< _CharT, _Traits >::_M_pback_init, std::basic_filebuf< _CharT, _Traits >::_M_reading, std::ios_base::cur, std::basic_streambuf< _CharT, _Traits >::eback(), std::basic_streambuf< _CharT, _Traits >::gbump(), std::basic_streambuf< _CharT, _Traits >::gptr(), std::ios_base::in, std::basic_filebuf< _CharT, _Traits >::seekoff(), and std::basic_filebuf< _CharT, _Traits >::underflow().

5.71.4.20 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::pbase () const [inline, protected, inherited]

Access to the put area. These functions are only available to other protected functions, including derived classes.

- pbase() returns the beginning pointer for the output sequence
- pptr() returns the next pointer for the output sequence
- epptr() returns the end pointer for the output sequence

Definition at line 507 of file streambuf.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::sync(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.71.4.21 template<typename _CharT, typename _Traits> void std::basic_streambuf< _CharT, _Traits >::pbump (int __n) [inline, protected, inherited]

Moving the write position.

Parameters:

n The delta by which to move.

This just advances the write position without returning any data.

Definition at line 523 of file streambuf.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), and std::basic_streambuf< _CharT, _Traits >::xsputn().

5.71.4.22 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::pptr () const [inline, protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 510 of file streambuf.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::sync(), std::basic_streambuf< _CharT, _Traits >::xsputn(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.71.4.23 template<typename _CharT, typename _Traits> locale std::basic_streambuf< _CharT, _Traits >::pubimbue (const locale & __loc) [inline, inherited]

Entry point for imbue().

Parameters:

loc The new locale.

Returns:

The previous locale.

Calls the derived imbue(loc).

Definition at line 205 of file streambuf.

5.71.4.24 template<typename _CharT, typename _Traits> pos_type std::basic_streambuf< _CharT, _Traits >::pubseekoff (off_type *__off*, ios_base::seekdir *__way*, ios_base::openmode *__mode* = ios_base::in | ios_base::out) [inline, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 239 of file streambuf.

5.71.4.25 template<typename _CharT, typename _Traits> pos_type std::basic_streambuf< _CharT, _Traits >::pubseekpos (pos_type *__sp*, ios_base::openmode *__mode* = ios_base::in | ios_base::out) [inline, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 244 of file streambuf.

5.71.4.26 template<typename _CharT, typename _Traits> __streambuf_type* std::basic_streambuf< _CharT, _Traits >::pubsetbuf (char_type * *__s*, streamsize *__n*) [inline, inherited]

Entry points for derived buffer functions. The public versions of `pubfoo` dispatch to the protected derived `foo` member functions, passing the arguments (if any) and returning the result unchanged.

Definition at line 235 of file streambuf.

5.71.4.27 template<typename _CharT, typename _Traits> int std::basic_streambuf< _CharT, _Traits >::pubsync () [inline, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 249 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::sync().

5.71.4.28 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::sbumpc () [inline, inherited]

Getting the next character.

Returns:

The next character, or eof.

If the input read position is available, returns that character and increments the read pointer, otherwise calls and returns `uflow()`.

Definition at line 294 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), and std::istreambuf_iterator< _CharT, _Traits >::operator++().

5.71.4.29 template<typename _CharT , typename _Traits > basic_filebuf< _CharT, _Traits >::pos_type std::basic_filebuf< _CharT, _Traits >::seekoff (off_type, ios_base::seekdir, ios_base::openmode = ios_base::in | ios_base::out) [inline, protected, virtual, inherited]

Alters the stream positions. Each derived class provides its own appropriate behavior.

Note:

Base class version does nothing, returns a `pos_type` that represents an invalid stream position.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 686 of file fstream.tcc.

References std::basic_filebuf< _CharT, _Traits >::_M_destroy_pback(), std::basic_filebuf< _CharT, _Traits >::_M_ext_buf, std::basic_filebuf< _CharT, _Traits >::_M_ext_next, std::basic_filebuf< _CharT, _Traits >::_M_reading, std::ios_base::cur, std::basic_streambuf< _CharT, _Traits >::eback(), std::basic_streambuf< _CharT, _Traits >::egptr(), std::basic_streambuf< _CharT, _Traits >::gptr(), and std::basic_filebuf< _CharT, _Traits >::is_open().

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_filebuf< _CharT, _Traits >::open(), and std::basic_filebuf< _CharT, _Traits >::pbackfail().

5.71.4.30 template<typename _CharT , typename _Traits > basic_filebuf< _CharT, _Traits >::pos_type std::basic_filebuf< _CharT, _Traits >::seekpos (pos_type, ios_base::openmode = ios_base::in | ios_base::out) [inline, protected, virtual, inherited]

Alters the stream positions. Each derived class provides its own appropriate behavior.

Note:

Base class version does nothing, returns a `pos_type` that represents an invalid stream position.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 739 of file fstream.tcc.

References std::basic_filebuf< _CharT, _Traits >::_M_destroy_pback(), std::ios_base::beg, and std::basic_filebuf< _CharT, _Traits >::is_open().

5.71.4.31 template<typename _CharT , typename _Traits > basic_filebuf< _CharT, _Traits >::__streambuf_type * std::basic_filebuf< _CharT, _Traits >::setbuf (char_type * __s, streamsize __n) [inline, protected, virtual, inherited]

Manipulates the buffer.

Parameters:

s Pointer to a buffer area.

n Size of *s*.

Returns:

`this`

If no file has been opened, and both *s* and *n* are zero, then the stream becomes unbuffered. Otherwise, `s` is used as a buffer; see http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch25s02.html for more.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 657 of file fstream.tcc.

References std::basic_filebuf< _CharT, _Traits >::_M_buf, std::basic_filebuf< _CharT, _Traits >::_M_buf_size, and std::basic_filebuf< _CharT, _Traits >::is_open().

5.71.4.32 template<typename _CharT, typename _Traits> void std::basic_streambuf< _CharT, _Traits >::setg (char_type * *__gbeg*, char_type * *__gnext*, char_type * *__gend*) [inline, protected, inherited]

Setting the three read area pointers.

Parameters:

gbeg A pointer.

gnext A pointer.

gend A pointer.

Postcondition:

gbeg == `eback()`, *gnext* == `gptr()`, and *gend* == `egptr()`

Definition at line 487 of file streambuf.

5.71.4.33 template<typename _CharT, typename _Traits> void std::basic_streambuf< _CharT, _Traits >::setp (char_type * *__pbeg*, char_type * *__pend*) [inline, protected, inherited]

Setting the three write area pointers.

Parameters:

pbeg A pointer.

pend A pointer.

Postcondition:

pbeg == `pbase()`, *pbeg* == `pptr()`, and *pend* == `epptr()`

Definition at line 533 of file streambuf.

5.71.4.34 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::sgetc () [inline, inherited]

Getting the next character.

Returns:

The next character, or eof.

If the input read position is available, returns that character, otherwise calls and returns `underflow()`. Does not move the read position after fetching the character.

Definition at line 316 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), and std::basic_istream< _CharT, _Traits >::sentry::sentry().

5.71.4.35 template<typename _CharT, typename _Traits> streamsize std::basic_streambuf< _CharT, _Traits >::sgetn (char_type * __s, streamsize __n) [inline, inherited]

Entry point for xsgetn.

Parameters:

s A buffer area.

n A count.

Returns xsgetn(s,n). The effect is to fill *s*[0] through *s*[n-1] with characters from the input sequence, if possible.

Definition at line 335 of file streambuf.

5.71.4.36 template<typename _CharT , typename _Traits > streamsize std::basic_filebuf< _CharT, _Traits >::showmanyc () [inline, protected, virtual, inherited]

Investigating the data available.

Returns:

An estimate of the number of characters available in the input sequence, or -1.

If it returns a positive value, then successive calls to `underflow()` will not return `traits::eof()` until at least that number of characters have been supplied.

If `showmanyc()` *returns -1, then calls to* `underflow()` *or* `uflow()` *will fail.* [27.5.2.4.3]/1

Note:

Base class version does nothing, returns zero.
The standard adds that *the intention is not only that the calls [to underflow or uflow] will not return* `eof()` *but that they will return immediately.*
The standard adds that *the morphemes of* `showmanyc` *are* ***es-how-many-see****, not* ***show-manic****.*

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 178 of file fstream.tcc.

References std::basic_filebuf< _CharT, _Traits >::_M_mode, std::ios_base::binary, std::basic_streambuf< _CharT, _Traits >::egptr(), std::basic_streambuf< _CharT, _Traits >::gptr(), std::ios_base::in, and std::basic_filebuf< _CharT, _Traits >::is_open().

5.71.4.37 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::snextc () [inline, inherited]

Getting the next character.

Returns:

The next character, or eof.

Calls `sbumpc()`, and if that function returns `traits::eof()`, so does this function. Otherwise, `sgetc()`.

Definition at line 276 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), and std::basic_istream< _CharT, _Traits >::sentry::sentry().

5.71.4.38 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::sputbackc (char_type __c) [inline, inherited]

Pushing characters back into the input stream.

Parameters:

c The character to push back.

Returns:

The previous character, if possible.

Similar to sungetc(), but *c* is pushed onto the stream instead of *the previous character*. If successful, the next character fetched from the input stream will be *c*.

Definition at line 350 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::putback().

5.71.4.39 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::sputc (char_type __c) [inline, inherited]

Entry point for all single-character output functions.

Parameters:

c A character to output.

Returns:

c, if possible.

One of two public output functions.

If a write position is available for the output sequence (i.e., the buffer is not full), stores *c* in that position, increments the position, and returns `traits::to_int_type(c)`. If a write position is not available, returns `overflow(c)`.

Definition at line 402 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::get(), and std::ostreambuf_iterator< _CharT, _Traits >::operator=().

5.71.4.40 template<typename _CharT, typename _Traits> streamsize std::basic_streambuf< _CharT, _Traits >::sputn (const char_type * __s, streamsize __n) [inline, inherited]

Entry point for all single-character output functions.

Parameters:

s A buffer read area.

n A count.

One of two public output functions.

Returns xsputn(s,n). The effect is to write *s*[0] through *s*[n-1] to the output sequence, if possible.

Definition at line 428 of file streambuf.

5.71.4.41 template<typename _CharT, typename _Traits> void std::basic_streambuf< _CharT, _Traits >::stossc () [inline, inherited]

Tosses a character. Advances the read pointer, ignoring the character that would have been read.

See http://gcc.gnu.org/ml/libstdc++/2002-05/msg00168.html

Definition at line 761 of file streambuf.

5.71.4.42 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::sungetc () [inline, inherited]

Moving backwards in the input stream.

Returns:

The previous character, if possible.

If a putback position is available, this function decrements the input pointer and returns that character. Otherwise, calls and returns pbackfail(). The effect is to *unget* the last character *gotten*.

Definition at line 375 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::unget().

5.71.4.43 template<typename _CharT , typename _Traits > int std::basic_filebuf< _CharT, _Traits >::sync () [inline, protected, virtual, inherited]

Synchronizes the buffer arrays with the controlled sequences.

Returns:

-1 on failure.

Each derived class provides its own appropriate behavior, including the definition of *failure*.

Note:

Base class version does nothing, returns zero.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 838 of file fstream.tcc.

References std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_streambuf< _CharT, _Traits >::pbase(), and std::basic_streambuf< _CharT, _Traits >::pptr().

5.71.4.44 template<typename _CharT, typename _Traits> virtual int_type std::basic_streambuf< _CharT, _Traits >::uflow () [inline, protected, virtual, inherited]

Fetches more data from the controlled sequence.

Returns:

The first character from the *pending sequence*.

Informally, this function does the same thing as `underflow()`, and in fact is required to call that function. It also returns the new character, like `underflow()` does. However, this function also moves the read position forward by one.

Reimplemented in __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >.

Definition at line 678 of file streambuf.

5.71.4.45 template<typename _CharT , typename _Traits > basic_filebuf< _CharT, _Traits >::int_type std::basic_filebuf< _CharT, _Traits >::underflow () [inline, protected, virtual, inherited]

Fetches more data from the controlled sequence.

Returns:

The first character from the *pending sequence*.

Informally, this function is called when the input buffer is exhausted (or does not exist, as buffering need not actually be done). If a buffer exists, it is *refilled*. In either case, the next available character is returned, or `traits::eof()` to indicate a null pending sequence.

For a formal definition of the pending sequence, see a good text such as Langer & Kreft, or [27.5.2.4.3]/7-14.

A functioning input streambuf can be created by overriding only this function (no buffer area will be used). For an example, see http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch25.html

Note:

Base class version does nothing, returns eof().

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 204 of file fstream.tcc.

References std::basic_filebuf< _CharT, _Traits >::_M_buf_size, std::basic_filebuf< _CharT, _Traits >::_M_destroy_pback(), std::basic_filebuf< _CharT, _Traits >::_M_ext_buf, std::basic_filebuf< _CharT, _Traits >::_M_ext_buf_size, std::basic_filebuf< _CharT, _Traits >::_M_ext_next, std::basic_filebuf< _CharT, _Traits >::_M_mode, std::basic_filebuf< _CharT, _Traits >::_M_reading, std::basic_filebuf< _CharT, _Traits >::_M_set_buffer(), std::basic_streambuf< _CharT, _Traits >::eback(), std::basic_streambuf< _CharT, _Traits >::egptr(), std::basic_streambuf< _CharT, _Traits >::gptr(), std::__codecvt_abstract_base< _InternT, _ExternT, _StateT >::in(), std::ios_base::in, and std::min().

Referenced by std::basic_filebuf< _CharT, _Traits >::pbackfail().

5.71.4.46 template<typename _CharT , typename _Traits > streamsize std::basic_filebuf< _CharT, _Traits >::xsgetn (char_type * __s, streamsize __n) [inline, protected, virtual, inherited]

Multiple character extraction.

Parameters:

s A buffer area.

n Maximum number of characters to assign.

Returns:

The number of characters assigned.

Fills *s*[0] through *s*[n-1] with characters from the input sequence, as if by `sbumpc()`. Stops when either *n* characters have been copied, or when `traits::eof()` would be copied.

It is expected that derived classes provide a more efficient implementation by overriding this definition.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 527 of file fstream.tcc.

References std::basic_filebuf< _CharT, _Traits >::_M_buf_size, std::basic_filebuf< _CharT, _Traits >::_M_destroy_pback(), std::basic_filebuf< _CharT, _Traits >::_M_mode, std::basic_filebuf< _CharT, _Traits >::_M_pback_init, std::basic_filebuf< _CharT, _Traits >::_M_reading, std::basic_filebuf< _CharT, _Traits >::_M_set_buffer(), std::basic_streambuf< _CharT, _Traits >::eback(), std::basic_streambuf< _CharT, _Traits >::egptr(), std::basic_streambuf< _CharT, _Traits >::gbump(), std::basic_streambuf< _CharT, _Traits >::gptr(), std::ios_base::in, and std::basic_streambuf< char_type, traits_type >::xsgetn().

5.71.4.47 template<typename _CharT , typename _Traits > streamsize std::basic_filebuf< _CharT, _Traits >::xsputn (const char_type * __s, streamsize __n) [inline, protected, virtual, inherited]

Multiple character insertion.

Parameters:

s A buffer area.

n Maximum number of characters to write.

Returns:

The number of characters written.

Writes *s*[0] through *s*[n-1] to the output sequence, as if by `sputc()`. Stops when either *n* characters have been copied, or when `sputc()` would return `traits::eof()`.

It is expected that derived classes provide a more efficient implementation by overriding this definition.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 610 of file fstream.tcc.

References std::basic_filebuf< _CharT, _Traits >::_M_buf_size, std::basic_filebuf< _CharT, _Traits >::_M_mode, std::basic_filebuf< _CharT, _Traits >::_M_reading, std::basic_filebuf< _CharT, _Traits >::_M_set_buffer(), std::basic_streambuf< _CharT, _Traits >::epptr(), std::min(), std::ios_base::out, std::basic_streambuf< _CharT, _Traits >::pbase(), std::basic_streambuf< _CharT, _Traits >::pptr(), and std::basic_streambuf< char_type, traits_type >::xsputn().

5.71.5 Member Data Documentation

5.71.5.1 template<typename _CharT, typename _Traits> char_type* std::basic_filebuf< _CharT, _Traits >::_M_buf [protected, inherited]

Pointer to the beginning of internal buffer.

Definition at line 109 of file fstream.

Referenced by std::basic_filebuf< _CharT, _Traits >::setbuf().

5.71.5.2 template<typename _CharT, typename _Traits> locale std::basic_streambuf< _CharT, _Traits >::_M_buf_locale [protected, inherited]

Current locale setting.

Definition at line 188 of file streambuf.

Referenced by std::basic_filebuf< _CharT, _Traits >::basic_filebuf().

5.71.5.3 template<typename _CharT, typename _Traits> size_t std::basic_filebuf< _CharT, _Traits >::_M_buf_size [protected, inherited]

Actual size of internal buffer. This number is equal to the size of the put area + 1 position, reserved for the overflow char of a full area.

Definition at line 116 of file fstream.

Referenced by std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_filebuf< _CharT, _Traits >::setbuf(), __gnu_cxx::stdio_filebuf< _CharT, _Traits >::stdio_filebuf(), std::basic_filebuf< _CharT, _Traits >::underflow(), std::basic_filebuf< _CharT, _Traits >::xsgetn(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.71.5.4 template<typename _CharT, typename _Traits> char* std::basic_filebuf< _CharT, _Traits >::_M_ext_buf [protected, inherited]

Buffer for external characters. Used for input when codecvt::always_noconv() == false. When valid, this corresponds to eback().

Definition at line 151 of file fstream.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_filebuf< _CharT, _Traits >::seekoff(), and std::basic_filebuf< _CharT, _Traits >::underflow().

5.71.5.5 template<typename _CharT, typename _Traits> streamsize std::basic_filebuf< _CharT, _Traits >::_M_ext_buf_size [protected, inherited]

Size of buffer held by _M_ext_buf.

Definition at line 156 of file fstream.

Referenced by std::basic_filebuf< _CharT, _Traits >::underflow().

5.71.5.6 template<typename _CharT, typename _Traits> const char* std::basic_filebuf< _CharT, _Traits >::_M_ext_next [protected, inherited]

Pointers into the buffer held by _M_ext_buf that delimit a subsequence of bytes that have been read but not yet converted. When valid, _M_ext_next corresponds to egptr().

Definition at line 163 of file fstream.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_filebuf< _CharT, _Traits >::seekoff(), and std::basic_filebuf< _CharT, _Traits >::underflow().

5.71.5.7 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_in_beg [protected, inherited]

This is based on _IO_FILE, just reordered to be more consistent, and is intended to be the most minimal abstraction for an internal buffer.

- get == input == read
- put == output == write

Definition at line 180 of file streambuf.

5.71.5.8 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_in_cur [protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 181 of file streambuf.

5.71.5.9 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_in_end [protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 182 of file streambuf.

5.71.5.10 template<typename _CharT, typename _Traits> ios_base::openmode std::basic_filebuf< _CharT, _Traits >::_M_mode [protected, inherited]

Place to stash in || out || in | out settings for current filebuf.

Definition at line 94 of file fstream.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_filebuf< _CharT, _Traits >::open(), std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_filebuf< _CharT, _Traits >::showmanyc(), __gnu_cxx::stdio_filebuf< _CharT, _Traits >::stdio_filebuf(), std::basic_filebuf< _CharT, _Traits >::underflow(), std::basic_filebuf< _CharT, _Traits >::xsgetn(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.71.5.11 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_out_beg [protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 183 of file streambuf.

5.71.5.12 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_out_cur [protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 184 of file streambuf.

5.71.5.13 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_out_end [protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 185 of file streambuf.

5.71.5.14 template<typename _CharT, typename _Traits> char_type std::basic_filebuf< _CharT, _Traits >::_M_pback [protected, inherited]

Necessary bits for putback buffer management.

Note:

pbacks of over one character are not currently supported.

Definition at line 137 of file fstream.

5.71.5.15 template<typename _CharT, typename _Traits> char_type* std::basic_filebuf< _CharT, _Traits >::_M_pback_cur_save [protected, inherited]

Necessary bits for putback buffer management.

Note:

pbacks of over one character are not currently supported.

Definition at line 138 of file fstream.

5.71.5.16 template<typename _CharT, typename _Traits> char_type* std::basic_filebuf< _CharT, _Traits >::_M_pback_end_save [protected, inherited]

Necessary bits for putback buffer management.

Note:

pbacks of over one character are not currently supported.

Definition at line 139 of file fstream.

5.71.5.17 template<typename _CharT, typename _Traits> bool std::basic_filebuf< _CharT, _Traits >::_M_pback_init [protected, inherited]

Necessary bits for putback buffer management.

Note:

pbacks of over one character are not currently supported.

Definition at line 140 of file fstream.

Referenced by std::basic_filebuf< _CharT, _Traits >::pbackfail(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.71.5.18 template<typename _CharT, typename _Traits> bool std::basic_filebuf< _CharT, _Traits >::_M_reading [protected, inherited]

_M_reading == false && _M_writing == false for **uncommitted** mode; _M_reading == true for **read** mode; _M_writing == true for **write** mode;

NB: _M_reading == true && _M_writing == true is unused.

Definition at line 128 of file fstream.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_filebuf< _CharT, _Traits >::open(), std::basic_filebuf< _CharT, _Traits >::overflow(),

std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_filebuf< _CharT, _Traits >::seekoff(), __gnu_cxx::stdio_filebuf< _CharT, _Traits >::stdio_filebuf(), std::basic_filebuf< _CharT, _Traits >::underflow(), std::basic_filebuf< _CharT, _Traits >::xsgetn(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

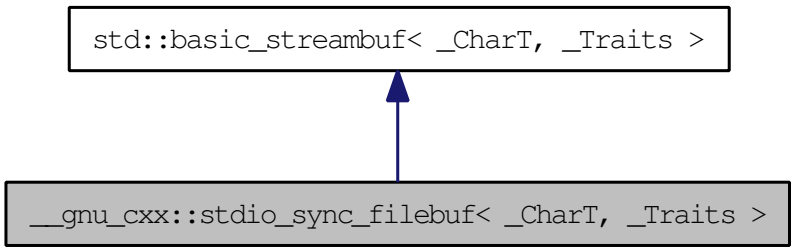
The documentation for this class was generated from the following file:

- stdio_filebuf.h

5.72 __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits > Class Template Reference

Provides a layer of compatibility for C.

This GNU extension provides extensions for working with standard C FILE*'s. It must be instantiated by the user with the type of character used in the file stream, e.g., stdio_filebuf<char>. Inheritance diagram for __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >:



Public Types

- typedef _CharT char_type
- typedef traits_type::int_type int_type
- typedef traits_type::off_type off_type
- typedef traits_type::pos_type pos_type
- typedef _Traits traits_type

Public Member Functions

- **stdio_sync_filebuf** (std::__c_file *__f)
- std::__c_file *const file ()
- streamsize in_avail ()
- int_type sbumpc ()
- int_type sgetc ()
- streamsize sgetn (char_type *__s, streamsize __n)
- int_type snextc ()
- int_type sputbackc (char_type __c)
- int_type sputc (char_type __c)
- streamsize sputn (const char_type *__s, streamsize __n)
- void stossc ()
- int_type sungetc ()

- template<>
  stdio_sync_filebuf< wchar_t >::int_type **syncgetc** ()
- template<>
  stdio_sync_filebuf< char >::int_type **syncgetc** ()
- template<>
  stdio_sync_filebuf< wchar_t >::int_type **syncputc** (int_type __c)
- template<>
  stdio_sync_filebuf< char >::int_type **syncputc** (int_type __c)
- template<>
  stdio_sync_filebuf< wchar_t >::int_type **syncungetc** (int_type __c)
- template<>
  stdio_sync_filebuf< char >::int_type **syncungetc** (int_type __c)
- template<>
  std::streamsize **xsgetn** (wchar_t *__s, std::streamsize __n)
- template<>
  std::streamsize **xsgetn** (char *__s, std::streamsize __n)
- template<>
  std::streamsize **xsputn** (const wchar_t *__s, std::streamsize __n)
- template<>
  std::streamsize **xsputn** (const char *__s, std::streamsize __n)

Protected Member Functions

- void gbump (int __n)
- virtual void imbue (const locale &)
- virtual int_type overflow (int_type __c=traits_type::eof())
- virtual int_type pbackfail (int_type __c=traits_type::eof())
- void pbump (int __n)
- virtual pos_type seekoff (off_type, ios_base::seekdir, ios_base::openmode=ios_base::in|ios_base::out)
- virtual std::streampos **seekoff** (std::streamoff __off, std::ios_base::seekdir __dir, std::ios_base::openmode=std::ios_base::in|std::ios_base::out)
- virtual pos_type seekpos (pos_type, ios_base::openmode=ios_base::in|ios_base::out)
- virtual std::streampos **seekpos** (std::streampos __pos, std::ios_base::openmode __mode=std::ios_base::in|std::ios_base::out)
- virtual basic_streambuf< char_type, _Traits > * setbuf (char_type *, streamsize)
- void setg (char_type *__gbeg, char_type *__gnext, char_type *__gend)
- void setp (char_type *__pbeg, char_type *__pend)
- virtual streamsize showmanyc ()
- virtual int sync ()
- int_type **syncgetc** ()
- int_type **syncputc** (int_type __c)

- int_type **syncungetc** (int_type __c)
- virtual int_type uflow ()
- virtual int_type underflow ()
- virtual std::streamsize xsgetn (char_type *__s, std::streamsize __n)
- virtual std::streamsize xsputn (const char_type *__s, std::streamsize __n)

Friends

- template<bool _IsMove, typename _CharT2 >
  __gnu_cxx::__enable_if< __is_char< _CharT2 >::__value, _CharT2 * >::__-type **__copy_move_a2** (istreambuf_iterator< _CharT2 >, istreambuf_iterator< _CharT2 >, _CharT2 *)
- streamsize **__copy_streambufs_eof** (__streambuf_type *, __streambuf_type *, bool &)
- class **basic_ios**< **char_type, traits_type** >
- class **basic_istream**< **char_type, traits_type** >
- class **basic_ostream**< **char_type, traits_type** >
- template<typename _CharT2 >
  __gnu_cxx::__enable_if< __is_char< _CharT2 >::__value, istreambuf_-iterator< _CharT2 > >::__type **find** (istreambuf_iterator< _CharT2 >, istreambuf_iterator< _CharT2 >, const _CharT2 &)
- template<typename _CharT2 , typename _Traits2 , typename _Alloc >
  basic_istream< _CharT2, _Traits2 > & **getline** (basic_istream< _CharT2, _-Traits2 > &, basic_string< _CharT2, _Traits2, _Alloc > &, _CharT2)
- class **istreambuf_iterator**< **char_type, traits_type** >
- template<typename _CharT2 , typename _Traits2 , typename _Alloc >
  basic_istream< _CharT2, _Traits2 > & **operator>>** (basic_istream< _CharT2, _Traits2 > &, basic_string< _CharT2, _Traits2, _Alloc > &)
- template<typename _CharT2 , typename _Traits2 >
  basic_istream< _CharT2, _Traits2 > & **operator>>** (basic_istream< _CharT2, _Traits2 > &, _CharT2 *)
- class **ostreambuf_iterator**< **char_type, traits_type** >

- typedef basic_streambuf< char_type, traits_type > __streambuf_type
- locale getloc () const
- locale pubimbue (const locale &__loc)
- pos_type pubseekoff (off_type __off, ios_base::seekdir __way, ios_-base::openmode __mode=ios_base::in|ios_base::out)
- pos_type pubseekpos (pos_type __sp, ios_base::openmode __mode=ios_-base::in|ios_base::out)
- __streambuf_type * pubsetbuf (char_type *__s, streamsize __n)
- int pubsync ()

- char_type * eback () const
- char_type * egptr () const
- char_type * epptr () const
- char_type * gptr () const
- char_type * pbase () const
- char_type * pptr () const
- locale _M_buf_locale
- char_type * _M_in_beg
- char_type * _M_in_cur
- char_type * _M_in_end
- char_type * _M_out_beg
- char_type * _M_out_cur
- char_type * _M_out_end

5.72.1 Detailed Description

template<typename _CharT, typename _Traits = std::char_traits<_CharT>> class __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >

Provides a layer of compatibility for C.

This GNU extension provides extensions for working with standard C FILE*'s. It must be instantiated by the user with the type of character used in the file stream, e.g., stdio_filebuf<char>.

Definition at line 55 of file stdio_sync_filebuf.h.

5.72.2 Member Typedef Documentation

5.72.2.1 template<typename _CharT, typename _Traits> typedef basic_streambuf<char_type, traits_type> std::basic_streambuf< _CharT, _Traits >::__streambuf_type [inherited]

This is a non-standard type.

Reimplemented in std::basic_filebuf< _CharT, _Traits >, std::basic_stringbuf< _CharT, _Traits, _Alloc >, std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >, and std::basic_filebuf< char_type, traits_type >.

Definition at line 133 of file streambuf.

5.72.2.2 template<typename _CharT , typename _Traits = std::char_traits<_CharT>> typedef _CharT __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >::char_type

These are standard types. They permit a standardized way of referring to names of (or names dependant on) the template parameters, which are specific to the implementation.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 59 of file stdio_sync_filebuf.h.

5.72.2.3 template<typename _CharT , typename _Traits = std::char_traits<_CharT>> typedef traits_type::int_type __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >::int_type

This is a non-standard type.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 61 of file stdio_sync_filebuf.h.

5.72.2.4 template<typename _CharT , typename _Traits = std::char_traits<_CharT>> typedef traits_type::off_type __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >::off_type

This is a non-standard type.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 63 of file stdio_sync_filebuf.h.

5.72.2.5 template<typename _CharT , typename _Traits = std::char_traits<_CharT>> typedef traits_type::pos_type __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >::pos_type

This is a non-standard type.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 62 of file stdio_sync_filebuf.h.

5.72.2.6 template<typename _CharT , typename _Traits = std::char_traits<_CharT>> typedef _Traits __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >::traits_type

This is a non-standard type.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 60 of file stdio_sync_filebuf.h.

5.72.3 Member Function Documentation

5.72.3.1 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::eback () const [inline, protected, inherited]

Access to the get area. These functions are only available to other protected functions, including derived classes.

- eback() returns the beginning pointer for the input sequence
- gptr() returns the next pointer for the input sequence
- egptr() returns the end pointer for the input sequence

Definition at line 460 of file streambuf.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::underflow(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.72.3.2 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::egptr () const [inline, protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 466 of file streambuf.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::showmanyc(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::underflow(), std::basic_filebuf< _CharT, _Traits >::underflow(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.72.3.3 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::epptr () const [inline, protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 513 of file streambuf.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_streambuf< _CharT, _Traits >::xsputn(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.72.3.4 template<typename _CharT , typename _Traits = std::char_traits<_CharT>> std::__c_file* const __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >::file () [inline]

Returns:

The underlying FILE*.

This function can be used to access the underlying C file pointer. Note that there is no way for the library to track what you do with the file, so be careful.

Definition at line 87 of file stdio_sync_filebuf.h.

5.72.3.5 template<typename _CharT, typename _Traits> void std::basic_streambuf< _CharT, _Traits >::gbump (int __n) [inline, protected, inherited]

Moving the read position.

Parameters:

n The delta by which to move.

This just advances the read position without returning any data.

Definition at line 476 of file streambuf.

Referenced by std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.72.3.6 template<typename _CharT, typename _Traits> locale std::basic_streambuf< _CharT, _Traits >::getloc () const [inline, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 222 of file streambuf.

5.72.3.7 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::gptr () const [inline, protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 463 of file streambuf.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::showmanyc(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::underflow(), std::basic_filebuf< _CharT, _Traits >::underflow(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.72.3.8 template<typename _CharT, typename _Traits> virtual void std::basic_streambuf< _CharT, _Traits >::imbue (const locale &) [inline, protected, virtual, inherited]

Changes translations.

Parameters:

loc A new locale.

Translations done during I/O which depend on the current locale are changed by this call. The standard adds, *Between invocations of this function a class derived from streambuf can safely cache results of calls to locale functions and to members of facets so obtained.*

Note:

Base class version does nothing.

Reimplemented in std::basic_filebuf< _CharT, _Traits >, std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >, and std::basic_filebuf< char_type, traits_type >.

Definition at line 554 of file streambuf.

5.72.3.9 template<typename _CharT, typename _Traits> streamsize std::basic_streambuf< _CharT, _Traits >::in_avail () [inline, inherited]

Looking ahead into the stream.

Returns:

The number of characters available.

If a read position is available, returns the number of characters available for reading before the buffer must be refilled. Otherwise returns the derived `showmanyc()`.

Definition at line 262 of file streambuf.

5.72.3.10 template<typename _CharT , typename _Traits = std::char_traits<_CharT>> virtual int_type __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >::overflow (int_type = traits_type::eof()) [inline, protected, virtual]

Consumes data from the buffer; writes to the controlled sequence.

Parameters:

c An additional character to consume.

Returns:

eof() to indicate failure, something else (usually *c*, or not_eof())

Informally, this function is called when the output buffer is full (or does not exist, as buffering need not actually be done). If a buffer exists, it is *consumed*, with *some*

effect on the controlled sequence. (Typically, the buffer is written out to the sequence verbatim.) In either case, the character *c* is also written out, if *c* is not `eof()`.

For a formal definition of this function, see a good text such as Langer & Kreft, or [27.5.2.4.5]/3-7.

A functioning output streambuf can be created by overriding only this function (no buffer area will be used).

Note:

Base class version does nothing, returns eof().

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 140 of file stdio_sync_filebuf.h.

5.72.3.11 template<typename _CharT , typename _Traits = std::char_traits<_CharT>> virtual int_type __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >::pbackfail (int_type = `traits_type::eof()`) [inline, protected, virtual]

Tries to back up the input sequence.

Parameters:

c The character to be inserted back into the sequence.

Returns:

eof() on failure, *some other value* on success

Postcondition:

The constraints of `gptr()`, `eback()`, and `pptr()` are the same as for `underflow()`.

Note:

Base class version does nothing, returns eof().

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 115 of file stdio_sync_filebuf.h.

5.72.3.12 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::pbase () const [inline, protected, inherited]

Access to the put area. These functions are only available to other protected functions, including derived classes.

- pbase() returns the beginning pointer for the output sequence
- pptr() returns the next pointer for the output sequence
- epptr() returns the end pointer for the output sequence

Definition at line 507 of file streambuf.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::sync(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.72.3.13 template<typename _CharT, typename _Traits> void std::basic_streambuf< _CharT, _Traits >::pbump (int __n) [inline, protected, inherited]

Moving the write position.

Parameters:

n The delta by which to move.

This just advances the write position without returning any data.

Definition at line 523 of file streambuf.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), and std::basic_streambuf< _CharT, _Traits >::xsputn().

5.72.3.14 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::pptr () const [inline, protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 510 of file streambuf.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::sync(), std::basic_streambuf< _CharT, _Traits >::xsputn(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.72.3.15 template<typename _CharT, typename _Traits> locale std::basic_streambuf< _CharT, _Traits >::pubimbue (const locale & *__loc*) [inline, inherited]

Entry point for imbue().

Parameters:

loc The new locale.

Returns:

The previous locale.

Calls the derived imbue(loc).

Definition at line 205 of file streambuf.

5.72.3.16 template<typename _CharT, typename _Traits> pos_type std::basic_streambuf< _CharT, _Traits >::pubseekoff (off_type *__off*, ios_base::seekdir *__way*, ios_base::openmode *__mode* = ios_base::in | ios_base::out) [inline, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 239 of file streambuf.

5.72.3.17 template<typename _CharT, typename _Traits> pos_type std::basic_streambuf< _CharT, _Traits >::pubseekpos (pos_type __sp, ios_base::openmode __mode = ios_base::in | ios_base::out) [inline, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 244 of file streambuf.

5.72.3.18 template<typename _CharT, typename _Traits> __streambuf_type* std::basic_streambuf< _CharT, _Traits >::pubsetbuf (char_type * __s, streamsize __n) [inline, inherited]

Entry points for derived buffer functions. The public versions of `pubfoo` dispatch to the protected derived `foo` member functions, passing the arguments (if any) and returning the result unchanged.

Definition at line 235 of file streambuf.

5.72.3.19 template<typename _CharT, typename _Traits> int std::basic_streambuf< _CharT, _Traits >::pubsync () [inline, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 249 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::sync().

5.72.3.20 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::sbumpc () [inline, inherited]

Getting the next character.

Returns:

The next character, or eof.

If the input read position is available, returns that character and increments the read pointer, otherwise calls and returns `uflow()`.

Definition at line 294 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), and std::istreambuf_iterator< _CharT, _Traits >::operator++().

5.72.3.21 template<typename _CharT, typename _Traits> virtual pos_type std::basic_streambuf< _CharT, _Traits >::seekoff (off_type, ios_base::seekdir, ios_base::openmode = ios_base::in | ios_base::out) [inline, protected, virtual, inherited]

Alters the stream positions. Each derived class provides its own appropriate behavior.

Note:

Base class version does nothing, returns a `pos_type` that represents an invalid stream position.

Reimplemented in std::basic_filebuf< _CharT, _Traits >, std::basic_stringbuf< _CharT, _Traits, _Alloc >, std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >, and std::basic_filebuf< char_type, traits_type >.

Definition at line 580 of file streambuf.

5.72.3.22 template<typename _CharT, typename _Traits> virtual pos_type std::basic_streambuf< _CharT, _Traits >::seekpos (pos_type, ios_base::openmode = ios_base::in | ios_base::out) [inline, protected, virtual, inherited]

Alters the stream positions. Each derived class provides its own appropriate behavior.

Note:

Base class version does nothing, returns a `pos_type` that represents an invalid stream position.

Reimplemented in std::basic_filebuf< _CharT, _Traits >, std::basic_stringbuf< _CharT, _Traits, _Alloc >, std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >, and std::basic_filebuf< char_type, traits_type >.

Definition at line 592 of file streambuf.

5.72.3.23 template<typename _CharT, typename _Traits> virtual basic_streambuf<char_type,_Traits>* std::basic_streambuf< _CharT, _Traits >::setbuf (char_type *, streamsize) [inline, protected, virtual, inherited]

Manipulates the buffer. Each derived class provides its own appropriate behavior. See the next-to-last paragraph of http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch25s02.html for more on this function.

Note:

Base class version does nothing, returns `this`.

Reimplemented in std::basic_filebuf< _CharT, _Traits >, std::basic_stringbuf< _CharT, _Traits, _Alloc >, std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >, and std::basic_filebuf< char_type, traits_type >.

Definition at line 569 of file streambuf.

5.72.3.24 template<typename _CharT, typename _Traits> void std::basic_streambuf< _CharT, _Traits >::setg (char_type * *__gbeg*, char_type * *__gnext*, char_type * *__gend*) [inline, protected, inherited]

Setting the three read area pointers.

Parameters:

gbeg A pointer.

gnext A pointer.

gend A pointer.

Postcondition:

gbeg == `eback()`, *gnext* == `gptr()`, and *gend* == `egptr()`

Definition at line 487 of file streambuf.

5.72.3.25 template<typename _CharT, typename _Traits> void std::basic_streambuf< _CharT, _Traits >::setp (char_type * *__pbeg*, char_type * *__pend*) [inline, protected, inherited]

Setting the three write area pointers.

Parameters:

pbeg A pointer.

pend A pointer.

Postcondition:

pbeg == `pbase()`, *pbeg* == `pptr()`, and *pend* == `epptr()`

Definition at line 533 of file streambuf.

5.72.3.26 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::sgetc () [inline, inherited]

Getting the next character.

Returns:

The next character, or eof.

If the input read position is available, returns that character, otherwise calls and returns `underflow()`. Does not move the read position after fetching the character.

Definition at line 316 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), and std::basic_istream< _CharT, _Traits >::sentry::sentry().

5.72.3.27 template<typename _CharT, typename _Traits> streamsize std::basic_streambuf< _CharT, _Traits >::sgetn (char_type * __s, streamsize __n) [inline, inherited]

Entry point for xsgetn.

Parameters:

s A buffer area.

n A count.

Returns xsgetn(s,n). The effect is to fill *s*[0] through *s*[n-1] with characters from the input sequence, if possible.

Definition at line 335 of file streambuf.

5.72.3.28 template<typename _CharT, typename _Traits> virtual streamsize std::basic_streambuf< _CharT, _Traits >::showmanyc () [inline, protected, virtual, inherited]

Investigating the data available.

Returns:

An estimate of the number of characters available in the input sequence, or -1.

If it returns a positive value, then successive calls to `underflow()` *will not return* `traits::eof()` *until at least that number of characters have been supplied. If* `showmanyc()` *returns -1, then calls to* `underflow()` *or* `uflow()` *will fail.* [27.5.2.4.3]/1

Note:

Base class version does nothing, returns zero.
The standard adds that *the intention is not only that the calls [to underflow or uflow] will not return* `eof()` *but that they will return immediately.*
The standard adds that *the morphemes of* `showmanyc` *are* ***es-how-many-see****, not* ***show-manic****.*

Reimplemented in std::basic_filebuf< _CharT, _Traits >, std::basic_stringbuf< _CharT, _Traits, _Alloc >, std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >, and std::basic_filebuf< char_type, traits_type >.

Definition at line 627 of file streambuf.

5.72.3.29 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::snextc () [inline, inherited]

Getting the next character.

Returns:

The next character, or eof.

Calls `sbumpc()`, and if that function returns `traits::eof()`, so does this function. Otherwise, `sgetc()`.

Definition at line 276 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), and std::basic_istream< _CharT, _Traits >::sentry::sentry().

5.72.3.30 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::sputbackc (char_type __c) [inline, inherited]

Pushing characters back into the input stream.

Parameters:

c The character to push back.

Returns:

The previous character, if possible.

Similar to sungetc(), but *c* is pushed onto the stream instead of *the previous character*. If successful, the next character fetched from the input stream will be *c*.

Definition at line 350 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::putback().

5.72.3.31 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::sputc (char_type __c) [inline, inherited]

Entry point for all single-character output functions.

Parameters:

c A character to output.

Returns:

c, if possible.

One of two public output functions.

If a write position is available for the output sequence (i.e., the buffer is not full), stores *c* in that position, increments the position, and returns `traits::to_int_type(c)`. If a write position is not available, returns `overflow(c)`.

Definition at line 402 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::get(), and std::ostreambuf_iterator< _CharT, _Traits >::operator=().

5.72.3.32 template<typename _CharT, typename _Traits> streamsize std::basic_streambuf< _CharT, _Traits >::sputn (const char_type * __s, streamsize __n) [inline, inherited]

Entry point for all single-character output functions.

Parameters:

s A buffer read area.

n A count.

One of two public output functions.

Returns xsputn(s,n). The effect is to write *s*[0] through *s*[n-1] to the output sequence, if possible.

Definition at line 428 of file streambuf.

5.72.3.33 template<typename _CharT, typename _Traits> void std::basic_streambuf< _CharT, _Traits >::stossc () [inline, inherited]

Tosses a character. Advances the read pointer, ignoring the character that would have been read.

See http://gcc.gnu.org/ml/libstdc++/2002-05/msg00168.html

Definition at line 761 of file streambuf.

5.72.3.34 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::sungetc () [inline, inherited]

Moving backwards in the input stream.

Returns:

The previous character, if possible.

If a putback position is available, this function decrements the input pointer and returns that character. Otherwise, calls and returns pbackfail(). The effect is to *unget* the last character *gotten*.

Definition at line 375 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::unget().

5.72.3.35 template<typename _CharT , typename _Traits = std::char_traits<_CharT>> virtual int __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >::sync (void) [inline, protected, virtual]

Synchronizes the buffer arrays with the controlled sequences.

Returns:

-1 on failure.

Each derived class provides its own appropriate behavior, including the definition of *failure*.

Note:

Base class version does nothing, returns zero.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 159 of file stdio_sync_filebuf.h.

5.72.3.36 template<typename _CharT , typename _Traits = std::char_traits<_CharT>> virtual int_type __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >::uflow () [inline, protected, virtual]

Fetches more data from the controlled sequence.

Returns:

The first character from the *pending sequence*.

Informally, this function does the same thing as `underflow()`, and in fact is required to call that function. It also returns the new character, like `underflow()` does. However, this function also moves the read position forward by one.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 107 of file stdio_sync_filebuf.h.

5.72.3.37 template<typename _CharT , typename _Traits = std::char_traits<_CharT>> virtual int_type __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >::underflow () [inline, protected, virtual]

Fetches more data from the controlled sequence.

Returns:

The first character from the *pending sequence*.

Informally, this function is called when the input buffer is exhausted (or does not exist, as buffering need not actually be done). If a buffer exists, it is *refilled*. In either case, the next available character is returned, or `traits::eof()` to indicate a null pending sequence.

For a formal definition of the pending sequence, see a good text such as Langer & Kreft, or [27.5.2.4.3]/7-14.

A functioning input streambuf can be created by overriding only this function (no buffer area will be used). For an example, see http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch25.html

Note:

Base class version does nothing, returns eof().

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 100 of file stdio_sync_filebuf.h.

5.72.3.38 template<typename _CharT , typename _Traits = std::char_traits<_CharT>> virtual std::streamsize __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >::xsgetn (char_type * __s, std::streamsize __n) [protected, virtual]

Multiple character extraction.

Parameters:

s A buffer area.

n Maximum number of characters to assign.

Returns:

The number of characters assigned.

Fills *s*[0] through *s*[n-1] with characters from the input sequence, as if by `sbumpc()`. Stops when either *n* characters have been copied, or when `traits::eof()` would be copied.

It is expected that derived classes provide a more efficient implementation by overriding this definition.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

5.72.3.39 template<typename _CharT , typename _Traits = std::char_traits<_CharT>> virtual std::streamsize __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >::xsputn (const char_type * __s, std::streamsize __n) [protected, virtual]

Multiple character insertion.

Parameters:

s A buffer area.

n Maximum number of characters to write.

Returns:

The number of characters written.

Writes *s*[0] through *s*[n-1] to the output sequence, as if by `sputc()`. Stops when either *n* characters have been copied, or when `sputc()` would return `traits::eof()`.

It is expected that derived classes provide a more efficient implementation by overriding this definition.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

5.72.4 Member Data Documentation

5.72.4.1 template<typename _CharT, typename _Traits> locale std::basic_streambuf< _CharT, _Traits >::_M_buf_locale [protected, inherited]

Current locale setting.

Definition at line 188 of file streambuf.

Referenced by std::basic_filebuf< _CharT, _Traits >::basic_filebuf().

5.72.4.2 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_in_beg [protected, inherited]

This is based on _IO_FILE, just reordered to be more consistent, and is intended to be the most minimal abstraction for an internal buffer.

- get == input == read
- put == output == write

Definition at line 180 of file streambuf.

5.72.4.3 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_in_cur [protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 181 of file streambuf.

5.72.4.4 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_in_end [protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 182 of file streambuf.

5.72.4.5 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_out_beg [protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 183 of file streambuf.

5.72.4.6 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_out_cur [protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 184 of file streambuf.

5.72.4.7 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_out_end [protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

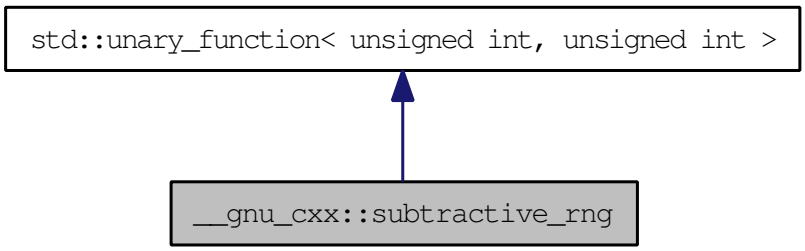
Definition at line 185 of file streambuf.

The documentation for this class was generated from the following file:

- stdio_sync_filebuf.h

5.73 __gnu_cxx::subtractive_rng Class Reference

Inheritance diagram for __gnu_cxx::subtractive_rng:



Public Types

- typedef _Arg argument_type
- typedef _Result result_type

Public Member Functions

- subtractive_rng ()
- subtractive_rng (unsigned int __seed)
- void **_M_initialize** (unsigned int __seed)
- unsigned int operator() (unsigned int __limit)

5.73.1 Detailed Description

The `subtractive_rng` class is documented on `SGI's site`. Note that this code assumes that `int` is 32 bits.

Definition at line 348 of file ext/functional.

5.73.2 Member Typedef Documentation

5.73.2.1 template<typename _Arg, typename _Result> typedef _Arg std::unary_function< _Arg, _Result >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.73.2.2 template<typename _Arg, typename _Result> typedef _Result std::unary_function< _Arg, _Result >::result_type [inherited]

`result_type` is the return type

Definition at line 105 of file stl_function.h.

5.73.3 Constructor & Destructor Documentation

5.73.3.1 __gnu_cxx::subtractive_rng::subtractive_rng (unsigned int *__seed*) [inline]

Ctor allowing you to initialize the seed.

Definition at line 390 of file ext/functional.

5.73.3.2 __gnu_cxx::subtractive_rng::subtractive_rng () [inline]

Default ctor; initializes its state with some number you don't see.

Definition at line 394 of file ext/functional.

5.73.4 Member Function Documentation

5.73.4.1 unsigned int __gnu_cxx::subtractive_rng::operator() (unsigned int *__limit*) [inline]

Returns a number less than the argument.

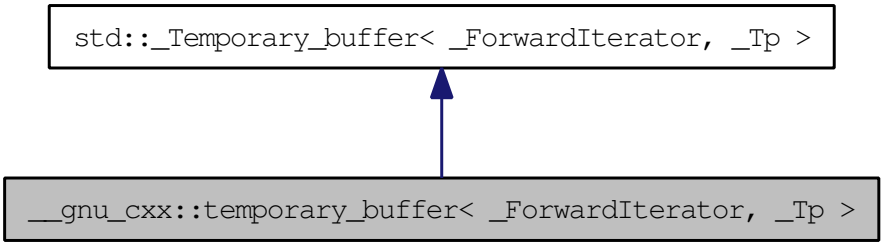
Definition at line 359 of file ext/functional.

The documentation for this class was generated from the following file:

- ext/functional

5.74 __gnu_cxx::temporary_buffer< _ForwardIterator, _Tp > Struct Template Reference

Inheritance diagram for __gnu_cxx::temporary_buffer< _ForwardIterator, _Tp >:



Public Types

- typedef pointer **iterator**
- typedef value_type * **pointer**
- typedef ptrdiff_t **size_type**
- typedef _Tp **value_type**

Public Member Functions

- temporary_buffer (_ForwardIterator __first, _ForwardIterator __last)
- ~temporary_buffer ()
- iterator begin ()
- iterator end ()
- size_type requested_size () const
- size_type size () const

Protected Attributes

- pointer **_M_buffer**
- size_type **_M_len**
- size_type **_M_original_len**

5.74.1 Detailed Description

template<class _ForwardIterator, class _Tp = typename std::iterator_traits<_ForwardIterator>::value_type> struct __gnu_cxx::temporary_buffer< _ForwardIterator, _Tp >

This class provides similar behavior and semantics of the standard functions get_temporary_buffer() and return_temporary_buffer(), but encapsulated in a type vaguely resembling a standard container.

By default, a temporary_buffer<Iter> stores space for objects of whatever type the Iter iterator points to. It is constructed from a typical [first,last) range, and provides the begin(), end(), size() functions, as well as requested_size(). For non-trivial types, copies of *first will be used to initialize the storage.

`malloc` is used to obtain underlying storage.

Like get_temporary_buffer(), not all the requested memory may be available. Ideally, the created buffer will be large enough to hold a copy of [first,last), but if size() is less than requested_size(), then this didn't happen.

Definition at line 182 of file ext/memory.

5.74.2 Constructor & Destructor Documentation

5.74.2.1 template<class _ForwardIterator , class _Tp = typename std::iterator_traits<_ForwardIterator>::value_type> __gnu_cxx::temporary_buffer< _ForwardIterator, _Tp >::temporary_buffer (_ForwardIterator *__first*, _ForwardIterator *__last*) [inline]

Requests storage large enough to hold a copy of [first,last).

Definition at line 185 of file ext/memory.

5.74.2.2 template<class _ForwardIterator , class _Tp = typename std::iterator_traits<_ForwardIterator>::value_type> __gnu_cxx::temporary_buffer< _ForwardIterator, _Tp >::~temporary_buffer () [inline]

Destroys objects and frees storage.

Definition at line 189 of file ext/memory.

5.74.3 Member Function Documentation

5.74.3.1 template<typename _ForwardIterator, typename _Tp> iterator std::_Temporary_buffer< _ForwardIterator, _Tp >::begin () [inline, inherited]

As per Table mumble.

Definition at line 151 of file stl_tempbuf.h.

Referenced by std::inplace_merge(), std::stable_partition(), and std::stable_sort().

5.74.3.2 template<typename _ForwardIterator, typename _Tp> iterator std::_Temporary_buffer< _ForwardIterator, _Tp >::end () [inline, inherited]

As per Table mumble.

Definition at line 156 of file stl_tempbuf.h.

5.74.3.3 template<typename _ForwardIterator, typename _Tp> size_type std::_Temporary_buffer< _ForwardIterator, _Tp >::requested_size () const [inline, inherited]

Returns the size requested by the constructor; may be >size().

Definition at line 146 of file stl_tempbuf.h.

Referenced by std::stable_partition().

5.74.3.4 template<typename _ForwardIterator, typename _Tp> size_type std::_Temporary_buffer< _ForwardIterator, _Tp >::size () const [inline, inherited]

As per Table mumble.

Definition at line 141 of file stl_tempbuf.h.

Referenced by std::inplace_merge(), std::stable_partition(), and std::stable_sort().

The documentation for this struct was generated from the following file:

- ext/memory

5.75 __gnu_cxx::throw_allocator_base< _Tp, _Cond > Class Template Reference

Allocator class with logging and exception generation control. Intended to be used as an allocator_type in templatized code.

Note: Deallocate not allowed to throw. Inheritance diagram for __gnu_cxx::throw_allocator_base< _Tp, _Cond >:

Public Types

- typedef const value_type * **const_pointer**
- typedef const value_type & **const_reference**
- typedef ptrdiff_t **difference_type**
- typedef value_type * **pointer**
- typedef value_type & **reference**
- typedef size_t **size_type**
- typedef _Tp **value_type**

Public Member Functions

- pointer **allocate** (size_type __n, std::allocator< void >::const_pointer hint=0)
- void **check_allocated** (void *p, size_t size)
- void **check_allocated** (size_type __n)
- void **check_allocated** (pointer __p, size_type __n)
- template<typename... _Args>
  void **construct** (pointer __p, _Args &&...__args)
- void **construct** (pointer __p, const value_type &val)
- void **deallocate** (pointer __p, size_type __n)
- void **destroy** (pointer __p)
- void **erase** (void *p, size_t size)
- void **insert** (void *p, size_t size)
- size_type **max_size** () const throw ()

Static Public Member Functions

- static size_t **get_label** ()
- static void **set_label** (size_t l)

5.75.1 Detailed Description

template<typename _Tp, typename _Cond> class __gnu_cxx::throw_allocator_base< _Tp, _Cond >

Allocator class with logging and exception generation control. Intended to be used as an allocator_type in templatized code.

Note: Deallocate not allowed to throw.

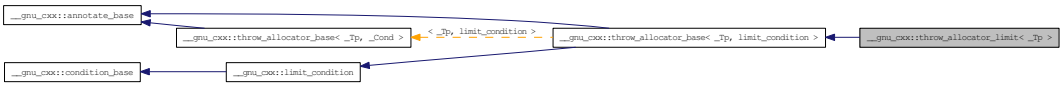
Definition at line 598 of file throw_allocator.h.

The documentation for this class was generated from the following file:

- throw_allocator.h

5.76 __gnu_cxx::throw_allocator_limit< _Tp > Struct Template Reference

Allocator throwing via limit condition. Inheritance diagram for __gnu_cxx::throw_allocator_limit< _Tp >:



Public Types

- typedef const value_type * **const_pointer**
- typedef const value_type & **const_reference**
- typedef ptrdiff_t **difference_type**
- typedef value_type * **pointer**
- typedef value_type & **reference**
- typedef size_t **size_type**
- typedef _Tp **value_type**

Public Member Functions

- template<typename _Tp1 >
  throw_allocator_limit (const throw_allocator_limit< _Tp1 > &) throw ()
- **throw_allocator_limit** (const throw_allocator_limit &) throw ()
- pointer **allocate** (size_type __n, std::allocator< void >::const_pointer hint=0)
- void **check_allocated** (void *p, size_t size)
- void **check_allocated** (size_type __n)
- void **check_allocated** (pointer __p, size_type __n)
- void **construct** (pointer __p, _Args &&...__args)
- void **construct** (pointer __p, const value_type &val)
- void **deallocate** (pointer __p, size_type __n)
- void **destroy** (pointer __p)
- void **erase** (void *p, size_t size)
- void **insert** (void *p, size_t size)
- size_type **max_size** () const throw ()

Static Public Member Functions

- static size_t & **count** ()
- static size_t **get_label** ()
- static size_t & **limit** ()
- static void **set_label** (size_t l)
- static void **set_limit** (const size_t __l)
- static void **throw_conditionally** ()

5.76.1 Detailed Description

template<typename _Tp> struct __gnu_cxx::throw_allocator_limit< _Tp >

Allocator throwing via limit condition.

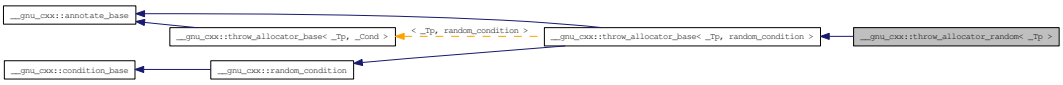
Definition at line 682 of file throw_allocator.h.

The documentation for this struct was generated from the following file:

- throw_allocator.h

5.77 __gnu_cxx::throw_allocator_random< _Tp > Struct Template Reference

Allocator throwing via random condition. Inheritance diagram for __gnu_cxx::throw_allocator_random< _Tp >:



Public Types

- typedef const value_type * **const_pointer**
- typedef const value_type & **const_reference**
- typedef ptrdiff_t **difference_type**
- typedef value_type * **pointer**
- typedef value_type & **reference**
- typedef size_t **size_type**
- typedef _Tp **value_type**

Public Member Functions

- template<typename _Tp1 >
  throw_allocator_random (const throw_allocator_random< _Tp1 > &) throw ()
- **throw_allocator_random** (const throw_allocator_random &) throw ()
- pointer **allocate** (size_type __n, std::allocator< void >::const_pointer hint=0)
- void **check_allocated** (void *p, size_t size)
- void **check_allocated** (size_type __n)
- void **check_allocated** (pointer __p, size_type __n)
- void **construct** (pointer __p, _Args &&...__args)
- void **construct** (pointer __p, const value_type &val)
- void **deallocate** (pointer __p, size_type __n)
- void **destroy** (pointer __p)
- void **erase** (void *p, size_t size)
- void **insert** (void *p, size_t size)
- size_type **max_size** () const throw ()
- void **seed** (unsigned long __s)

Static Public Member Functions

- static size_t **get_label** ()
- static void **set_label** (size_t l)
- static void **set_probability** (double __p)
- static void **throw_conditionally** ()

5.77.1 Detailed Description

template<typename _Tp> struct __gnu_cxx::throw_allocator_random< _Tp >

Allocator throwing via random condition.

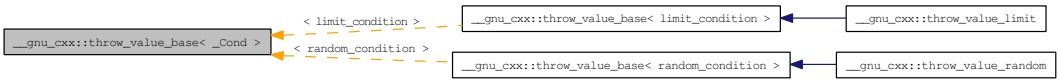
Definition at line 701 of file throw_allocator.h.

The documentation for this struct was generated from the following file:

- throw_allocator.h

5.78 __gnu_cxx::throw_value_base< _Cond > Struct Template Reference

Class with exception generation control. Intended to be used as a value_type in templatized code. Inheritance diagram for __gnu_cxx::throw_value_base< _Cond >:



Public Types

- typedef _Cond **condition_type**

Public Member Functions

- **throw_value_base** (const std::size_t __i)
- **throw_value_base** (const throw_value_base &__v)
- throw_value_base & **operator++** ()
- throw_value_base & **operator=** (const throw_value_base &__v)

Public Attributes

- std::size_t **_M_i**

5.78.1 Detailed Description

template<typename _Cond> struct __gnu_cxx::throw_value_base< _Cond >

Class with exception generation control. Intended to be used as a value_type in templatized code. Note: Destructor not allowed to throw.

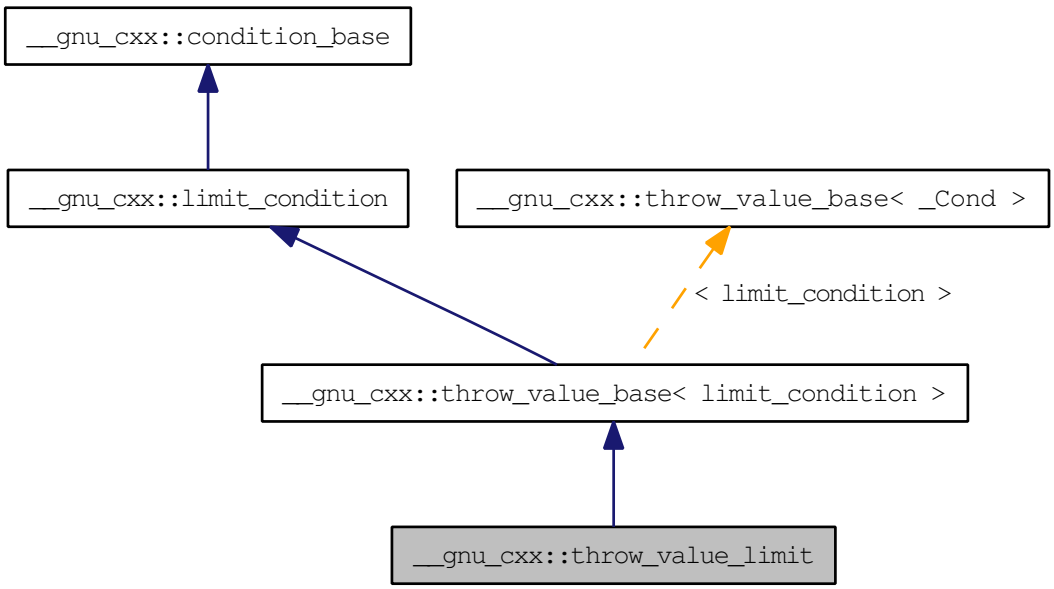
Definition at line 453 of file throw_allocator.h.

The documentation for this struct was generated from the following file:

- throw_allocator.h

5.79 __gnu_cxx::throw_value_limit Struct Reference

Type throwing via limit condition. Inheritance diagram for __gnu_cxx::throw_value_-limit:



Public Types

- typedef throw_value_base< limit_condition > **base_type**
- typedef limit_condition **condition_type**

Public Member Functions

- **throw_value_limit** (const std::size_t __i)
- **throw_value_limit** (const throw_value_limit &__other)
- throw_value_base & **operator++** ()

Static Public Member Functions

- static size_t & **count** ()
- static size_t & **limit** ()
- static void **set_limit** (const size_t __l)
- static void **throw_conditionally** ()

Public Attributes

- std::size_t **_M_i**

5.79.1 Detailed Description

Type throwing via limit condition.

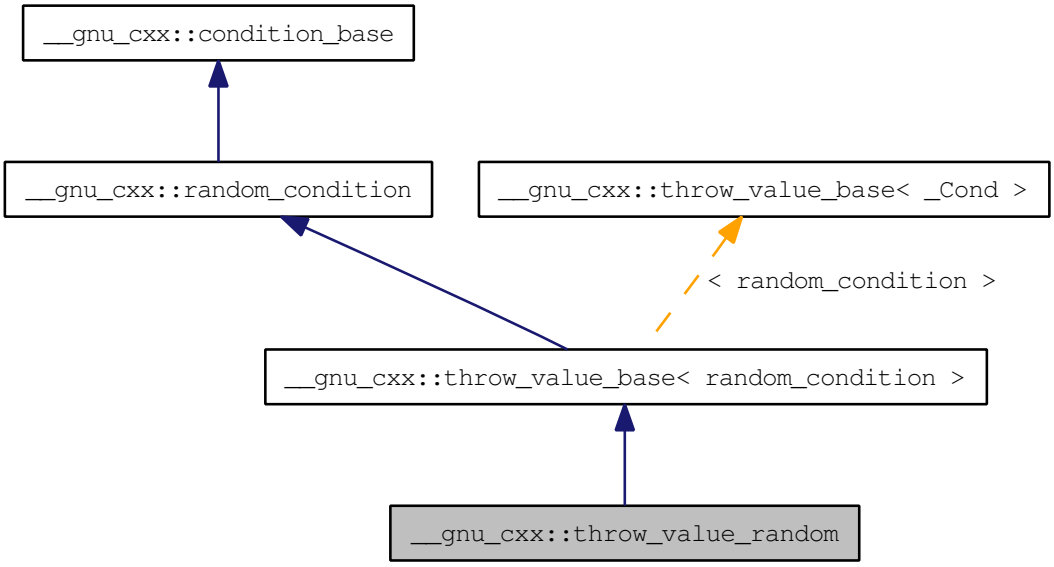
Definition at line 559 of file throw_allocator.h.

The documentation for this struct was generated from the following file:

- throw_allocator.h

5.80 __gnu_cxx::throw_value_random Struct Reference

Type throwing via random condition. Inheritance diagram for __gnu_cxx::throw_value_random:



Public Types

- typedef throw_value_base< random_condition > **base_type**
- typedef random_condition **condition_type**

Public Member Functions

- **throw_value_random** (const std::size_t __i)
- **throw_value_random** (const throw_value_random &__other)
- throw_value_base & **operator++** ()
- void **seed** (unsigned long __s)

Static Public Member Functions

- static void **set_probability** (double __p)
- static void **throw_conditionally** ()

Public Attributes

- std::size_t **_M_i**

5.80.1 Detailed Description

Type throwing via random condition.

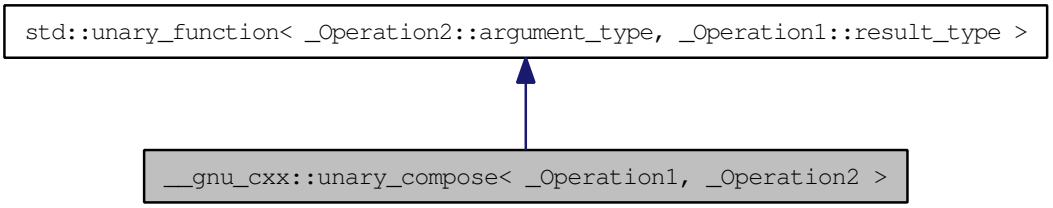
Definition at line 574 of file throw_allocator.h.

The documentation for this struct was generated from the following file:

- throw_allocator.h

5.81 __gnu_cxx::unary_compose< _Operation1, _Operation2 > Class Template Reference

An SGI extension . Inheritance diagram for __gnu_cxx::unary_compose< _Operation1, _Operation2 >:



Public Types

- typedef _Arg argument_type
- typedef _Result result_type

Public Member Functions

- **unary_compose** (const _Operation1 &__x, const _Operation2 &__y)
- _Operation1::result_type **operator()** (const typename _Operation2::argument_type &__x) const

Protected Attributes

- _Operation1 **_M_fn1**
- _Operation2 **_M_fn2**

5.81.1 Detailed Description

template<class _Operation1, class _Operation2> class __gnu_cxx::unary_compose< _Operation1, _Operation2 >

An SGI extension .

Definition at line 125 of file ext/functional.

5.81.2 Member Typedef Documentation

5.81.2.1 template<typename _Arg, typename _Result> typedef _Arg std::unary_function< _Arg, _Result >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.81.2.2 template<typename _Arg, typename _Result> typedef _Result std::unary_function< _Arg, _Result >::result_type [inherited]

`result_type` is the return type

Definition at line 105 of file stl_function.h.

The documentation for this class was generated from the following file:

- ext/functional

5.82 __gnu_debug::__is_same< _Type1, _Type2 > Struct Template Reference

Static Public Attributes

- static const bool **value**

5.82.1 Detailed Description

template<typename _Type1, typename _Type2> struct __gnu_debug::__is_same< _Type1, _Type2 >

Determine if the two types are the same.

Definition at line 43 of file formatter.h.

The documentation for this struct was generated from the following file:

- formatter.h

5.83 __gnu_debug::_After_nth_from< _Iterator > Class Template Reference

Public Member Functions

- **_After_nth_from** (const difference_type &__n, const _Iterator &__base)
- bool **operator()** (const _Iterator &__x) const

5.83.1 Detailed Description

template<typename _Iterator> class __gnu_debug::_After_nth_from< _Iterator >

A function object that returns true when the given random access iterator is at least `n` steps away from the given iterator.

Definition at line 63 of file safe_sequence.h.

The documentation for this class was generated from the following file:

- safe_sequence.h

5.84 __gnu_debug::_Not_equal_to< _Type > Class Template Reference

Public Member Functions

- **_Not_equal_to** (const _Type &__v)
- bool **operator()** (const _Type &__x) const

5.84.1 Detailed Description

template<typename _Type> class __gnu_debug::_Not_equal_to< _Type >

A simple function object that returns true if the passed-in value is not equal to the stored value. It saves typing over using both bind1st and not_equal.

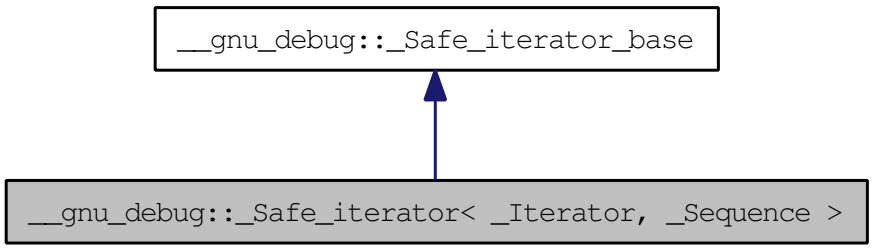
Definition at line 48 of file safe_sequence.h.

The documentation for this class was generated from the following file:

- safe_sequence.h

5.85 __gnu_debug::_Safe_iterator< _Iterator, _Sequence > Class Template Reference

Safe iterator wrapper. Inheritance diagram for __gnu_debug::_Safe_iterator< _Iterator, _Sequence >:



Public Types

- typedef _Iterator **_Base_iterator**
- typedef _Traits::difference_type **difference_type**
- typedef _Traits::iterator_category **iterator_category**
- typedef _Traits::pointer **pointer**
- typedef _Traits::reference **reference**
- typedef _Traits::value_type **value_type**

Public Member Functions

- template<typename _MutableIterator >
  _Safe_iterator (const _Safe_iterator< _MutableIterator, typename __gnu_cxx::__enable_if<(std::__are_same< _MutableIterator, typename _Sequence::iterator::_Base_iterator >::__value), _Sequence >::__type > &__x)
- _Safe_iterator (const _Safe_iterator &__x)
- _Safe_iterator (const _Iterator &__i, const _Sequence *__seq)
- _Safe_iterator ()
- __attribute__ ((__pure__)) bool _M_can_compare(const _Safe_iterator_base &__x) const throw ()
- __attribute__ ((__pure__)) bool _M_singular() const throw ()
- void _M_attach (_Safe_sequence_base *__seq, bool __constant)
- void _M_attach (const _Sequence *__seq)
- void _M_attach_single (_Safe_sequence_base *__seq, bool __constant) throw ()
- void _M_attach_single (const _Sequence *__seq)

- bool _M_attached_to (const _Safe_sequence_base *__seq) const
- bool **_M_can_advance** (const difference_type &__n) const
- bool **_M_decrementable** () const
- bool _M_dereferenceable () const
- void _M_detach ()
- void _M_detach_single () throw ()
- const _Sequence * **_M_get_sequence** () const
- bool _M_incrementable () const
- void _M_invalidate ()
- void _M_invalidate_single ()
- bool _M_is_begin () const
- bool _M_is_end () const
- template<typename _Other >
  bool **_M_valid_range** (const _Safe_iterator< _Other, _Sequence > &__rhs) const
- _Iterator base () const
- operator _Iterator () const
- reference operator* () const
- _Safe_iterator **operator+** (const difference_type &__n) const
- _Safe_iterator operator++ (int)
- _Safe_iterator & operator++ ()
- _Safe_iterator & **operator+=** (const difference_type &__n)
- _Safe_iterator **operator-** (const difference_type &__n) const
- _Safe_iterator operator-- (int)
- _Safe_iterator & operator-- ()
- _Safe_iterator & **operator-=** (const difference_type &__n)
- pointer operator-> () const
- _Safe_iterator & operator= (const _Safe_iterator &__x)
- reference **operator[ ]** (const difference_type &__n) const

Static Public Member Functions

- template<typename _Iterator1 , typename _Iterator2 >
  static std::pair< difference_type, _Distance_precision > **_M_get_distance** (const _Iterator1 &__lhs, const _Iterator2 &__rhs, std::forward_iterator_tag)
- template<typename _Iterator1 , typename _Iterator2 >
  static std::pair< difference_type, _Distance_precision > **_M_get_distance** (const _Iterator1 &__lhs, const _Iterator2 &__rhs, std::random_access_iterator_tag)
- template<typename _Iterator1 , typename _Iterator2 >
  static std::pair< difference_type, _Distance_precision > _M_get_distance (const _Iterator1 &__lhs, const _Iterator2 &__rhs)

Public Attributes

- _Safe_iterator_base * _M_next
- _Safe_iterator_base * _M_prior
- _Safe_sequence_base * _M_sequence
- unsigned int _M_version

Protected Member Functions

- __gnu_cxx::__mutex & _M_get_mutex () throw ()

5.85.1 Detailed Description

template<typename _Iterator, typename _Sequence> class __gnu_debug::_Safe_iterator< _Iterator, _Sequence >

Safe iterator wrapper. The class template _Safe_iterator is a wrapper around an iterator that tracks the iterator's movement among sequences and checks that operations performed on the "safe" iterator are legal. In additional to the basic iterator operations (which are validated, and then passed to the underlying iterator), _Safe_iterator has member functions for iterator invalidation, attaching/detaching the iterator from sequences, and querying the iterator's state.

Definition at line 63 of file safe_iterator.h.

5.85.2 Constructor & Destructor Documentation

5.85.2.1 template<typename _Iterator, typename _Sequence> __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_Safe_iterator () [inline]

Postcondition:

the iterator is singular and unattached

Definition at line 99 of file safe_iterator.h.

5.85.2.2 template<typename _Iterator, typename _Sequence> __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_Safe_iterator (const _Iterator & *__i*, const _Sequence * *__seq*) [inline]

Safe iterator construction from an unsafe iterator and its sequence.

Precondition:

`seq` is not NULL

Postcondition:

this is not singular

Definition at line 108 of file safe_iterator.h.

References _GLIBCXX_DEBUG_VERIFY.

5.85.2.3 template<typename _Iterator, typename _Sequence> __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_Safe_iterator (const _Safe_iterator< _Iterator, _Sequence > & __x) [inline]

Copy construction.

Definition at line 119 of file safe_iterator.h.

References _GLIBCXX_DEBUG_VERIFY.

5.85.2.4 template<typename _Iterator, typename _Sequence> template<typename _MutableIterator > __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_Safe_iterator (const _Safe_iterator< _MutableIterator, typename __gnu_cxx::__enable_if<(std::__are_same< _MutableIterator, typename _Sequence::iterator::_Base_iterator >::__value), _Sequence >::__type > & __x) [inline]

Converting constructor from a mutable iterator to a constant iterator.

Definition at line 136 of file safe_iterator.h.

References _GLIBCXX_DEBUG_VERIFY.

5.85.3 Member Function Documentation

5.85.3.1 __gnu_debug::_Safe_iterator_base::__attribute__ ((__pure__)) const throw () [inherited]

Can we compare this iterator to the given iterator `__x`? Returns true if both iterators are nonsingular and reference the same sequence.

5.85.3.2 __gnu_debug::_Safe_iterator_base::__attribute__ ((__pure__)) const throw () [inherited]

Is this iterator singular?

5.85.3.3 void __gnu_debug::_Safe_iterator_base::_M_attach (_Safe_sequence_base * *__seq*, bool *__constant*) [inherited]

Attaches this iterator to the given sequence, detaching it from whatever sequence it was attached to originally. If the new sequence is the NULL pointer, the iterator is left unattached.

Referenced by __gnu_debug::_Safe_iterator_base::_Safe_iterator_base().

5.85.3.4 template<typename _Iterator, typename _Sequence> void __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_attach (const _Sequence * *__seq*) [inline]

Attach iterator to the given sequence.

Definition at line 321 of file safe_iterator.h.

Referenced by __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::operator=().

5.85.3.5 void __gnu_debug::_Safe_iterator_base::_M_attach_single (_Safe_sequence_base * *__seq*, bool *__constant*) throw () [inherited]

Likewise, but not thread-safe.

5.85.3.6 template<typename _Iterator, typename _Sequence> void __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_attach_single (const _Sequence * *__seq*) [inline]

Likewise, but not thread-safe.

Definition at line 329 of file safe_iterator.h.

5.85.3.7 bool __gnu_debug::_Safe_iterator_base::_M_attached_to (const _Safe_sequence_base * *__seq*) const [inline, inherited]

Determines if we are attached to the given sequence.

Definition at line 130 of file safe_base.h.

References __gnu_debug::_Safe_iterator_base::_M_sequence.

5.85.3.8 template<typename _Iterator, typename _Sequence> bool __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_dereferenceable () const [inline]

Is the iterator dereferenceable?

Definition at line 345 of file safe_iterator.h.

References __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_is_end().

Referenced by __gnu_debug::__check_dereferenceable(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_incrementable(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::operator*(), and __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::operator->().

5.85.3.9 void __gnu_debug::_Safe_iterator_base::_M_detach () [inherited]

Detach the iterator for whatever sequence it is attached to, if any.

5.85.3.10 void __gnu_debug::_Safe_iterator_base::_M_detach_single () throw () [inherited]

Likewise, but not thread-safe.

5.85.3.11 template<typename _Iterator, typename _Sequence> template<typename _Iterator1 , typename _Iterator2 > static std::pair<difference_type, _Distance_precision> __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_get_distance (const _Iterator1 & *__lhs*, const _Iterator2 & *__rhs*) [inline, static]

Determine the distance between two iterators with some known precision.

Definition at line 375 of file safe_iterator.h.

5.85.3.12 __gnu_cxx::__mutex& __gnu_debug::_Safe_iterator_base::_M_get_mutex () throw () [protected, inherited]

For use in _Safe_iterator.

Referenced by __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate().

5.85.3.13 template<typename _Iterator, typename _Sequence> bool __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_incrementable () const [inline]

Is the iterator incrementable?

Definition at line 350 of file safe_iterator.h.

References __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_dereferenceable().

Referenced by __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::operator++().

5.85.3.14 template<typename _Iterator , typename _Sequence > void __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate () [inline]

Invalidate the iterator, making it singular.

Definition at line 106 of file safe_iterator.tcc.

References __gnu_debug::_Safe_iterator_base::_M_get_mutex(), and __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single().

5.85.3.15 template<typename _Iterator , typename _Sequence > void __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single () [inline]

Likewise, but not thread-safe.

Definition at line 115 of file safe_iterator.tcc.

References __gnu_debug::_Safe_sequence_base::_M_const_iterators, __gnu_debug::_Safe_sequence_base::_M_iterators, __gnu_debug::_Safe_iterator_base::_M_next, __gnu_debug::_Safe_iterator_base::_M_sequence, __gnu_debug::_Safe_iterator_base::_M_version, and __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::base().

Referenced by __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate().

5.85.3.16 template<typename _Iterator, typename _Sequence> bool __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_is_begin () const [inline]

Is this iterator equal to the sequence's begin() iterator?

Definition at line 400 of file safe_iterator.h.

References __gnu_debug::_Safe_iterator_base::_M_sequence.

5.85.3.17 template<typename _Iterator, typename _Sequence> bool __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_is_end () const [inline]

Is this iterator equal to the sequence's end() iterator?

Definition at line 404 of file safe_iterator.h.

References __gnu_debug::_Safe_iterator_base::_M_sequence.

Referenced by __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_dereferenceable().

5.85.3.18 template<typename _Iterator, typename _Sequence> _Iterator __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::base () const [inline]

Return the underlying iterator.

Definition at line 311 of file safe_iterator.h.

Referenced by __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.85.3.19 template<typename _Iterator, typename _Sequence> __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::operator _Iterator () const [inline]

Conversion to underlying non-debug iterator to allow better interaction with non-debug containers.

Definition at line 317 of file safe_iterator.h.

5.85.3.20 template<typename _Iterator, typename _Sequence> reference __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::operator* () const [inline]

Iterator dereference.

Precondition:

iterator is dereferenceable

Definition at line 175 of file safe_iterator.h.

References _GLIBCXX_DEBUG_VERIFY, and __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_dereferenceable().

5.85.3.21 template<typename _Iterator, typename _Sequence> _Safe_iterator __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::operator++ (int) [inline]

Iterator postincrement.

Precondition:

iterator is incrementable

Definition at line 218 of file safe_iterator.h.

References _GLIBCXX_DEBUG_VERIFY, and __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_incrementable().

5.85.3.22 template<typename _Iterator, typename _Sequence> _Safe_iterator& __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::operator++ () [inline]

Iterator preincrement.

Precondition:

iterator is incrementable

Definition at line 204 of file safe_iterator.h.

References _GLIBCXX_DEBUG_VERIFY, and __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_incrementable().

5.85.3.23 template<typename _Iterator, typename _Sequence> _Safe_iterator __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::operator-- (int) [inline]

Iterator postdecrement.

Precondition:

iterator is decrementable

Definition at line 248 of file safe_iterator.h.

References _GLIBCXX_DEBUG_VERIFY.

5.85.3.24 template<typename _Iterator, typename _Sequence> _Safe_iterator& __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::operator-- () [inline]

Iterator predecrement.

Precondition:

iterator is decrementable

Definition at line 234 of file safe_iterator.h.

References _GLIBCXX_DEBUG_VERIFY.

5.85.3.25 template<typename _Iterator, typename _Sequence> pointer __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::operator-> () const [inline]

Iterator dereference.

Precondition:

iterator is dereferenceable

Todo

Make this correct w.r.t. iterators that return proxies
Use addressof() instead of & operator

Definition at line 190 of file safe_iterator.h.

References _GLIBCXX_DEBUG_VERIFY, and __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_dereferenceable().

5.85.3.26 template<typename _Iterator, typename _Sequence> _Safe_iterator& __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::operator= (const _Safe_iterator< _Iterator, _Sequence > & __x) [inline]

Copy assignment.

Reimplemented from __gnu_debug::_Safe_iterator_base.

Definition at line 156 of file safe_iterator.h.

References _GLIBCXX_DEBUG_VERIFY, __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_attach(), and __gnu_debug::_Safe_iterator_base::_M_sequence.

5.85.4 Member Data Documentation

5.85.4.1 _Safe_iterator_base* __gnu_debug::_Safe_iterator_base::_M_next [inherited]

Pointer to the next iterator in the sequence's list of iterators. Only valid when _M_sequence != NULL.

Definition at line 73 of file safe_base.h.

Referenced by __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single().

5.85.4.2 _Safe_iterator_base* __gnu_debug::_Safe_iterator_base::_M_prior [inherited]

Pointer to the previous iterator in the sequence's list of iterators. Only valid when _M_sequence != NULL.

Definition at line 69 of file safe_base.h.

5.85.4.3 _Safe_sequence_base* __gnu_debug::_Safe_iterator_base::_M_sequence [inherited]

The sequence this iterator references; may be NULL to indicate a singular iterator.

Definition at line 56 of file safe_base.h.

Referenced by __gnu_debug::_Safe_iterator_base::_M_attached_to(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_is_begin(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_is_end(), __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter(), __gnu_debug::_Safe_iterator_-

base::_Safe_iterator_base(), and __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::operator=().

5.85.4.4 unsigned int __gnu_debug::_Safe_iterator_base::_M_version [inherited]

The version number of this iterator. The sentinel value 0 is used to indicate an invalidated iterator (i.e., one that is singular because of an operation on the container). This version number must equal the version number in the sequence referenced by _M_sequence for the iterator to be non-singular.

Definition at line 65 of file safe_base.h.

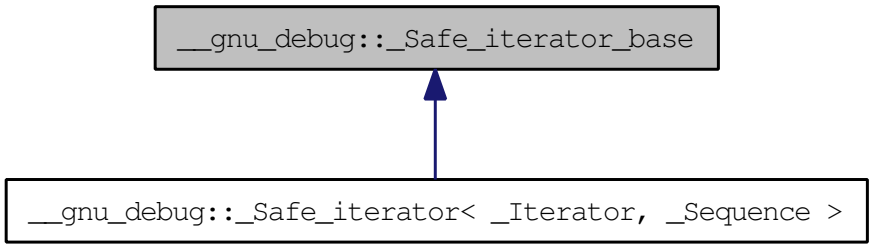
Referenced by __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single().

The documentation for this class was generated from the following files:

- safe_iterator.h
- safe_iterator.tcc

5.86 __gnu_debug::_Safe_iterator_base Class Reference

Basic functionality for a *safe* iterator. Inheritance diagram for __gnu_debug::_Safe_iterator_base:



Public Member Functions

- __attribute__ ((__pure__)) bool _M_can_compare(const _Safe_iterator_base &__x) const throw ()
- __attribute__ ((__pure__)) bool _M_singular() const throw ()
- void _M_attach (_Safe_sequence_base *__seq, bool __constant)
- void _M_attach_single (_Safe_sequence_base *__seq, bool __constant) throw ()
- bool _M_attached_to (const _Safe_sequence_base *__seq) const
- void _M_detach ()
- void _M_detach_single () throw ()

Public Attributes

- _Safe_iterator_base * _M_next
- _Safe_iterator_base * _M_prior
- _Safe_sequence_base * _M_sequence
- unsigned int _M_version

Protected Member Functions

- **_Safe_iterator_base** (const _Safe_iterator_base &)
- _Safe_iterator_base (const _Safe_iterator_base &__x, bool __constant)
- _Safe_iterator_base (const _Safe_sequence_base *__seq, bool __constant)
- _Safe_iterator_base ()
- __gnu_cxx::__mutex & _M_get_mutex () throw ()
- _Safe_iterator_base & **operator=** (const _Safe_iterator_base &)

5.86.1 Detailed Description

Basic functionality for a *safe* iterator. The _Safe_iterator_base base class implements the functionality of a safe iterator that is not specific to a particular iterator type. It contains a pointer back to the sequence it references along with iterator version information and pointers to form a doubly-linked list of iterators referenced by the container.

This class must not perform any operations that can throw an exception, or the exception guarantees of derived iterators will be broken.

Definition at line 51 of file safe_base.h.

5.86.2 Constructor & Destructor Documentation

5.86.2.1 __gnu_debug::_Safe_iterator_base::_Safe_iterator_base () [inline, protected]

Initializes the iterator and makes it singular.

Definition at line 77 of file safe_base.h.

5.86.2.2 __gnu_debug::_Safe_iterator_base::_Safe_iterator_base (const _Safe_sequence_base * *__seq*, bool *__constant*) [inline, protected]

Initialize the iterator to reference the sequence pointed to by . `__constant` is true when we are initializing a constant iterator, and false if it is a mutable iterator. Note that `__seq` may be NULL, in which case the iterator will be singular. Otherwise, the iterator will reference `__seq` and be nonsingular.

Definition at line 88 of file safe_base.h.

References _M_attach().

5.86.2.3 __gnu_debug::_Safe_iterator_base::_Safe_iterator_base (const _Safe_iterator_base & *__x*, bool *__constant*) [inline, protected]

Initializes the iterator to reference the same sequence that `__x` does. `__constant` is true if this is a constant iterator, and false if it is mutable.

Definition at line 95 of file safe_base.h.

References _M_attach(), and _M_sequence.

5.86.3 Member Function Documentation

5.86.3.1 __gnu_debug::_Safe_iterator_base::__attribute__ ((__pure__)) const throw ()

Can we compare this iterator to the given iterator __x? Returns true if both iterators are nonsingular and reference the same sequence.

5.86.3.2 __gnu_debug::_Safe_iterator_base::__attribute__ ((__pure__)) const throw ()

Is this iterator singular?

5.86.3.3 void __gnu_debug::_Safe_iterator_base::_M_attach (_Safe_sequence_base * *__seq*, bool *__constant*)

Attaches this iterator to the given sequence, detaching it from whatever sequence it was attached to originally. If the new sequence is the NULL pointer, the iterator is left unattached.

Referenced by _Safe_iterator_base().

5.86.3.4 void __gnu_debug::_Safe_iterator_base::_M_attach_single (_Safe_sequence_base * *__seq*, bool *__constant*) throw ()

Likewise, but not thread-safe.

5.86.3.5 bool __gnu_debug::_Safe_iterator_base::_M_attached_to (const _Safe_sequence_base * *__seq*) const [inline]

Determines if we are attached to the given sequence.

Definition at line 130 of file safe_base.h.

References _M_sequence.

5.86.3.6 void __gnu_debug::_Safe_iterator_base::_M_detach ()

Detach the iterator for whatever sequence it is attached to, if any.

5.86.3.7 void __gnu_debug::_Safe_iterator_base::_M_detach_single () throw ()

Likewise, but not thread-safe.

5.86.3.8 __gnu_cxx::__mutex& __gnu_debug::_Safe_iterator_base::_M_get_mutex () throw () [protected]

For use in _Safe_iterator.

Referenced by __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate().

5.86.4 Member Data Documentation

5.86.4.1 _Safe_iterator_base* __gnu_debug::_Safe_iterator_base::_M_next

Pointer to the next iterator in the sequence's list of iterators. Only valid when _M_sequence != NULL.

Definition at line 73 of file safe_base.h.

Referenced by __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single().

5.86.4.2 _Safe_iterator_base* __gnu_debug::_Safe_iterator_base::_M_prior

Pointer to the previous iterator in the sequence's list of iterators. Only valid when _M_sequence != NULL.

Definition at line 69 of file safe_base.h.

5.86.4.3 _Safe_sequence_base* __gnu_debug::_Safe_iterator_base::_M_sequence

The sequence this iterator references; may be NULL to indicate a singular iterator.

Definition at line 56 of file safe_base.h.

Referenced by _M_attached_to(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_is_begin(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_is_end(), __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter(), _Safe_iterator_base(), and __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::operator=().

5.86.4.4 unsigned int __gnu_debug::_Safe_iterator_base::_M_version

The version number of this iterator. The sentinel value 0 is used to indicate an invalidated iterator (i.e., one that is singular because of an operation on the container). This version number must equal the version number in the sequence referenced by _M_sequence for the iterator to be non-singular.

Definition at line 65 of file safe_base.h.

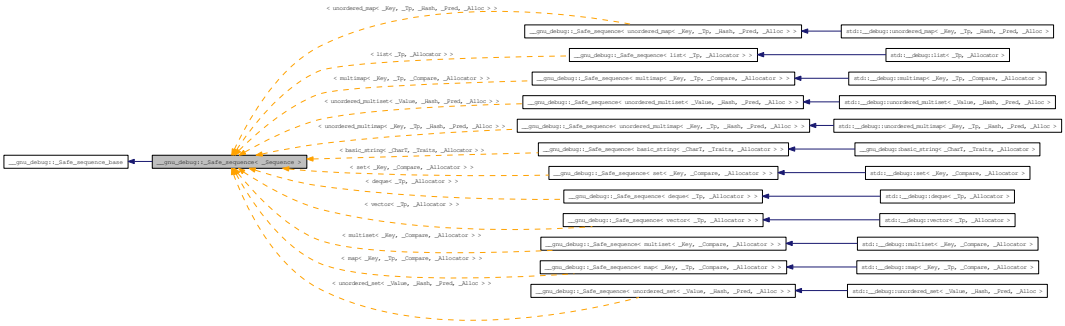
Referenced by __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single().

The documentation for this class was generated from the following file:

- safe_base.h

5.87 __gnu_debug::_Safe_sequence< _Sequence > Class Template Reference

Base class for constructing a *safe* sequence type that tracks iterators that reference it.
Inheritance diagram for __gnu_debug::_Safe_sequence< _Sequence >:



Public Member Functions

- void _M_invalidate_all () const
- template<typename _Predicate >
  void _M_invalidate_if (_Predicate __pred)
- template<typename _Iterator >
  void _M_transfer_iter (const _Safe_iterator< _Iterator, _Sequence > &__x)

Public Attributes

- _Safe_iterator_base * _M_const_iterators
- _Safe_iterator_base * _M_iterators
- unsigned int _M_version

Protected Member Functions

- void _M_detach_all ()
- void _M_detach_singular ()
- __gnu_cxx::__mutex & _M_get_mutex () throw ()
- void _M_revalidate_singular ()
- void _M_swap (_Safe_sequence_base &__x)

5.87.1 Detailed Description

template<typename _Sequence> class __gnu_debug::_Safe_sequence< _Sequence >

Base class for constructing a *safe* sequence type that tracks iterators that reference it. The class template _Safe_sequence simplifies the construction of *safe* sequences that track the iterators that reference the sequence, so that the iterators are notified of changes in the sequence that may affect their operation, e.g., if the container invalidates its iterators or is destructed. This class template may only be used by deriving from it and passing the name of the derived class as its template parameter via the curiously recurring template pattern. The derived class must have `iterator` and types that are instantiations of class template _Safe_iterator for this sequence. Iterators will then be tracked automatically.

Definition at line 97 of file safe_sequence.h.

5.87.2 Member Function Documentation

5.87.2.1 void __gnu_debug::_Safe_sequence_base::_M_detach_all () [protected, inherited]

Detach all iterators, leaving them singular.

5.87.2.2 void __gnu_debug::_Safe_sequence_base::_M_detach_singular () [protected, inherited]

Detach all singular iterators.

Postcondition:

for all iterators i attached to this sequence, i->_M_version == _M_version.

5.87.2.3 __gnu_cxx::__mutex& __gnu_debug::_Safe_sequence_base::_M_get_mutex () throw () [protected, inherited]

For use in _Safe_sequence.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.87.2.4 void __gnu_debug::_Safe_sequence_base::_M_invalidate_all () const [inline, inherited]

Invalidates all iterators.

Definition at line 215 of file safe_base.h.

Referenced by __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::append(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::assign(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::c_str(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::clear(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::data(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator+=(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator=(), and __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::push_back().

5.87.2.5 template<typename _Sequence > template<typename _Predicate > void __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if (_Predicate *__pred*) [inline]

Invalidates all iterators `x` that reference this sequence, are not singular, and for which `pred(x)` returns `true`. The user of this routine should be careful not to make copies of the iterators passed to `pred`, as the copies may interfere with the invalidation.

Definition at line 121 of file safe_sequence.h.

References __gnu_debug::_Safe_sequence_base::_M_const_iterators, __gnu_debug::_Safe_sequence_base::_M_get_mutex(), and __gnu_debug::_Safe_sequence_base::_M_iterators.

5.87.2.6 void __gnu_debug::_Safe_sequence_base::_M_revalidate_singular () [protected, inherited]

Revalidates all attached singular iterators. This method may be used to validate iterators that were invalidated before (but for some reason, such as an exception, need to become valid again).

5.87.2.7 void __gnu_debug::_Safe_sequence_base::_M_swap (_Safe_sequence_base & *__x*) [protected, inherited]

Swap this sequence with the given sequence. This operation also swaps ownership of the iterators, so that when the operation is complete all iterators that originally referenced one container now reference the other container.

5.87.2.8 template<typename _Sequence> template<typename _Iterator > void __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter (const _Safe_iterator< _Iterator, _Sequence > & __x) [inline]

Transfers all iterators that reference this memory location to this sequence from whatever sequence they are attached to.

Definition at line 154 of file safe_sequence.h.

References __gnu_debug::_Safe_sequence_base::_M_const_iterators, __gnu_debug::_Safe_sequence_base::_M_get_mutex(), __gnu_debug::_Safe_sequence_base::_M_iterators, __gnu_debug::_Safe_iterator_base::_M_sequence, and __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::base().

5.87.3 Member Data Documentation

5.87.3.1 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_const_iterators [inherited]

The list of constant iterators that reference this container.

Definition at line 166 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.87.3.2 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_iterators [inherited]

The list of mutable iterators that reference this container.

Definition at line 163 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.87.3.3 unsigned int __gnu_debug::_Safe_sequence_base::_M_version [mutable, inherited]

The container version number. This number may never be 0.

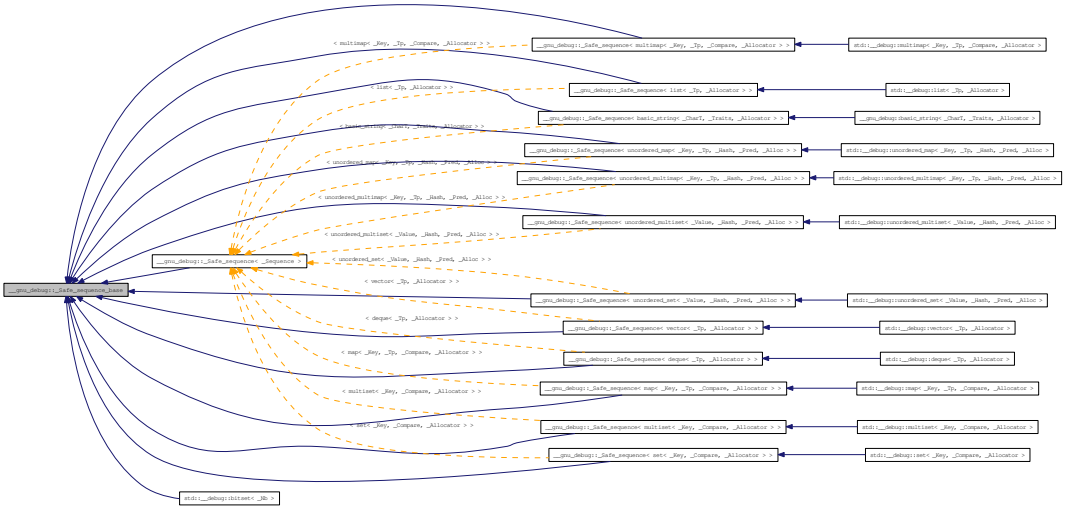
Definition at line 169 of file safe_base.h.

The documentation for this class was generated from the following file:

- safe_sequence.h

5.88 __gnu_debug::_Safe_sequence_base Class Reference

Base class that supports tracking of iterators that reference a sequence. Inheritance diagram for __gnu_debug::_Safe_sequence_base:



Public Member Functions

- void _M_invalidate_all () const

Public Attributes

- _Safe_iterator_base * _M_const_iterators
- _Safe_iterator_base * _M_iterators
- unsigned int _M_version

Protected Member Functions

- ~_Safe_sequence_base ()
- void _M_detach_all ()
- void _M_detach_singular ()
- __gnu_cxx::__mutex & _M_get_mutex () throw ()
- void _M_revalidate_singular ()
- void _M_swap (_Safe_sequence_base &__x)

5.88.1 Detailed Description

Base class that supports tracking of iterators that reference a sequence. The _Safe_sequence_base class provides basic support for tracking iterators into a sequence. Sequences that track iterators must derived from _Safe_sequence_base publicly, so that safe iterators (which inherit _Safe_iterator_base) can attach to them. This class contains two linked lists of iterators, one for constant iterators and one for mutable iterators, and a version number that allows very fast invalidation of all iterators that reference the container.

This class must ensure that no operation on it may throw an exception, otherwise *safe* sequences may fail to provide the exception-safety guarantees required by the C++ standard.

Definition at line 159 of file safe_base.h.

5.88.2 Constructor & Destructor Documentation

5.88.2.1 __gnu_debug::_Safe_sequence_base::~_Safe_sequence_base () [inline, protected]

Notify all iterators that reference this sequence that the sequence is being destroyed.

Definition at line 179 of file safe_base.h.

5.88.3 Member Function Documentation

5.88.3.1 void __gnu_debug::_Safe_sequence_base::_M_detach_all () [protected]

Detach all iterators, leaving them singular.

5.88.3.2 void __gnu_debug::_Safe_sequence_base::_M_detach_singular () [protected]

Detach all singular iterators.

Postcondition:

for all iterators i attached to this sequence, i->_M_version == _M_version.

5.88.3.3 __gnu_cxx::__mutex& __gnu_debug::_Safe_sequence_base::_M_get_mutex () throw () [protected]

For use in _Safe_sequence.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.88.3.4 void __gnu_debug::_Safe_sequence_base::_M_invalidate_all () const [inline]

Invalidates all iterators.

Definition at line 215 of file safe_base.h.

Referenced by __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::append(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::assign(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::c_str(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::clear(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::data(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator+=(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator=(), and __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::push_back().

5.88.3.5 void __gnu_debug::_Safe_sequence_base::_M_revalidate_singular () [protected]

Revalidates all attached singular iterators. This method may be used to validate iterators that were invalidated before (but for some reason, such as an exception, need to become valid again).

5.88.3.6 void __gnu_debug::_Safe_sequence_base::_M_swap (_Safe_sequence_base & *__x*) [protected]

Swap this sequence with the given sequence. This operation also swaps ownership of the iterators, so that when the operation is complete all iterators that originally referenced one container now reference the other container.

5.88.4 Member Data Documentation

5.88.4.1 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_const_iterators

The list of constant iterators that reference this container.

Definition at line 166 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.88.4.2 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_iterators

The list of mutable iterators that reference this container.

Definition at line 163 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.88.4.3 unsigned int __gnu_debug::_Safe_sequence_base::_M_version [mutable]

The container version number. This number may never be 0.

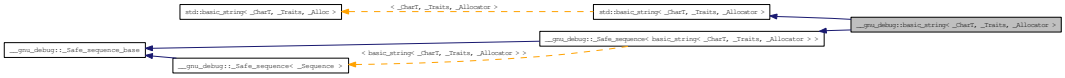
Definition at line 169 of file safe_base.h.

The documentation for this class was generated from the following file:

- safe_base.h

5.89 __gnu_debug::basic_string< _CharT, _Traits, _Allocator > Class Template Reference

Class std::basic_string with safety/checking/debug instrumentation. Inheritance diagram for __gnu_debug::basic_string< _CharT, _Traits, _Allocator >:



Public Types

- typedef _Allocator **allocator_type**
- typedef __gnu_debug::_Safe_iterator< typename _Base::const_iterator, basic_string > **const_iterator**
- typedef _Base::const_pointer **const_pointer**
- typedef _Base::const_reference **const_reference**
- typedef std::reverse_iterator< const_iterator > **const_reverse_iterator**
- typedef _Base::difference_type **difference_type**
- typedef __gnu_debug::_Safe_iterator< typename _Base::iterator, basic_string > **iterator**
- typedef _Base::pointer **pointer**
- typedef _Base::reference **reference**
- typedef std::reverse_iterator< iterator > **reverse_iterator**
- typedef _Base::size_type **size_type**
- typedef _Traits **traits_type**
- typedef _Traits::char_type **value_type**

Public Member Functions

- basic_string (std::initializer_list< _CharT > __l, const _Allocator &__a=_Allocator())
- **basic_string** (basic_string &&__str)
- template<typename _InputIterator >
  basic_string (_InputIterator __begin, _InputIterator __end, const _Allocator &__a=_Allocator())
- **basic_string** (size_type __n, _CharT __c, const _Allocator &__a=_Allocator())
- basic_string (const _CharT *__s, const _Allocator &__a=_Allocator())
- **basic_string** (const _CharT *__s, size_type __n, const _Allocator &__a=_Allocator())

- **basic_string** (const basic_string &__str, size_type __pos, size_type __n=_-Base::npos, const _Allocator &__a=_Allocator())
- **basic_string** (const basic_string &__str)
- **basic_string** (const _Base &__base)
- basic_string (const _Allocator &__a=_Allocator())
- ~basic_string ()
- const _Base & **_M_base** () const
- _Base & **_M_base** ()
- void _M_invalidate_all () const
- void _M_invalidate_if (_Predicate __pred)
- void _M_transfer_iter (const _Safe_iterator< _Iterator, basic_string< _CharT, _Traits, _Allocator > > &__x)
- basic_string & append (initializer_list< _CharT > __l)
- basic_string & append (size_type __n, _CharT __c)
- basic_string & append (const _CharT *__s, size_type __n)
- basic_string & append (const basic_string &__str, size_type __pos, size_type __n)
- basic_string & append (const basic_string &__str)
- template<typename _InputIterator >
  basic_string & append (_InputIterator __first, _InputIterator __last)
- basic_string & **append** (size_type __n, _CharT __c)
- basic_string & append (const _CharT *__s)
- basic_string & **append** (const _CharT *__s, size_type __n)
- basic_string & **append** (const basic_string &__str, size_type __pos, size_type __n)
- basic_string & **append** (const basic_string &__str)
- basic_string & assign (size_type __n, _CharT __c)
- basic_string & assign (const _CharT *__s, size_type __n)
- basic_string & assign (const basic_string &__str, size_type __pos, size_type _-_n)
- basic_string & assign (basic_string &&__str)
- basic_string & assign (const basic_string &__str)
- basic_string & assign (std::initializer_list< _CharT > __l)
- template<typename _InputIterator >
  basic_string & assign (_InputIterator __first, _InputIterator __last)
- basic_string & **assign** (size_type __n, _CharT __c)
- basic_string & assign (const _CharT *__s)
- basic_string & **assign** (const _CharT *__s, size_type __n)
- basic_string & **assign** (const basic_string &__str, size_type __pos, size_type _-_n)
- basic_string & **assign** (basic_string &&__x)
- basic_string & **assign** (const basic_string &__x)
- reference at (size_type __n)

- const_reference at (size_type __n) const
- const_iterator begin () const
- iterator begin ()
- const _CharT * c_str () const
- size_type capacity () const
- const_iterator cbegin () const
- const_iterator cend () const
- void clear ()
- int compare (size_type __pos, size_type __n1, const _CharT *__s, size_type _-_n2) const
- int compare (size_type __pos, size_type __n1, const _CharT *__s) const
- int compare (size_type __pos1, size_type __n1, const basic_string &__str, size_-type __pos2, size_type __n2) const
- int compare (size_type __pos, size_type __n, const basic_string &__str) const
- int compare (const basic_string &__str) const
- int **compare** (size_type __pos1, size_type __n1, const _CharT *__s, size_type __n2) const
- int **compare** (size_type __pos1, size_type __n1, const _CharT *__s) const
- int compare (const _CharT *__s) const
- int **compare** (size_type __pos1, size_type __n1, const basic_string &__str, size_type __pos2, size_type __n2) const
- int **compare** (size_type __pos1, size_type __n1, const basic_string &__str) const

- int **compare** (const basic_string &__str) const
- size_type copy (_CharT *__s, size_type __n, size_type __pos=0) const
- size_type **copy** (_CharT *__s, size_type __n, size_type __pos=0) const
- const_reverse_iterator crbegin () const
- const_reverse_iterator crend () const
- const _CharT * data () const
- bool empty () const
- const_iterator end () const
- iterator end ()
- iterator erase (iterator __first, iterator __last)
- iterator erase (iterator __position)
- basic_string & erase (size_type __pos=0, size_type __n=npos)
- iterator **erase** (iterator __first, iterator __last)
- iterator **erase** (iterator __position)
- basic_string & **erase** (size_type __pos=0, size_type __n=_Base::npos)
- size_type find (_CharT__c, size_type __pos=0) const
- size_type find (const _CharT *__s, size_type __pos=0) const
- size_type find (const basic_string &__str, size_type __pos=0) const
- size_type find (const _CharT *__s, size_type __pos, size_type __n) const
- size_type **find** (_CharT __c, size_type __pos=0) const

- size_type **find** (const _CharT *__s, size_type __pos=0) const
- size_type **find** (const _CharT *__s, size_type __pos, size_type __n) const
- size_type **find** (const basic_string &__str, size_type __pos=0) const
- size_type find_first_not_of (_CharT__c, size_type __pos=0) const
- size_type find_first_not_of (const _CharT *__s, size_type __pos=0) const
- size_type find_first_not_of (const _CharT *__s, size_type __pos, size_type __n) const
- size_type find_first_not_of (const basic_string &__str, size_type __pos=0) const
- size_type **find_first_not_of** (_CharT __c, size_type __pos=0) const
- size_type **find_first_not_of** (const _CharT *__s, size_type __pos=0) const
- size_type **find_first_not_of** (const _CharT *__s, size_type __pos, size_type __n) const
- size_type **find_first_not_of** (const basic_string &__str, size_type __pos=0) const
- size_type find_first_of (_CharT__c, size_type __pos=0) const
- size_type find_first_of (const _CharT *__s, size_type __pos=0) const
- size_type find_first_of (const _CharT *__s, size_type __pos, size_type __n) const
- size_type find_first_of (const basic_string &__str, size_type __pos=0) const
- size_type **find_first_of** (_CharT __c, size_type __pos=0) const
- size_type **find_first_of** (const _CharT *__s, size_type __pos=0) const
- size_type **find_first_of** (const _CharT *__s, size_type __pos, size_type __n) const
- size_type **find_first_of** (const basic_string &__str, size_type __pos=0) const
- size_type find_last_not_of (_CharT__c, size_type __pos=npos) const
- size_type find_last_not_of (const _CharT *__s, size_type __pos=npos) const
- size_type find_last_not_of (const _CharT *__s, size_type __pos, size_type __n) const
- size_type find_last_not_of (const basic_string &__str, size_type __pos=npos) const
- size_type **find_last_not_of** (_CharT __c, size_type __pos=_Base::npos) const
- size_type **find_last_not_of** (const _CharT *__s, size_type __pos=_Base::npos) const
- size_type **find_last_not_of** (const _CharT *__s, size_type __pos, size_type __n) const
- size_type **find_last_not_of** (const basic_string &__str, size_type __pos=_Base::npos) const
- size_type find_last_of (_CharT__c, size_type __pos=npos) const
- size_type find_last_of (const _CharT *__s, size_type __pos=npos) const
- size_type find_last_of (const _CharT *__s, size_type __pos, size_type __n) const
- size_type find_last_of (const basic_string &__str, size_type __pos=npos) const
- size_type **find_last_of** (_CharT __c, size_type __pos=_Base::npos) const

- size_type **find_last_of** (const _CharT *__s, size_type __pos=_Base::npos) const
- size_type **find_last_of** (const _CharT *__s, size_type __pos, size_type __n) const
- size_type **find_last_of** (const basic_string &__str, size_type __pos=_Base::npos) const
- allocator_type get_allocator () const
- iterator insert (iterator __p, _CharT __c)
- basic_string & insert (size_type __pos, size_type __n, _CharT __c)
- basic_string & insert (size_type __pos, const _CharT *__s)
- basic_string & insert (size_type __pos, const _CharT *__s, size_type __n)
- basic_string & insert (size_type __pos1, const basic_string &__str, size_type __pos2, size_type __n)
- basic_string & insert (size_type __pos1, const basic_string &__str)
- void insert (iterator __p, initializer_list< _CharT > __l)
- void insert (iterator __p, _InputIterator __beg, _InputIterator __end)
- void insert (iterator __p, size_type __n, _CharT __c)
- void **insert** (iterator __p, std::initializer_list< _CharT > __l)
- template<typename _InputIterator >
  void **insert** (iterator __p, _InputIterator __first, _InputIterator __last)
- void **insert** (iterator __p, size_type __n, _CharT __c)
- iterator **insert** (iterator __p, _CharT __c)
- basic_string & **insert** (size_type __pos, size_type __n, _CharT __c)
- basic_string & **insert** (size_type __pos, const _CharT *__s)
- basic_string & **insert** (size_type __pos, const _CharT *__s, size_type __n)
- basic_string & **insert** (size_type __pos1, const basic_string &__str, size_type __pos2, size_type __n)
- basic_string & **insert** (size_type __pos1, const basic_string &__str)
- size_type length () const
- size_type max_size () const
- basic_string & operator+= (const basic_string &__str)
- basic_string & operator+= (std::initializer_list< _CharT > __l)
- basic_string & operator+= (_CharT __c)
- basic_string & operator+= (const _CharT *__s)
- basic_string & **operator+=** (const basic_string &__str)
- basic_string & operator= (std::initializer_list< _CharT > __l)
- basic_string & **operator=** (basic_string &&__str)
- basic_string & operator= (_CharT __c)
- basic_string & operator= (const _CharT *__s)
- basic_string & **operator=** (const basic_string &__str)
- reference operator[ ] (size_type __pos)
- const_reference operator[ ] (size_type __pos) const
- reference **operator[ ]** (size_type __pos)

- const_reference **operator[ ]** (size_type __pos) const
- void push_back (_CharT __c)
- const_reverse_iterator rbegin () const
- reverse_iterator rbegin ()
- const_reverse_iterator rend () const
- reverse_iterator rend ()
- basic_string & replace (iterator __i1, iterator __i2, initializer_list< _CharT > __l)
- basic_string & **replace** (iterator __i1, iterator __i2, iterator __k1, iterator __k2)
- basic_string & **replace** (iterator __i1, iterator __i2, const _CharT *__k1, const _CharT *__k2)
- basic_string & **replace** (iterator __i1, iterator __i2, _CharT *__k1, _CharT *__k2)
- basic_string & replace (iterator __i1, iterator __i2, _InputIterator __k1, _InputIterator __k2)
- basic_string & replace (iterator __i1, iterator __i2, size_type __n, _CharT__c)
- basic_string & replace (iterator __i1, iterator __i2, const _CharT *__s)
- basic_string & replace (iterator __i1, iterator __i2, const _CharT *__s, size_type __n)
- basic_string & replace (iterator __i1, iterator __i2, const basic_string &__str)
- basic_string & replace (size_type __pos, size_type __n1, size_type __n2, _CharT__c)
- basic_string & replace (size_type __pos, size_type __n1, const _CharT *__s)
- basic_string & replace (size_type __pos, size_type __n1, const _CharT *__s, size_type __n2)
- basic_string & replace (size_type __pos1, size_type __n1, const basic_string &__str, size_type __pos2, size_type __n2)
- basic_string & replace (size_type __pos, size_type __n, const basic_string &__str)
- basic_string & **replace** (iterator __i1, iterator __i2, std::initializer_list< _CharT > __l)
- template<typename _InputIterator >
  basic_string & **replace** (iterator __i1, iterator __i2, _InputIterator __j1, _InputIterator __j2)
- basic_string & **replace** (iterator __i1, iterator __i2, size_type __n, _CharT __c)
- basic_string & **replace** (iterator __i1, iterator __i2, const _CharT *__s)
- basic_string & **replace** (iterator __i1, iterator __i2, const _CharT *__s, size_type __n)
- basic_string & **replace** (iterator __i1, iterator __i2, const basic_string &__str)
- basic_string & **replace** (size_type __pos, size_type __n1, size_type __n2, _CharT __c)
- basic_string & **replace** (size_type __pos, size_type __n1, const _CharT *__s)
- basic_string & **replace** (size_type __pos, size_type __n1, const _CharT *__s, size_type __n2)

- basic_string & **replace** (size_type __pos1, size_type __n1, const basic_string &__str, size_type __pos2, size_type __n2)
- basic_string & **replace** (size_type __pos1, size_type __n1, const basic_string &__str)
- void reserve (size_type __res_arg=0)
- void resize (size_type __n)
- void resize (size_type __n, _CharT __c)
- void **resize** (size_type __n)
- void **resize** (size_type __n, _CharT __c)
- size_type rfind (_CharT __c, size_type __pos=npos) const
- size_type rfind (const _CharT *__s, size_type __pos=npos) const
- size_type rfind (const _CharT *__s, size_type __pos, size_type __n) const
- size_type rfind (const basic_string &__str, size_type __pos=npos) const
- size_type **rfind** (_CharT __c, size_type __pos=_Base::npos) const
- size_type **rfind** (const _CharT *__s, size_type __pos=_Base::npos) const
- size_type **rfind** (const _CharT *__s, size_type __pos, size_type __n) const
- size_type **rfind** (const basic_string &__str, size_type __pos=_Base::npos) const

- void shrink_to_fit ()
- size_type size () const
- basic_string substr (size_type __pos=0, size_type __n=npos) const
- basic_string **substr** (size_type __pos=0, size_type __n=_Base::npos) const
- void swap (basic_string &__s)
- void **swap** (basic_string< _CharT, _Traits, _Allocator > &__x)

Public Attributes

- _Safe_iterator_base * _M_const_iterators
- _Safe_iterator_base * _M_iterators
- unsigned int _M_version

Static Public Attributes

- static const size_type npos

Protected Member Functions

- void _M_detach_all ()
- void _M_detach_singular ()
- __gnu_cxx::__mutex & _M_get_mutex () throw ()
- void _M_revalidate_singular ()
- void _M_swap (_Safe_sequence_base &__x)

5.89.1 Detailed Description

template<typename _CharT, typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> class __gnu_debug::basic_string< _CharT, _Traits, _Allocator >

Class std::basic_string with safety/checking/debug instrumentation.

Definition at line 42 of file debug/string.

5.89.2 Constructor & Destructor Documentation

5.89.2.1 template<typename _CharT , typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::basic_string (const _Allocator & __a = _Allocator()) [inline, explicit]

Construct an empty string using allocator *a*.

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 73 of file debug/string.

5.89.2.2 template<typename _CharT , typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::basic_string (const _CharT * __s, const _Allocator & __a = _Allocator()) [inline]

Construct string as copy of a C string.

Parameters:

s Source C string.

a Allocator to use (default is default allocator).

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 99 of file debug/string.

5.89.2.3 template<typename _CharT , typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> template<typename _InputIterator > __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::basic_string (_InputIterator *__beg*, _InputIterator *__end*, const _Allocator & *__a* = `_Allocator()`) `[inline]`

Construct string as copy of a range.

Parameters:

beg Start of range.

end End of range.

a Allocator to use (default is default allocator).

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 109 of file debug/string.

5.89.2.4 template<typename _CharT , typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::basic_string (std::initializer_list< _CharT > *__l*, const _Allocator & *__a* = `_Allocator()`) `[inline]`

Construct string from an initializer list.

Parameters:

l std::initializer_list of characters.

a Allocator to use (default is default allocator).

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 119 of file debug/string.

5.89.2.5 template<typename _CharT , typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::~basic_string () `[inline]`

Destroy the string instance.

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 125 of file debug/string.

5.89.3 Member Function Documentation

5.89.3.1 void __gnu_debug::_Safe_sequence_base::_M_detach_all () [protected, inherited]

Detach all iterators, leaving them singular.

5.89.3.2 void __gnu_debug::_Safe_sequence_base::_M_detach_singular () [protected, inherited]

Detach all singular iterators.

Postcondition:

for all iterators i attached to this sequence, i->_M_version == _M_version.

5.89.3.3 __gnu_cxx::__mutex& __gnu_debug::_Safe_sequence_base::_M_get_mutex () throw () [protected, inherited]

For use in _Safe_sequence.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.89.3.4 void __gnu_debug::_Safe_sequence_base::_M_invalidate_all () const [inline, inherited]

Invalidates all iterators.

Definition at line 215 of file safe_base.h.

Referenced by __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::append(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::assign(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::c_str(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::clear(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::data(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator+=(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator=(), and __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::push_back().

5.89.3.5 void __gnu_debug::_Safe_sequence< basic_string< _CharT, _Traits, _Allocator > >::_M_invalidate_if (_Predicate __pred) [inline, inherited]

Invalidates all iterators `x` that reference this sequence, are not singular, and for which `pred(x)` returns `true`. The user of this routine should be careful not to make copies of the iterators passed to `pred`, as the copies may interfere with the invalidation.

5.89.3.6 void __gnu_debug::_Safe_sequence_base::_M_revalidate_singular () [protected, inherited]

Revalidates all attached singular iterators. This method may be used to validate iterators that were invalidated before (but for some reason, such as an exception, need to become valid again).

5.89.3.7 void __gnu_debug::_Safe_sequence_base::_M_swap (_Safe_sequence_base & __x) [protected, inherited]

Swap this sequence with the given sequence. This operation also swaps ownership of the iterators, so that when the operation is complete all iterators that originally referenced one container now reference the other container.

5.89.3.8 void __gnu_debug::_Safe_sequence< basic_string< _CharT, _Traits, _Allocator > >::_M_transfer_iter (const _Safe_iterator< _Iterator, basic_string< _CharT, _Traits, _Allocator > > & __x) [inline, inherited]

Transfers all iterators that reference this memory location to this sequence from whatever sequence they are attached to.

5.89.3.9 basic_string& std::basic_string< _CharT , _Traits , _Allocator >::append (initializer_list< _CharT > __l) [inline, inherited]

Append an initializer_list of characters.

Parameters:

l The initializer_list of characters to append.

Returns:

Reference to this string.

Definition at line 977 of file basic_string.h.

5.89.3.10 basic_string& std::basic_string< _CharT , _Traits , _Allocator >::append (size_type __n, _CharT __c) [inherited]

Append multiple characters.

Parameters:

n The number of characters to append.

c The character to use.

Returns:

Reference to this string.

Appends n copies of c to this string.

5.89.3.11 basic_string& std::basic_string< _CharT , _Traits , _Allocator >::append (const _CharT * __s, size_type __n) [inherited]

Append a C substring.

Parameters:

s The C string to append.

n The number of characters to append.

Returns:

Reference to this string.

5.89.3.12 basic_string& std::basic_string< _CharT , _Traits , _Allocator >::append (const basic_string< _CharT, _Traits, _Allocator > & __str, size_type __pos, size_type __n) [inherited]

Append a substring.

Parameters:

str The string to append.

pos Index of the first character of str to append.

n The number of characters to append.

Returns:

Reference to this string.

Exceptions:

std::out_of_range if *pos* is not a valid index.

This function appends *n* characters from *str* starting at *pos* to this string. If *n* is is larger than the number of available characters in *str*, the remainder of *str* is appended.

5.89.3.13 basic_string& std::basic_string< _CharT , _Traits , _Allocator >::append (const basic_string< _CharT, _Traits, _Allocator > & *__str*) [inherited]

Append a string to this string.

Parameters:

str The string to append.

Returns:

Reference to this string.

Referenced by __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::append().

5.89.3.14 template<typename _CharT , typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> template<typename _InputIterator > basic_string& __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::append (_InputIterator *__first*, _InputIterator *__last*) [inline]

Append a range of characters.

Parameters:

first Iterator referencing the first character to append.

last Iterator marking the end of the range.

Returns:

Reference to this string.

Appends characters in the range [first,last) to this string.

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 345 of file debug/string.

References __gnu_debug::_Safe_sequence_base::_M_invalidate_all(), and std::basic_string< _CharT, _Traits, _Allocator >::append().

5.89.3.15 template<typename _CharT , typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> basic_string& __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::append (const _CharT * __s) [inline]

Append a C string.

Parameters:

s The C string to append.

Returns:

Reference to this string.

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 327 of file debug/string.

References __gnu_debug::_Safe_sequence_base::_M_invalidate_all(), and std::basic_string< _CharT, _Traits, _Allocator >::append().

5.89.3.16 basic_string& std::basic_string< _CharT , _Traits , _Allocator >::assign (size_type __n, _CharT __c) [inline, inherited]

Set value to multiple characters.

Parameters:

n Length of the resulting string.

c The character to use.

Returns:

Reference to this string.

This function sets the value of this string to *n* copies of character *c*.

Definition at line 1090 of file basic_string.h.

5.89.3.17 basic_string& std::basic_string< _CharT , _Traits , _Allocator >::assign (const _CharT * __s, size_type __n) [inherited]

Set value to a C substring.

Parameters:

s The C string to use.

n Number of characters to use.

Returns:

Reference to this string.

This function sets the value of this string to the first *n* characters of *s*. If *n* is is larger than the number of available characters in *s*, the remainder of *s* is used.

5.89.3.18 basic_string& std::basic_string< _CharT , _Traits , _Allocator >::assign (const basic_string< _CharT, _Traits, _Allocator > & *__str*, size_type *__pos*, size_type *__n*) [inline, inherited]

Set value to a substring of a string.

Parameters:

str The string to use.

pos Index of the first character of str.

n Number of characters to use.

Returns:

Reference to this string.

Exceptions:

std::out_of_range if *pos* is not a valid index.

This function sets this string to the substring of *str* consisting of *n* characters at *pos*. If *n* is is larger than the number of available characters in *str*, the remainder of *str* is used.

Definition at line 1046 of file basic_string.h.

5.89.3.19 basic_string& std::basic_string< _CharT , _Traits , _Allocator >::assign (basic_string< _CharT, _Traits, _Allocator > && *__str*) [inline, inherited]

Set value to contents of another string.

Parameters:

str Source string to use.

Returns:

Reference to this string.

This function sets this string to the exact contents of *str*. *str* is a valid, but unspecified string.

Definition at line 1026 of file basic_string.h.

5.89.3.20 basic_string& std::basic_string< _CharT , _Traits , _Allocator >::assign (const basic_string< _CharT, _Traits, _Allocator > & *__str*) [inherited]

Set value to contents of another string.

Parameters:

str Source string to use.

Returns:

Reference to this string.

Referenced by __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::assign().

5.89.3.21 template<typename _CharT , typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> basic_string& __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::assign (std::initializer_list< _CharT > *__l*) [inline]

Set value to an initializer_list of characters.

Parameters:

l The initializer_list of characters to assign.

Returns:

Reference to this string.

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 426 of file debug/string.

References __gnu_debug::_Safe_sequence_base::_M_invalidate_all(), and std::basic_string< _CharT, _Traits, _Allocator >::assign().

5.89.3.22 template<typename _CharT , typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> template<typename _InputIterator > basic_string& __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::assign (_InputIterator *__first*, _InputIterator *__last*) [inline]

Set value to a range of characters.

Parameters:

first Iterator referencing the first character to append.

last Iterator marking the end of the range.

Returns:

Reference to this string.

Sets value of string to characters in the range [first,last).

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 416 of file debug/string.

References __gnu_debug::_Safe_sequence_base::_M_invalidate_all(), and std::basic_string< _CharT, _Traits, _Allocator >::assign().

5.89.3.23 template<typename _CharT , typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> basic_string& __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::assign (const _CharT * *__s*) [inline]

Set value to contents of a C string.

Parameters:

s The C string to use.

Returns:

Reference to this string.

This function sets the value of this string to the value of *s*. The data is copied, so there is no dependence on *s* once the function returns.

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 398 of file debug/string.

References __gnu_debug::_Safe_sequence_base::_M_invalidate_all(), and std::basic_string< _CharT, _Traits, _Allocator >::assign().

5.89.3.24 reference std::basic_string< _CharT , _Traits , _Allocator >::at (size_type __n) [inline, inherited]

Provides access to the data contained in the string.

Parameters:

n The index of the character to access.

Returns:

Read/write reference to the character.

Exceptions:

std::out_of_range If *n* is an invalid index.

This function provides for safer data access. The parameter is first checked that it is in the range of the string. The function throws out_of_range if the check fails. Success results in unsharing the string.

Definition at line 865 of file basic_string.h.

5.89.3.25 const_reference std::basic_string< _CharT , _Traits , _Allocator >::at (size_type __n) const [inline, inherited]

Provides access to the data contained in the string.

Parameters:

n The index of the character to access.

Returns:

Read-only (const) reference to the character.

Exceptions:

std::out_of_range If *n* is an invalid index.

This function provides for safer data access. The parameter is first checked that it is in the range of the string. The function throws out_of_range if the check fails.

Definition at line 846 of file basic_string.h.

5.89.3.26 template<typename _CharT , typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> const_iterator __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::begin () const [inline]

Returns a read-only (constant) iterator that points to the first character in the string.

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 176 of file debug/string.

References std::basic_string< _CharT, _Traits, _Allocator >::begin().

5.89.3.27 template<typename _CharT , typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> iterator __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::begin () [inline]

Returns a read/write iterator that points to the first character in the string. Unshares the string.

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 172 of file debug/string.

References std::basic_string< _CharT, _Traits, _Allocator >::begin().

Referenced by __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::rend().

5.89.3.28 template<typename _CharT , typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> const _CharT* __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::c_str () const [inline]

Return const pointer to null-terminated contents. This is a handle to internal data. Do not modify or dire things may happen.

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 664 of file debug/string.

References __gnu_debug::_Safe_sequence_base::_M_invalidate_all(), and std::basic_string< _CharT, _Traits, _Allocator >::c_str().

5.89.3.29 size_type std::basic_string< _CharT , _Traits , _Allocator >::capacity () const [inline, inherited]

Returns the total number of characters that the string can hold before needing to allocate more memory.

Definition at line 758 of file basic_string.h.

5.89.3.30 const_iterator std::basic_string< _CharT , _Traits , _Allocator >::cbegin () const [inline, inherited]

Returns a read-only (constant) iterator that points to the first character in the string.

Definition at line 665 of file basic_string.h.

5.89.3.31 const_iterator std::basic_string< _CharT , _Traits , _Allocator >::cend () const [inline, inherited]

Returns a read-only (constant) iterator that points one past the last character in the string.

Definition at line 673 of file basic_string.h.

5.89.3.32 template<typename _CharT , typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> void __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::clear () [inline]

Erases the string, making it empty.

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 227 of file debug/string.

References __gnu_debug::_Safe_sequence_base::_M_invalidate_all(), and std::basic_string< _CharT, _Traits, _Allocator >::clear().

5.89.3.33 int std::basic_string< _CharT , _Traits , _Allocator >::compare (size_type *__pos*, size_type *__n1*, const _CharT * *__s*, size_type *__n2*) const [inherited]

Compare substring against a character array.

Parameters:

pos1 Index of first character of substring.

n1 Number of characters in substring.

s character array to compare against.

n2 Number of characters of s.

Returns:

Integer < 0, 0, or > 0.

Form the substring of this string from the *n1* characters starting at *pos1*. Form a string from the first *n2* characters of *s*. Returns an integer < 0 if this substring is ordered before the string from *s*, 0 if their values are equivalent, or > 0 if this substring is ordered after the string from *s*. Determines the effective length rlen of the strings to compare as the smallest of the length of the substring and *n2*. The function then compares the two strings by calling traits::compare(substring.data(),s,rlen). If the result of the comparison is nonzero returns it, otherwise the shorter one is ordered first.

NB: s must have at least n2 characters, '\0' has no special meaning.

5.89.3.34 int std::basic_string< _CharT , _Traits , _Allocator >::compare (size_type *__pos*, size_type *__n1*, const _CharT * *__s*) const [inherited]

Compare substring to a C string.

Parameters:

pos Index of first character of substring.

n1 Number of characters in substring.

s C string to compare against.

Returns:

Integer < 0, 0, or > 0.

Form the substring of this string from the *n1* characters starting at *pos*. Returns an integer < 0 if the substring is ordered before *s*, 0 if their values are equivalent, or > 0 if the substring is ordered after *s*. Determines the effective length rlen of the strings to compare as the smallest of the length of the substring and the length of a string constructed from *s*. The function then compares the two string by calling traits::compare(substring.data(),s,rlen). If the result of the comparison is nonzero returns it, otherwise the shorter one is ordered first.

5.89.3.35 int std::basic_string< _CharT , _Traits , _Allocator >::compare (size_type *__pos1*, size_type *__n1*, const basic_string< _CharT, _Traits, _Allocator > & *__str*, size_type *__pos2*, size_type *__n2*) const [inherited]

Compare substring to a substring.

Parameters:

pos1 Index of first character of substring.

n1 Number of characters in substring.

str String to compare against.

pos2 Index of first character of substring of str.

n2 Number of characters in substring of str.

Returns:

Integer < 0, 0, or > 0.

Form the substring of this string from the *n1* characters starting at *pos1*. Form the substring of *str* from the *n2* characters starting at *pos2*. Returns an integer < 0 if this substring is ordered before the substring of *str*, 0 if their values are equivalent, or > 0 if this substring is ordered after the substring of *str*. Determines the effective length rlen of the strings to compare as the smallest of the lengths of the substrings. The function then compares the two strings by calling traits::compare(substring.data(),str.substr(pos2,n2).data(),rlen). If the result of the comparison is nonzero returns it, otherwise the shorter one is ordered first.

5.89.3.36 int std::basic_string< _CharT , _Traits , _Allocator >::compare (size_type *__pos*, size_type *__n*, const basic_string< _CharT, _Traits, _Allocator > & *__str*) const [inherited]

Compare substring to a string.

Parameters:

pos Index of first character of substring.

n Number of characters in substring.

str String to compare against.

Returns:

Integer < 0, 0, or > 0.

Form the substring of this string from the *n* characters starting at *pos*. Returns an integer < 0 if the substring is ordered before *str*, 0 if their values are equivalent, or > 0 if the substring is ordered after *str*. Determines the effective length rlen of the strings to compare as the smallest of the length of the substring and *str.size()*. The function then compares the two strings by calling traits::compare(substring.data(),str.data(),rlen). If the result of the comparison is nonzero returns it, otherwise the shorter one is ordered first.

5.89.3.37 int std::basic_string< _CharT , _Traits , _Allocator >::compare (const basic_string< _CharT, _Traits, _Allocator > & *__str*) const [inline, inherited]

Compare to a string.

Parameters:

str String to compare against.

Returns:

Integer < 0, 0, or > 0.

Returns an integer < 0 if this string is ordered before *str*, 0 if their values are equivalent, or > 0 if this string is ordered after *str*. Determines the effective length rlen of the strings to compare as the smallest of size() and str.size(). The function then compares the two strings by calling traits::compare(data(), str.data(),rlen). If the result of the comparison is nonzero returns it, otherwise the shorter one is ordered first.

Definition at line 2129 of file basic_string.h.

Referenced by __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::compare().

5.89.3.38 template<typename _CharT , typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> int __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::compare (const _CharT * __s) const [inline]

Compare to a C string.

Parameters:

s C string to compare against.

Returns:

Integer < 0, 0, or > 0.

Returns an integer < 0 if this string is ordered before *s*, 0 if their values are equivalent, or > 0 if this string is ordered after *s*. Determines the effective length rlen of the strings to compare as the smallest of size() and the length of a string constructed from *s*. The function then compares the two strings by calling traits::compare(data(),s,rlen). If the result of the comparison is nonzero returns it, otherwise the shorter one is ordered first.

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 834 of file debug/string.

References std::basic_string< _CharT, _Traits, _Allocator >::compare().

5.89.3.39 size_type std::basic_string< _CharT , _Traits , _Allocator >::copy (_CharT * __s, size_type __n, size_type __pos = 0) const [inherited]

Copy substring into C string.

Parameters:

s C string to copy value into.

n Number of characters to copy.

pos Index of first character to copy.

Returns:

Number of characters actually copied

Exceptions:

std::out_of_range If pos > size().

Copies up to *n* characters starting at *pos* into the C string *s*. If *pos* is greater than size(), out_of_range is thrown.

5.89.3.40 const_reverse_iterator std::basic_string< _CharT , _Traits , _Allocator >::crbegin () const [inline, inherited]

Returns a read-only (constant) reverse iterator that points to the last character in the string. Iteration is done in reverse element order.

Definition at line 682 of file basic_string.h.

5.89.3.41 const_reverse_iterator std::basic_string< _CharT , _Traits , _Allocator >::crend () const [inline, inherited]

Returns a read-only (constant) reverse iterator that points to one before the first character in the string. Iteration is done in reverse element order.

Definition at line 691 of file basic_string.h.

5.89.3.42 template<typename _CharT , typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> const _CharT* __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::data () const [inline]

Return const pointer to contents. This is a handle to internal data. Do not modify or dire things may happen.

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 672 of file debug/string.

References __gnu_debug::_Safe_sequence_base::_M_invalidate_all(), and std::basic_string< _CharT, _Traits, _Allocator >::data().

5.89.3.43 bool std::basic_string< _CharT , _Traits , _Allocator >::empty () const [inline, inherited]

Returns true if the string is empty. Equivalent to `*this == ""`.

Definition at line 793 of file basic_string.h.

5.89.3.44 template<typename _CharT , typename _Traits = std::char_-traits<_CharT>, typename _Allocator = std::allocator<_CharT>> const_iterator __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::end () const [inline]

Returns a read-only (constant) iterator that points one past the last character in the string.

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 184 of file debug/string.

References std::basic_string< _CharT, _Traits, _Allocator >::end().

5.89.3.45 template<typename _CharT , typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> iterator __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::end () [inline]

Returns a read/write iterator that points one past the last character in the string. Unshares the string.

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 180 of file debug/string.

References std::basic_string< _CharT, _Traits, _Allocator >::end().

Referenced by __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::rbegin().

5.89.3.46 iterator std::basic_string< _CharT , _Traits , _Allocator >::erase (iterator *__first*, iterator *__last*) [inherited]

Remove a range of characters.

Parameters:

first Iterator referencing the first character to remove.

last Iterator referencing the end of the range.

Returns:

Iterator referencing location of first after removal.

Removes the characters in the range [first,last) from this string. The value of the string doesn't change if an error is thrown.

5.89.3.47 iterator std::basic_string< _CharT , _Traits , _Allocator >::erase (iterator *__position*) [inline, inherited]

Remove one character.

Parameters:

position Iterator referencing the character to remove.

Returns:

iterator referencing same location after removal.

Removes the character at *position* from this string. The value of the string doesn't change if an error is thrown.

Definition at line 1319 of file basic_string.h.

5.89.3.48 basic_string& std::basic_string< _CharT , _Traits , _Allocator >::erase (size_type *__pos* = 0, size_type *__n* = npos) [inline, inherited]

Remove characters.

Parameters:

pos Index of first character to remove (default 0).

n Number of characters to remove (default remainder).

Returns:

Reference to this string.

Exceptions:

std::out_of_range If *pos* is beyond the end of this string.

Removes *n* characters from this string starting at *pos*. The length of the string is reduced by *n*. If there are $< n$ characters to remove, the remainder of the string is truncated. If *p* is beyond end of string, out_of_range is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1303 of file basic_string.h.

5.89.3.49 size_type std::basic_string< _CharT , _Traits , _Allocator >::find (_CharT __c, size_type __pos = 0) const [inherited]

Find position of a character.

Parameters:

c Character to locate.

pos Index of character to search from (default 0).

Returns:

Index of first occurrence.

Starting from *pos*, searches forward for *c* within this string. If found, returns the index where it was found. If not found, returns npos.

5.89.3.50 size_type std::basic_string< _CharT , _Traits , _Allocator >::find (const _CharT * __s, size_type __pos = 0) const [inline, inherited]

Find position of a C string.

Parameters:

s C string to locate.

pos Index of character to search from (default 0).

Returns:

Index of start of first occurrence.

Starting from *pos*, searches forward for the value of *s* within this string. If found, returns the index where it begins. If not found, returns npos.

Definition at line 1781 of file basic_string.h.

5.89.3.51 size_type std::basic_string< _CharT , _Traits , _Allocator >::find (const basic_string< _CharT, _Traits, _Allocator > & *__str*, size_type *__pos* = 0) const [inline, inherited]

Find position of a string.

Parameters:

str String to locate.

pos Index of character to search from (default 0).

Returns:

Index of start of first occurrence.

Starting from *pos*, searches forward for value of *str* within this string. If found, returns the index where it begins. If not found, returns npos.

Definition at line 1767 of file basic_string.h.

5.89.3.52 size_type std::basic_string< _CharT , _Traits , _Allocator >::find (const _CharT * *__s*, size_type *__pos*, size_type *__n*) const [inherited]

Find position of a C substring.

Parameters:

s C string to locate.

pos Index of character to search from.

n Number of characters from *s* to search for.

Returns:

Index of start of first occurrence.

Starting from *pos*, searches forward for the first *n* characters in *s* within this string. If found, returns the index where it begins. If not found, returns npos.

5.89.3.53 size_type std::basic_string< _CharT , _Traits , _Allocator >::find_first_not_of (_CharT *__c*, size_type *__pos* = 0) const [inherited]

Find position of a different character.

Parameters:

c Character to avoid.

pos Index of character to search from (default 0).

Returns:

Index of first occurrence.

Starting from *pos*, searches forward for a character other than *c* within this string. If found, returns the index where it was found. If not found, returns npos.

5.89.3.54 size_type std::basic_string< _CharT , _Traits , _Allocator >::find_first_not_of (const _CharT * __s, size_type __pos = 0) const [inline, inherited]

Find position of a character not in C string.

Parameters:

s C string containing characters to avoid.

pos Index of character to search from (default 0).

Returns:

Index of first occurrence.

Starting from *pos*, searches forward for a character not contained in *s* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 2020 of file basic_string.h.

5.89.3.55 size_type std::basic_string< _CharT , _Traits , _Allocator >::find_first_not_of (const _CharT * __s, size_type __pos, size_type __n) const [inherited]

Find position of a character not in C substring.

Parameters:

s C string containing characters to avoid.

pos Index of character to search from.

n Number of characters from s to consider.

Returns:

Index of first occurrence.

Starting from *pos*, searches forward for a character not contained in the first *n* characters of *s* within this string. If found, returns the index where it was found. If not found, returns npos.

5.89.3.56 size_type std::basic_string< _CharT , _Traits , _Allocator >::find_first_not_of (const basic_string< _CharT, _Traits, _Allocator > & *__str*, size_type *__pos* = 0) const [inline, inherited]

Find position of a character not in string.

Parameters:

str String containing characters to avoid.

pos Index of character to search from (default 0).

Returns:

Index of first occurrence.

Starting from *pos*, searches forward for a character not contained in *str* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 1991 of file basic_string.h.

5.89.3.57 size_type std::basic_string< _CharT , _Traits , _Allocator >::find_first_of (_CharT *__c*, size_type *__pos* = 0) const [inline, inherited]

Find position of a character.

Parameters:

c Character to locate.

pos Index of character to search from (default 0).

Returns:

Index of first occurrence.

Starting from *pos*, searches forward for the character *c* within this string. If found, returns the index where it was found. If not found, returns npos.

Note: equivalent to find(c, pos).

Definition at line 1916 of file basic_string.h.

5.89.3.58 size_type std::basic_string< _CharT , _Traits , _Allocator >::find_first_of (const _CharT * __s, size_type __pos = 0) const [inline, inherited]

Find position of a character of C string.

Parameters:

s String containing characters to locate.

pos Index of character to search from (default 0).

Returns:

Index of first occurrence.

Starting from *pos*, searches forward for one of the characters of *s* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 1897 of file basic_string.h.

5.89.3.59 size_type std::basic_string< _CharT , _Traits , _Allocator >::find_first_of (const _CharT * __s, size_type __pos, size_type __n) const [inherited]

Find position of a character of C substring.

Parameters:

s String containing characters to locate.

pos Index of character to search from.

n Number of characters from s to search for.

Returns:

Index of first occurrence.

Starting from *pos*, searches forward for one of the first *n* characters of *s* within this string. If found, returns the index where it was found. If not found, returns npos.

5.89.3.60 size_type std::basic_string< _CharT , _Traits , _Allocator >::find_first_of (const basic_string< _CharT, _Traits, _Allocator > & __str, size_type __pos = 0) const [inline, inherited]

Find position of a character of string.

Parameters:

str String containing characters to locate.

pos Index of character to search from (default 0).

Returns:

Index of first occurrence.

Starting from *pos*, searches forward for one of the characters of *str* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 1869 of file basic_string.h.

5.89.3.61 size_type std::basic_string< _CharT , _Traits , _Allocator >::find_last_not_of (_CharT __*c*, size_type __*pos* = npos) const [inherited]

Find last position of a different character.

Parameters:

c Character to avoid.

pos Index of character to search back from (default end).

Returns:

Index of last occurrence.

Starting from *pos*, searches backward for a character other than *c* within this string. If found, returns the index where it was found. If not found, returns npos.

5.89.3.62 size_type std::basic_string< _CharT , _Traits , _Allocator >::find_last_not_of (const _CharT * __*s*, size_type __*pos* = npos) const [inline, inherited]

Find last position of a character not in C string.

Parameters:

s C string containing characters to avoid.

pos Index of character to search back from (default end).

Returns:

Index of last occurrence.

Starting from *pos*, searches backward for a character not contained in *s* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 2079 of file basic_string.h.

5.89.3.63 size_type std::basic_string< _CharT , _Traits , _Allocator >::find_last_not_of (const _CharT * __s, size_type __pos, size_type __n) const [inherited]

Find last position of a character not in C substring.

Parameters:

s C string containing characters to avoid.

pos Index of character to search back from.

n Number of characters from s to consider.

Returns:

Index of last occurrence.

Starting from *pos*, searches backward for a character not contained in the first *n* characters of *s* within this string. If found, returns the index where it was found. If not found, returns npos.

5.89.3.64 size_type std::basic_string< _CharT , _Traits , _Allocator >::find_last_not_of (const basic_string< _CharT, _Traits, _Allocator > & __str, size_type __pos = npos) const [inline, inherited]

Find last position of a character not in string.

Parameters:

str String containing characters to avoid.

pos Index of character to search back from (default end).

Returns:

Index of last occurrence.

Starting from *pos*, searches backward for a character not contained in *str* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 2050 of file basic_string.h.

5.89.3.65 size_type std::basic_string< _CharT , _Traits , _Allocator >::find_last_of (_CharT __c, size_type __pos = npos) const [inline, inherited]

Find last position of a character.

Parameters:

c Character to locate.

pos Index of character to search back from (default end).

Returns:

Index of last occurrence.

Starting from *pos*, searches backward for *c* within this string. If found, returns the index where it was found. If not found, returns npos.

Note: equivalent to rfind(c, pos).

Definition at line 1977 of file basic_string.h.

5.89.3.66 size_type std::basic_string< _CharT , _Traits , _Allocator >::find_last_of (const _CharT * __s, size_type __pos = npos) const [inline, inherited]

Find last position of a character of C string.

Parameters:

s C string containing characters to locate.

pos Index of character to search back from (default end).

Returns:

Index of last occurrence.

Starting from *pos*, searches backward for one of the characters of *s* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 1958 of file basic_string.h.

5.89.3.67 size_type std::basic_string< _CharT , _Traits , _Allocator >::find_last_of (const _CharT * __s, size_type __pos, size_type __n) const [inherited]

Find last position of a character of C substring.

Parameters:

s C string containing characters to locate.

pos Index of character to search back from.

n Number of characters from s to search for.

Returns:

Index of last occurrence.

Starting from *pos*, searches backward for one of the first *n* characters of *s* within this string. If found, returns the index where it was found. If not found, returns npos.

5.89.3.68 size_type std::basic_string< _CharT , _Traits , _Allocator >::find_last_of (const basic_string< _CharT, _Traits, _Allocator > & *__str*, size_type *__pos* = npos) const [inline, inherited]

Find last position of a character of string.

Parameters:

str String containing characters to locate.

pos Index of character to search back from (default end).

Returns:

Index of last occurrence.

Starting from *pos*, searches backward for one of the characters of *str* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 1930 of file basic_string.h.

5.89.3.69 allocator_type std::basic_string< _CharT , _Traits , _Allocator >::get_allocator () const [inline, inherited]

Return copy of allocator used to construct this string.

Definition at line 1739 of file basic_string.h.

5.89.3.70 iterator std::basic_string< _CharT , _Traits , _Allocator >::insert (iterator *__p*, _CharT *__c*) [inline, inherited]

Insert one character.

Parameters:

p Iterator referencing position in string to insert at.

c The character to insert.

Returns:

Iterator referencing newly inserted char.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Inserts character *c* at position referenced by *p*. If adding character causes the length to exceed max_size(), length_error is thrown. If *p* is beyond end of string, out_of_range is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1279 of file basic_string.h.

5.89.3.71 basic_string& std::basic_string< _CharT , _Traits , _Allocator >::insert (size_type *__pos*, size_type *__n*, _CharT *__c*) [inline, inherited]

Insert multiple characters.

Parameters:

pos Index in string to insert at.

n Number of characters to insert

c The character to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

std::out_of_range If *pos* is beyond the end of this string.

Inserts *n* copies of character *c* starting at index *pos*. If adding characters causes the length to exceed max_size(), length_error is thrown. If *pos* > length(), out_of_range is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1262 of file basic_string.h.

5.89.3.72 basic_string& std::basic_string< _CharT , _Traits , _Allocator >::insert (size_type *__pos*, const _CharT * *__s*) [inline, inherited]

Insert a C string.

Parameters:

pos Iterator referencing location in string to insert at.

s The C string to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

std::out_of_range If *pos* is beyond the end of this string.

Inserts the first *n* characters of *s* starting at *pos*. If adding characters causes the length to exceed max_size(), length_error is thrown. If *pos* is beyond end(), out_of_range is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1239 of file basic_string.h.

5.89.3.73 basic_string& std::basic_string< _CharT , _Traits , _Allocator >::insert (size_type *__pos*, const _CharT * *__s*, size_type *__n*) [inherited]

Insert a C substring.

Parameters:

pos Iterator referencing location in string to insert at.

s The C string to insert.

n The number of characters to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

std::out_of_range If *pos* is beyond the end of this string.

Inserts the first *n* characters of *s* starting at *pos*. If adding characters causes the length to exceed max_size(), length_error is thrown. If *pos* is beyond end(), out_of_range is thrown. The value of the string doesn't change if an error is thrown.

5.89.3.74 basic_string& std::basic_string< _CharT , _Traits , _Allocator >::insert (size_type *__pos1*, const basic_string< _CharT, _Traits, _Allocator > & *__str*, size_type *__pos2*, size_type *__n*) [inline, inherited]

Insert a substring.

Parameters:

pos1 Iterator referencing location in string to insert at.

str The string to insert.

pos2 Start of characters in str to insert.

n Number of characters to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

std::out_of_range If *pos1* > size() or *pos2* > *str.size()*.

Starting at *pos1*, insert *n* character of *str* beginning with *pos2*. If adding characters causes the length to exceed max_size(), length_error is thrown. If *pos1* is beyond the end of this string or *pos2* is beyond the end of *str*, out_of_range is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1198 of file basic_string.h.

5.89.3.75 basic_string& std::basic_string< _CharT , _Traits , _Allocator >::insert (size_type *__pos1*, const basic_string< _CharT, _Traits, _Allocator > & *__str*) [inline, inherited]

Insert value of a string.

Parameters:

pos1 Iterator referencing location in string to insert at.

str The string to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Inserts value of *str* starting at *pos1*. If adding characters causes the length to exceed max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1176 of file basic_string.h.

5.89.3.76 void std::basic_string< _CharT , _Traits , _Allocator >::insert (iterator __p, initializer_list< _CharT > __l) [inline, inherited]

Insert an initializer_list of characters.

Parameters:

p Iterator referencing location in string to insert at.

l The initializer_list of characters to insert.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Definition at line 1157 of file basic_string.h.

5.89.3.77 void std::basic_string< _CharT , _Traits , _Allocator >::insert (iterator __p, _InputIterator __beg, _InputIterator __end) [inline, inherited]

Insert a range of characters.

Parameters:

p Iterator referencing location in string to insert at.

beg Start of range.

end End of range.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Inserts characters in range [beg,end). If adding characters causes the length to exceed max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1146 of file basic_string.h.

5.89.3.78 void std::basic_string< _CharT , _Traits , _Allocator >::insert (iterator __p, size_type __n, _CharT __c) [inline, inherited]

Insert multiple characters.

Parameters:

p Iterator referencing location in string to insert at.

n Number of characters to insert

c The character to insert.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Inserts *n* copies of character *c* starting at the position referenced by iterator *p*. If adding characters causes the length to exceed max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1130 of file basic_string.h.

5.89.3.79 size_type std::basic_string< _CharT , _Traits , _Allocator >::length () const [inline, inherited]

Returns the number of characters in the string, not including any null-termination.

Definition at line 706 of file basic_string.h.

5.89.3.80 size_type std::basic_string< _CharT , _Traits , _Allocator >::max_size () const [inline, inherited]

Returns the size() of the largest possible string.

Definition at line 711 of file basic_string.h.

5.89.3.81 basic_string& std::basic_string< _CharT , _Traits , _Allocator >::operator+= (const basic_string< _CharT, _Traits, _Allocator > & *__str*) [inline, inherited]

Append a string to this string.

Parameters:

str The string to append.

Returns:

Reference to this string.

Definition at line 880 of file basic_string.h.

5.89.3.82 template<typename _CharT , typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> basic_string& __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator+= (std::initializer_list< _CharT > *__l*) [inline]

Append an initializer_list of characters.

Parameters:

l The initializer_list of characters to be appended.

Returns:

Reference to this string.

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 293 of file debug/string.

References __gnu_debug::_Safe_sequence_base::_M_invalidate_all().

5.89.3.83 template<typename _CharT , typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> basic_string& __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator+= (_CharT *__c*) [inline]

Append a character.

Parameters:

c The character to append.

Returns:

Reference to this string.

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 284 of file debug/string.

References __gnu_debug::_Safe_sequence_base::_M_invalidate_all().

5.89.3.84 template<typename _CharT , typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> basic_string& __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator+= (const _CharT * __s) [inline]

Append a C string.

Parameters:

s The C string to append.

Returns:

Reference to this string.

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 275 of file debug/string.

References __gnu_debug::_Safe_sequence_base::_M_invalidate_all().

5.89.3.85 template<typename _CharT , typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> basic_string& __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator= (std::initializer_list< _CharT > __l) [inline]

Set value to string constructed from initializer list.

Parameters:

l std::initializer_list.

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 162 of file debug/string.

References __gnu_debug::_Safe_sequence_base::_M_invalidate_all().

5.89.3.86 template<typename _CharT , typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> basic_string& __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator= (_CharT __c) [inline]

Set value to string of length 1.

Parameters:

c Source character.

Assigning to a character makes this string length 1 and (*this)[0] == *c*.

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 145 of file debug/string.

References __gnu_debug::_Safe_sequence_base::_M_invalidate_all().

5.89.3.87 template<typename _CharT , typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> basic_string& __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator= (const _CharT * __s) [inline]

Copy contents of *s* into this string.

Parameters:

s Source null-terminated string.

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 136 of file debug/string.

References __gnu_debug::_Safe_sequence_base::_M_invalidate_all().

5.89.3.88 reference std::basic_string< _CharT , _Traits , _Allocator >::operator[ ] (size_type __pos) [inline, inherited]

Subscript access to the data contained in the string.

Parameters:

pos The index of the character to access.

Returns:

Read/write reference to the character.

This operator allows for easy, array-style, data access. Note that data access with this operator is unchecked and out_of_range lookups are not defined. (For checked lookups see at().) Unshares the string.

Definition at line 825 of file basic_string.h.

5.89.3.89 const_reference std::basic_string< _CharT , _Traits , _Allocator >::operator[ ] (size_type *__pos*) const [inline, inherited]

Subscript access to the data contained in the string.

Parameters:

pos The index of the character to access.

Returns:

Read-only (constant) reference to the character.

This operator allows for easy, array-style, data access. Note that data access with this operator is unchecked and out_of_range lookups are not defined. (For checked lookups see at().)

Definition at line 808 of file basic_string.h.

5.89.3.90 template<typename _CharT , typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> void __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::push_back (_CharT *__c*) [inline]

Append a single character.

Parameters:

c Character to append.

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 356 of file debug/string.

References __gnu_debug::_Safe_sequence_base::_M_invalidate_all(), and std::basic_string< _CharT, _Traits, _Allocator >::push_back().

5.89.3.91 template<typename _CharT , typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> const_reverse_iterator __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::rbegin () const [inline]

Returns a read-only (constant) reverse iterator that points to the last character in the string. Iteration is done in reverse element order.

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 192 of file debug/string.

References __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::end().

5.89.3.92 template<typename _CharT , typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> reverse_iterator __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::rbegin () [inline]

Returns a read/write reverse iterator that points to the last character in the string. Iteration is done in reverse element order. Unshares the string.

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 188 of file debug/string.

References __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::end().

5.89.3.93 template<typename _CharT , typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> const_reverse_iterator __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::rend () const [inline]

Returns a read-only (constant) reverse iterator that points to one before the first character in the string. Iteration is done in reverse element order.

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 200 of file debug/string.

References __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::begin().

5.89.3.94 template<typename _CharT , typename _Traits = std::char_traits<_CharT>, typename _Allocator = std::allocator<_CharT>> reverse_iterator __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::rend () [inline]

Returns a read/write reverse iterator that points to one before the first character in the string. Iteration is done in reverse element order. Unshares the string.

Reimplemented from std::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 196 of file debug/string.

References __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::begin().

5.89.3.95 basic_string& std::basic_string< _CharT , _Traits , _Allocator >::replace (iterator *__i1*, iterator *__i2*, initializer_list< _CharT > *__l*) [inline, inherited]

Replace range of characters with initializer_list.

Parameters:

i1 Iterator referencing start of range to replace.

i2 Iterator referencing end of range to replace.

l The initializer_list of characters to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [i1,i2). In place, characters in the range [k1,k2) are inserted. If the length of result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1615 of file basic_string.h.

5.89.3.96 basic_string& std::basic_string< _CharT , _Traits , _Allocator >::replace (iterator *__i1*, iterator *__i2*, _InputIterator *__k1*, _InputIterator *__k2*) [inline, inherited]

Replace range of characters with range.

Parameters:

i1 Iterator referencing start of range to replace.

i2 Iterator referencing end of range to replace.

k1 Iterator referencing start of range to insert.

k2 Iterator referencing end of range to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [i1,i2). In place, characters in the range [k1,k2) are inserted. If the length of result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1547 of file basic_string.h.

5.89.3.97 basic_string& std::basic_string< _CharT , _Traits , _Allocator >::replace (iterator *__i1*, iterator *__i2*, size_type *__n*, _CharT *__c*) [inline, inherited]

Replace range of characters with multiple characters.

Parameters:

i1 Iterator referencing start of range to replace.

i2 Iterator referencing end of range to replace.

n Number of characters to insert.

c Character to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [i1,i2). In place, *n* copies of *c* are inserted. If the length of result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1524 of file basic_string.h.

5.89.3.98 basic_string& std::basic_string< _CharT , _Traits , _Allocator >::replace (iterator *__i1*, iterator *__i2*, const _CharT * *__s*) [inline, inherited]

Replace range of characters with C string.

Parameters:

i1 Iterator referencing start of range to replace.

i2 Iterator referencing end of range to replace.

s C string value to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [i1,i2). In place, the characters of *s* are inserted. If the length of result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1503 of file basic_string.h.

5.89.3.99 basic_string& std::basic_string< _CharT , _Traits , _Allocator >::replace (iterator *__i1*, iterator *__i2*, const _CharT * *__s*, size_type *__n*) [inline, inherited]

Replace range of characters with C substring.

Parameters:

i1 Iterator referencing start of range to replace.

i2 Iterator referencing end of range to replace.

s C string value to insert.

n Number of characters from s to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [i1,i2). In place, the first *n* characters of *s* are inserted. If the length of result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1482 of file basic_string.h.

5.89.3.100 basic_string& std::basic_string< _CharT , _Traits , _Allocator >::replace (iterator *__i1*, iterator *__i2*, const basic_string< _CharT, _Traits, _Allocator > & *__str*) [inline, inherited]

Replace range of characters with string.

Parameters:

i1 Iterator referencing start of range to replace.

i2 Iterator referencing end of range to replace.

str String value to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [i1,i2). In place, the value of *str* is inserted. If the length of result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1464 of file basic_string.h.

5.89.3.101 basic_string& std::basic_string< _CharT , _Traits , _Allocator >::replace (size_type *__pos*, size_type *__n1*, size_type *__n2*, _CharT *__c*) [inline, inherited]

Replace characters with multiple characters.

Parameters:

pos Index of first character to replace.

n1 Number of characters to be replaced.

n2 Number of characters to insert.

c Character to insert.

Returns:

Reference to this string.

Exceptions:

std::out_of_range If *pos* > size().

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [pos,pos + n1) from this string. In place, *n2* copies of *c* are inserted. If *pos* is beyond end of string, out_of_range is thrown. If the length of result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1446 of file basic_string.h.

5.89.3.102 basic_string& std::basic_string< _CharT , _Traits , _Allocator >::replace (size_type *__pos*, size_type *__n1*, const _CharT * *__s*) [inline, inherited]

Replace characters with value of a C string.

Parameters:

pos Index of first character to replace.

n1 Number of characters to be replaced.

s C string to insert.

Returns:

Reference to this string.

Exceptions:

std::out_of_range If *pos* > size().

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [pos,pos + n1) from this string. In place, the first *n* characters of *s* are inserted. If *pos* is beyond end of string, out_of_range is thrown. If the length of result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1423 of file basic_string.h.

5.89.3.103 basic_string& std::basic_string< _CharT , _Traits , _Allocator >::replace (size_type *__pos*, size_type *__n1*, const _CharT * *__s*, size_type *__n2*) [inherited]

Replace characters with value of a C substring.

Parameters:

pos Index of first character to replace.

n1 Number of characters to be replaced.

s C string to insert.

n2 Number of characters from *s* to use.

Returns:

Reference to this string.

Exceptions:

std::out_of_range If *pos1* > size().

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [pos,pos + n1) from this string. In place, the first *n2* characters of *s* are inserted, or all of *s* if *n2* is too large. If *pos* is beyond end of string, out_of_range is thrown. If the length of result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

5.89.3.104 basic_string& std::basic_string< _CharT , _Traits , _Allocator >::replace (size_type *__pos1*, size_type *__n1*, const basic_string< _CharT, _Traits, _Allocator > & *__str*, size_type *__pos2*, size_type *__n2*) [inline, inherited]

Replace characters with value from another string.

Parameters:

pos1 Index of first character to replace.

n1 Number of characters to be replaced.

str String to insert.

pos2 Index of first character of str to use.

n2 Number of characters from str to use.

Returns:

Reference to this string.

Exceptions:

std::out_of_range If *pos1* > size() or *pos2* > str.size().

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [pos1,pos1 + n) from this string. In place, the value of *str* is inserted. If *pos* is beyond end of string, out_of_range is thrown. If the length of the result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1380 of file basic_string.h.

5.89.3.105 basic_string& std::basic_string< _CharT , _Traits , _Allocator >::replace (size_type *__pos*, size_type *__n*, const basic_string< _CharT, _Traits, _Allocator > & *__str*) [inline, inherited]

Replace characters with value from another string.

Parameters:

pos Index of first character to replace.

n Number of characters to be replaced.

str String to insert.

Returns:

Reference to this string.

Exceptions:

std::out_of_range If *pos* is beyond the end of this string.

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [pos,pos+n) from this string. In place, the value of *str* is inserted. If *pos* is beyond end of string, out_of_range is thrown. If the length of the result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1358 of file basic_string.h.

5.89.3.106 void std::basic_string< _CharT , _Traits , _Allocator >::reserve (size_type *__res_arg* = 0) [inherited]

Attempt to preallocate enough memory for specified number of characters.

Parameters:

res_arg Number of characters required.

Exceptions:

std::length_error If *res_arg* exceeds `max_size()`.

This function attempts to reserve enough memory for the string to hold the specified number of characters. If the number requested is more than max_size(), length_error is thrown.

The advantage of this function is that if optimal code is a necessity and the user can determine the string length that will be required, the user can reserve the memory in advance, and thus prevent a possible reallocation of memory and copying of string data.

5.89.3.107 void std::basic_string< _CharT , _Traits , _Allocator >::resize (size_type __n) [inline, inherited]

Resizes the string to the specified number of characters.

Parameters:

n Number of characters the string should contain.

This function will resize the string to the specified length. If the new size is smaller than the string's current size the string is truncated, otherwise the string is extended and new characters are default-constructed. For basic types such as char, this means setting them to 0.

Definition at line 738 of file basic_string.h.

5.89.3.108 void std::basic_string< _CharT , _Traits , _Allocator >::resize (size_type __n, _CharT __c) [inherited]

Resizes the string to the specified number of characters.

Parameters:

n Number of characters the string should contain.

c Character to fill any new elements.

This function will resize the string to the specified number of characters. If the number is smaller than the string's current size the string is truncated, otherwise the string is extended and new elements are set to *c*.

5.89.3.109 size_type std::basic_string< _CharT , _Traits , _Allocator >::rfind (_CharT __c, size_type __pos = npos) const [inherited]

Find last position of a character.

Parameters:

c Character to locate.

pos Index of character to search back from (default end).

Returns:

Index of last occurrence.

Starting from *pos*, searches backward for *c* within this string. If found, returns the index where it was found. If not found, returns npos.

5.89.3.110 size_type std::basic_string< _CharT , _Traits , _Allocator >::rfind (const _CharT * __s, size_type __pos = npos) const [inline, inherited]

Find last position of a C string.

Parameters:

s C string to locate.

pos Index of character to start search at (default end).

Returns:

Index of start of last occurrence.

Starting from *pos*, searches backward for the value of *s* within this string. If found, returns the index where it begins. If not found, returns npos.

Definition at line 1839 of file basic_string.h.

5.89.3.111 size_type std::basic_string< _CharT , _Traits , _Allocator >::rfind (const _CharT * __s, size_type __pos, size_type __n) const [inherited]

Find last position of a C substring.

Parameters:

s C string to locate.

pos Index of character to search back from.

n Number of characters from s to search for.

Returns:

Index of start of last occurrence.

Starting from *pos*, searches backward for the first *n* characters in *s* within this string. If found, returns the index where it begins. If not found, returns npos.

5.89.3.112 size_type std::basic_string< _CharT , _Traits , _Allocator >::rfind (const basic_string< _CharT, _Traits, _Allocator > & *__str*, size_type *__pos* = npos) const [inline, inherited]

Find last position of a string.

Parameters:

str String to locate.

pos Index of character to search back from (default end).

Returns:

Index of start of last occurrence.

Starting from *pos*, searches backward for value of *str* within this string. If found, returns the index where it begins. If not found, returns npos.

Definition at line 1811 of file basic_string.h.

5.89.3.113 void std::basic_string< _CharT , _Traits , _Allocator >::shrink_to_fit () [inline, inherited]

A non-binding request to reduce capacity() to size().

Definition at line 744 of file basic_string.h.

5.89.3.114 size_type std::basic_string< _CharT , _Traits , _Allocator >::size () const [inline, inherited]

Returns the number of characters in the string, not including any null-termination.

Definition at line 700 of file basic_string.h.

5.89.3.115 basic_string std::basic_string< _CharT , _Traits , _Allocator >::substr (size_type *__pos* = 0, size_type *__n* = npos) const [inline, inherited]

Get a substring.

Parameters:

pos Index of first character (default 0).

n Number of characters in substring (default remainder).

Returns:

The new string.

Exceptions:

std::out_of_range If pos > size().

Construct and return a new string using the *n* characters starting at *pos*. If the string is too short, use the remainder of the characters. If *pos* is beyond the end of the string, out_of_range is thrown.

Definition at line 2111 of file basic_string.h.

5.89.3.116 void std::basic_string< _CharT , _Traits , _Allocator >::swap (basic_string< _CharT, _Traits, _Allocator > & *__s*) [inherited]

Swap contents with another string.

Parameters:

s String to swap with.

Exchanges the contents of this string with that of *s* in constant time.

5.89.4 Member Data Documentation

5.89.4.1 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_const_iterators [inherited]

The list of constant iterators that reference this container.

Definition at line 166 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.89.4.2 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_iterators [inherited]

The list of mutable iterators that reference this container.

Definition at line 163 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.89.4.3 unsigned int __gnu_debug::_Safe_sequence_base::_M_version [mutable, inherited]

The container version number. This number may never be 0.

Definition at line 169 of file safe_base.h.

5.89.4.4 const size_type std::basic_string< _CharT , _Traits , _Allocator >::npos [static, inherited]

Value returned by various member functions when they fail.

Definition at line 270 of file basic_string.h.

The documentation for this class was generated from the following file:

- debug/string

5.90 __gnu_parallel::__accumulate_binop_reduct< _BinOp > Struct Template Reference

General reduction, using a binary operator.

Public Member Functions

- **__accumulate_binop_reduct** (_BinOp &__b)
- template<typename _Result , typename _Addend >
  _Result **operator()** (const _Result &__x, const _Addend &__y)

Public Attributes

- _BinOp & **__binop**

5.90.1 Detailed Description

template<typename _BinOp> struct __gnu_parallel::__accumulate_binop_reduct< _BinOp >

General reduction, using a binary operator.

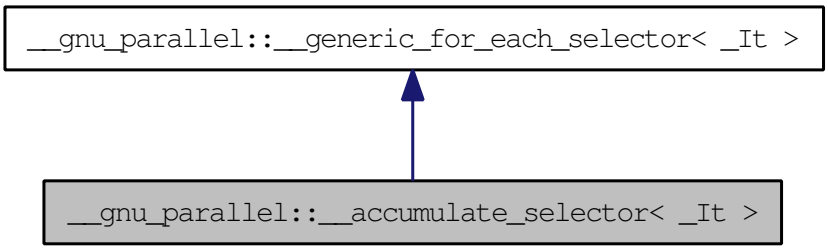
Definition at line 335 of file for_each_selectors.h.

The documentation for this struct was generated from the following file:

- for_each_selectors.h

5.91 __gnu_parallel::__accumulate_selector< _It > Struct Template Reference

std::accumulate() selector. Inheritance diagram for __gnu_parallel::__accumulate_selector< _It >:



Public Member Functions

- template<typename _Op >
  std::iterator_traits< _It >::value_type operator() (_Op __o, _It __i)

Public Attributes

- _It _M_finish_iterator

5.91.1 Detailed Description

template<typename _It> struct __gnu_parallel::__accumulate_selector< _It >

std::accumulate() selector.

Definition at line 208 of file for_each_selectors.h.

5.91.2 Member Function Documentation

5.91.2.1 template<typename _It> template<typename _Op > std::iterator_traits<_It>::value_type __gnu_parallel::__accumulate_selector< _It >::operator() (_Op *__o*, _It *__i*) [inline]

Functor execution.

Parameters:

__o Operator (unused).

__i iterator referencing object.

Returns:

The current value.

Definition at line 216 of file for_each_selectors.h.

5.91.3 Member Data Documentation

5.91.3.1 template<typename _It > _It __gnu_parallel::__generic_for_each_selector< _It >::_M_finish_iterator [inherited]

_Iterator on last element processed; needed for some algorithms (e. g. std::transform()).

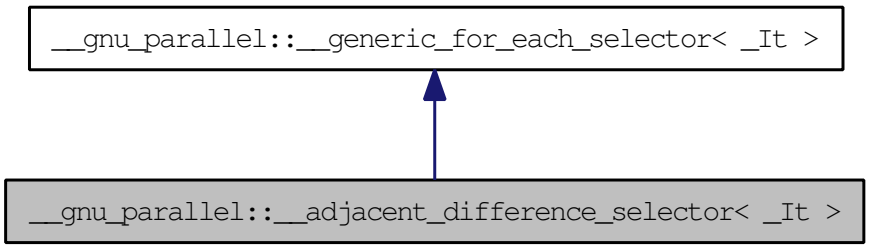
Definition at line 47 of file for_each_selectors.h.

The documentation for this struct was generated from the following file:

- for_each_selectors.h

5.92 __gnu_parallel::__adjacent_difference_selector< _It > Struct Template Reference

Selector that returns the difference between two adjacent __elements. Inheritance diagram for __gnu_parallel::__adjacent_difference_selector< _It >:



Public Member Functions

- template<typename _Op >
  bool **operator()** (_Op &__o, _It __i)

Public Attributes

- _It _M_finish_iterator

5.92.1 Detailed Description

template<typename _It> struct __gnu_parallel::__adjacent_difference_-selector< _It >

Selector that returns the difference between two adjacent __elements.

Definition at line 269 of file for_each_selectors.h.

5.92.2 Member Data Documentation

5.92.2.1 template<typename _It > _It __gnu_parallel::__-generic_for_each_selector< _It >::_M_finish_iterator [inherited]

_Iterator on last element processed; needed for some algorithms (e. g. std::transform()).

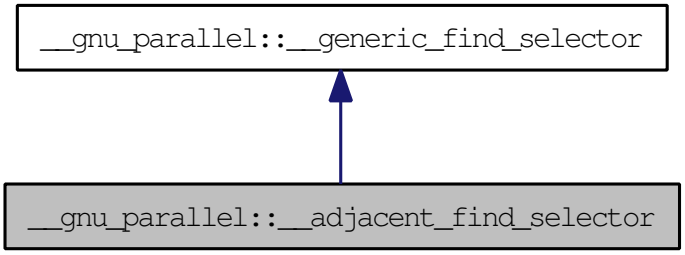
Definition at line 47 of file for_each_selectors.h.

The documentation for this struct was generated from the following file:

- for_each_selectors.h

5.93 __gnu_parallel::__adjacent_find_selector Struct Reference

Test predicate on two adjacent elements. Inheritance diagram for __gnu_parallel::__adjacent_find_selector:



Public Member Functions

- template<typename _RAIter1 , typename _RAIter2 , typename _Pred > std::pair< _RAIter1, _RAIter2 > _M_sequential_algorithm (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _Pred __pred)
- template<typename _RAIter1 , typename _RAIter2 , typename _Pred > bool operator() (_RAIter1 __i1, _RAIter2 __i2, _Pred __pred)

5.93.1 Detailed Description

Test predicate on two adjacent elements.

Definition at line 80 of file find_selectors.h.

5.93.2 Member Function Documentation

5.93.2.1 template<typename _RAIter1 , typename _RAIter2 , typename _Pred > std::pair<_RAIter1, _RAIter2> __gnu_parallel::__adjacent_find_selector::_M_sequential_algorithm (_RAIter1 *__begin1*, _RAIter1 *__end1*, _RAIter2 *__begin2*, _Pred *__pred*) [inline]

Corresponding sequential algorithm on a sequence.

Parameters:

__begin1 Begin iterator of first sequence.

__end1 End iterator of first sequence.

__begin2 Begin iterator of second sequence.

__pred Find predicate.

Definition at line 105 of file find_selectors.h.

5.93.2.2 template<typename _RAIter1 , typename _RAIter2 , typename _Pred > bool __gnu_parallel::__adjacent_find_selector::operator() (_RAIter1 *__i1*, _RAIter2 *__i2*, _Pred *__pred*) [inline]

Test on one position.

Parameters:

__i1 _Iterator on first sequence.

__i2 _Iterator on second sequence (unused).

__pred Find predicate.

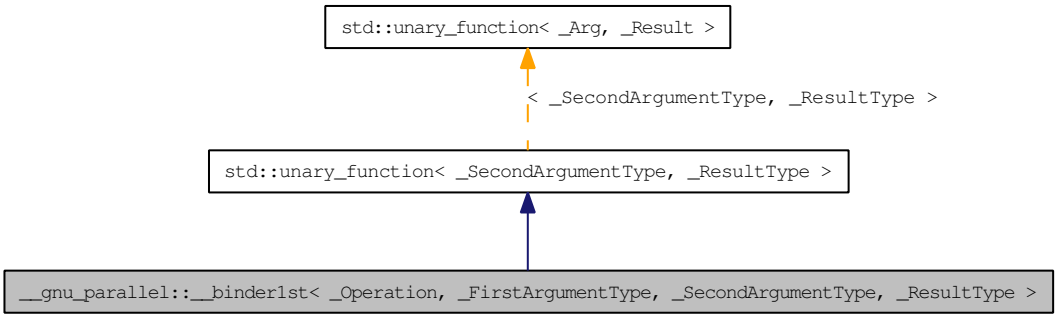
Definition at line 90 of file find_selectors.h.

The documentation for this struct was generated from the following file:

- find_selectors.h

5.94 __gnu_parallel::__binder1st< _Operation, _FirstArgumentType, _SecondArgumentType, _ResultType > Class Template Reference

Similar to std::binder1st, but giving the argument types explicitly. Inheritance diagram for __gnu_parallel::__binder1st< _Operation, _FirstArgumentType, _SecondArgumentType, _ResultType >:



Public Types

- typedef _SecondArgumentType argument_type
- typedef _ResultType result_type

Public Member Functions

- **__binder1st** (const _Operation &__x, const _FirstArgumentType &__y)
- _ResultType **operator()** (_SecondArgumentType &__x) const
- _ResultType **operator()** (const _SecondArgumentType &__x)

Protected Attributes

- _Operation **_M_op**
- _FirstArgumentType **_M_value**

5.94.1 Detailed Description

template<typename _Operation, typename _FirstArgumentType, typename _SecondArgumentType, typename _ResultType> class __gnu_parallel::__binder1st< _Operation, _FirstArgumentType, _SecondArgumentType, _ResultType >

Similar to std::binder1st, but giving the argument types explicitly.

Definition at line 192 of file parallel/base.h.

5.94.2 Member Typedef Documentation

5.94.2.1 typedef _SecondArgumentType std::unary_function< _SecondArgumentType , _ResultType >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.94.2.2 typedef _ResultType std::unary_function< _SecondArgumentType , _ResultType >::result_type [inherited]

`result_type` is the return type

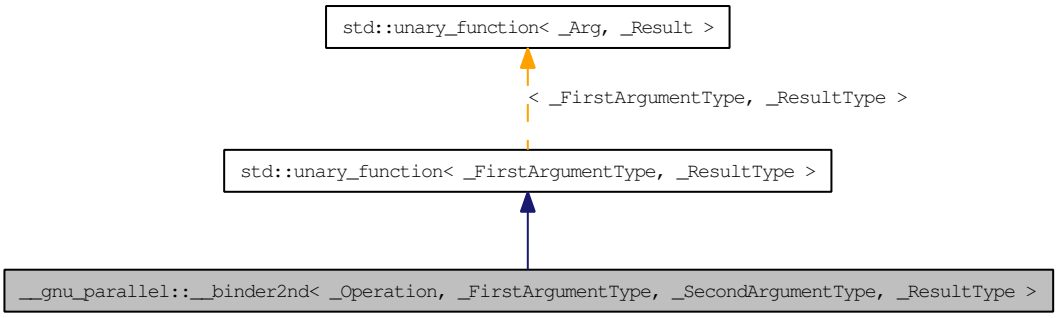
Definition at line 105 of file stl_function.h.

The documentation for this class was generated from the following file:

- parallel/base.h

5.95 __gnu_parallel::__binder2nd< _Operation, _FirstArgumentType, _SecondArgumentType, _ResultType > Class Template Reference

Similar to std::binder2nd, but giving the argument types explicitly. Inheritance diagram for __gnu_parallel::__binder2nd< _Operation, _FirstArgumentType, _SecondArgumentType, _ResultType >:



Public Types

- typedef _FirstArgumentType argument_type
- typedef _ResultType result_type

Public Member Functions

- **__binder2nd** (const _Operation &__x, const _SecondArgumentType &__y)
- _ResultType **operator()** (_FirstArgumentType &__x)
- _ResultType **operator()** (const _FirstArgumentType &__x) const

Protected Attributes

- _Operation **_M_op**
- _SecondArgumentType **_M_value**

5.95.1 Detailed Description

template<typename _Operation, typename _FirstArgumentType, typename _SecondArgumentType, typename _ResultType> class __gnu_parallel::__binder2nd< _Operation, _FirstArgumentType, _SecondArgumentType, _ResultType >

Similar to std::binder2nd, but giving the argument types explicitly.

Definition at line 220 of file parallel/base.h.

5.95.2 Member Typedef Documentation

5.95.2.1 typedef _FirstArgumentType std::unary_function< _FirstArgumentType , _ResultType >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.95.2.2 typedef _ResultType std::unary_function< _FirstArgumentType , _ResultType >::result_type [inherited]

`result_type` is the return type

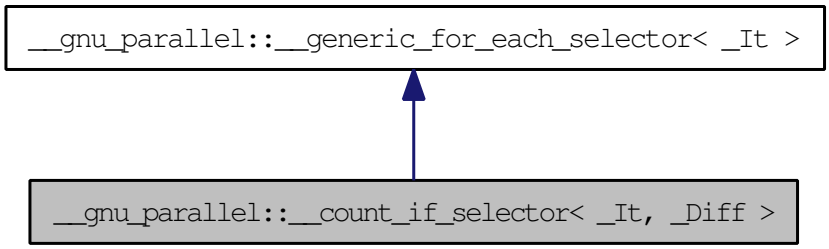
Definition at line 105 of file stl_function.h.

The documentation for this class was generated from the following file:

- parallel/base.h

5.96 __gnu_parallel::__count_if_selector< _It, _Diff > Struct Template Reference

std::count_if () selector. Inheritance diagram for __gnu_parallel::__count_if_selector< _It, _Diff >:



Public Member Functions

- template<typename _Op >
  _Diff operator() (_Op &__o, _It __i)

Public Attributes

- _It _M_finish_iterator

5.96.1 Detailed Description

template<typename _It, typename _Diff> struct __gnu_parallel::__count_if_selector< _It, _Diff >

std::count_if () selector.

Definition at line 194 of file for_each_selectors.h.

5.96.2 Member Function Documentation

5.96.2.1 template<typename _It , typename _Diff > template<typename _Op > _Diff __gnu_parallel::__count_if_selector< _It, _Diff >::operator() (_Op & *__o*, _It *__i*) [inline]

Functor execution.

Parameters:

__o Operator.

__i iterator referencing object.

Returns:

1 if count, 0 if does not count.

Definition at line 202 of file for_each_selectors.h.

5.96.3 Member Data Documentation

5.96.3.1 template<typename _It > _It __gnu_parallel::__generic_for_each_selector< _It >::_M_finish_iterator [inherited]

_Iterator on last element processed; needed for some algorithms (e. g. std::transform()).

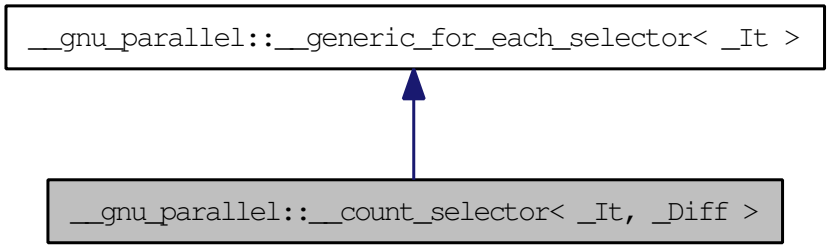
Definition at line 47 of file for_each_selectors.h.

The documentation for this struct was generated from the following file:

- for_each_selectors.h

5.97 __gnu_parallel::__count_selector< _It, _Diff > Struct Template Reference

std::count() selector. Inheritance diagram for __gnu_parallel::__count_selector< _It, _Diff >:



Public Member Functions

- template<typename _ValueType >
  _Diff operator() (_ValueType &__v, _It __i)

Public Attributes

- _It _M_finish_iterator

5.97.1 Detailed Description

template<typename _It, typename _Diff> struct __gnu_parallel::__count_selector< _It, _Diff >

std::count() selector.

Definition at line 180 of file for_each_selectors.h.

5.97.2 Member Function Documentation

5.97.2.1 template<typename _It, typename _Diff> template<typename _ValueType > _Diff __gnu_parallel::__count_selector< _It, _Diff >::operator() (_ValueType & *__v*, _It *__i*) [inline]

Functor execution.

Parameters:

__v Current value.

__i iterator referencing object.

Returns:

1 if count, 0 if does not count.

Definition at line 188 of file for_each_selectors.h.

5.97.3 Member Data Documentation

5.97.3.1 template<typename _It > _It __gnu_parallel::__generic_for_each_selector< _It >::_M_finish_iterator [inherited]

_Iterator on last element processed; needed for some algorithms (e. g. std::transform()).

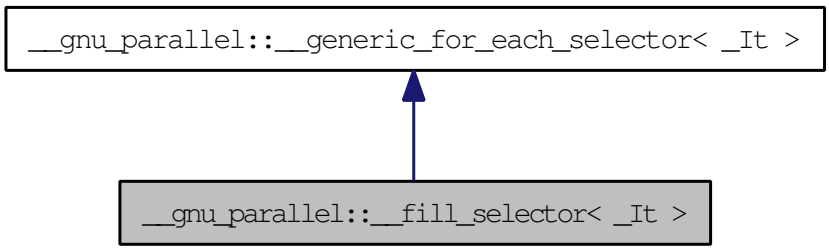
Definition at line 47 of file for_each_selectors.h.

The documentation for this struct was generated from the following file:

- for_each_selectors.h

5.98 __gnu_parallel::__fill_selector< _It > Struct Template Reference

std::fill() selector. Inheritance diagram for __gnu_parallel::__fill_selector< _It >:



Public Member Functions

- template<typename _ValueType >
  bool operator() (_ValueType &__v, _It __i)

Public Attributes

- _It _M_finish_iterator

5.98.1 Detailed Description

template<typename _It> struct __gnu_parallel::__fill_selector< _It >

std::fill() selector.

Definition at line 84 of file for_each_selectors.h.

5.98.2 Member Function Documentation

5.98.2.1 template<typename _It > template<typename _ValueType > bool __gnu_parallel::__fill_selector< _It >::operator() (_ValueType & __v, _It __i) [inline]

Functor execution.

Parameters:

__v Current value.

__i iterator referencing object.

Definition at line 91 of file for_each_selectors.h.

5.98.3 Member Data Documentation

5.98.3.1 template<typename _It > _It __gnu_parallel::__generic_for_each_selector< _It >::_M_finish_iterator [inherited]

_Iterator on last element processed; needed for some algorithms (e. g. std::transform()).

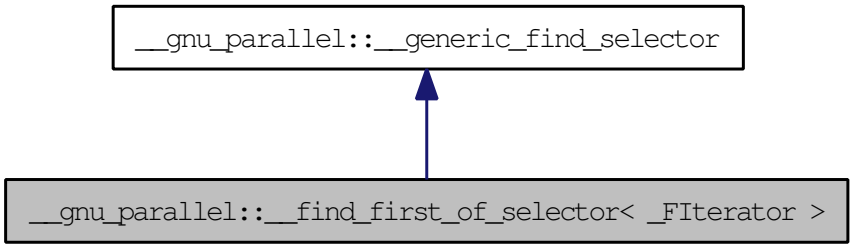
Definition at line 47 of file for_each_selectors.h.

The documentation for this struct was generated from the following file:

- for_each_selectors.h

5.99 __gnu_parallel::__find_first_of_selector< _FIterator > Struct Template Reference

Test predicate on several elements. Inheritance diagram for __gnu_parallel::__find_first_of_selector< _FIterator >:



Public Member Functions

- **__find_first_of_selector** (_FIterator __begin, _FIterator __end)
- template<typename _RAIter1 , typename _RAIter2 , typename _Pred > std::pair< _RAIter1, _RAIter2 > _M_sequential_algorithm (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _Pred __pred)
- template<typename _RAIter1 , typename _RAIter2 , typename _Pred > bool operator() (_RAIter1 __i1, _RAIter2 __i2, _Pred __pred)

Public Attributes

- _FIterator **_M_begin**
- _FIterator **_M_end**

5.99.1 Detailed Description

template<typename _FIterator> struct __gnu_parallel::__find_first_of_selector< _FIterator >

Test predicate on several elements.

Definition at line 153 of file find_selectors.h.

5.99.2 Member Function Documentation

5.99.2.1 template<typename _FIterator > template<typename _RAIter1 , typename _RAIter2 , typename _Pred > std::pair<_RAIter1, _RAIter2> __gnu_parallel::__find_first_of_selector< _FIterator >::_M_sequential_algorithm (_RAIter1 *__begin1*, _RAIter1 *__end1*, _RAIter2 *__begin2*, _Pred *__pred*) [inline]

Corresponding sequential algorithm on a sequence.

Parameters:

__begin1 Begin iterator of first sequence.

__end1 End iterator of first sequence.

__begin2 Begin iterator of second sequence.

__pred Find predicate.

Definition at line 186 of file find_selectors.h.

5.99.2.2 template<typename _FIterator > template<typename _RAIter1 , typename _RAIter2 , typename _Pred > bool __gnu_parallel::__find_first_of_selector< _FIterator >::operator() (_RAIter1 *__i1*, _RAIter2 *__i2*, _Pred *__pred*) [inline]

Test on one position.

Parameters:

__i1 _Iterator on first sequence.

__i2 _Iterator on second sequence (unused).

__pred Find predicate.

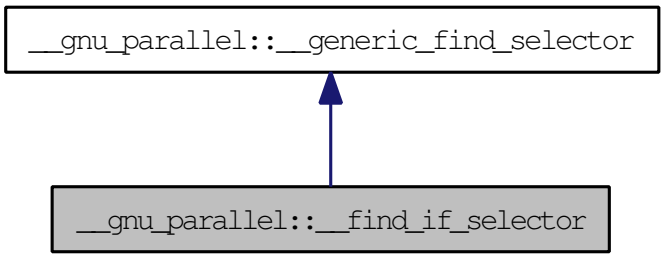
Definition at line 169 of file find_selectors.h.

The documentation for this struct was generated from the following file:

- find_selectors.h

5.100 __gnu_parallel::__find_if_selector Struct Reference

Test predicate on a single element, used for std::find() and std::find_if (). Inheritance diagram for __gnu_parallel::__find_if_selector:



Public Member Functions

- template<typename _RAIter1 , typename _RAIter2 , typename _Pred > std::pair< _RAIter1, _RAIter2 > _M_sequential_algorithm (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _Pred __pred)
- template<typename _RAIter1 , typename _RAIter2 , typename _Pred > bool operator() (_RAIter1 __i1, _RAIter2 __i2, _Pred __pred)

5.100.1 Detailed Description

Test predicate on a single element, used for std::find() and std::find_if ().

Definition at line 50 of file find_selectors.h.

5.100.2 Member Function Documentation

5.100.2.1 template<typename _RAIter1 , typename _RAIter2 , typename _Pred > std::pair<_RAIter1, _RAIter2> __gnu_parallel::__find_if_selector::_M_sequential_algorithm (_RAIter1 *__begin1*, _RAIter1 *__end1*, _RAIter2 *__begin2*, _Pred *__pred*) [inline]

Corresponding sequential algorithm on a sequence.

Parameters:

__begin1 Begin iterator of first sequence.

__end1 End iterator of first sequence.

__begin2 Begin iterator of second sequence.

__pred Find predicate.

Definition at line 72 of file find_selectors.h.

5.100.2.2 template<typename _RAIter1 , typename _RAIter2 , typename _Pred > bool __gnu_parallel::__find_if_selector::operator() (_RAIter1 *__i1*, _RAIter2 *__i2*, _Pred *__pred*) [inline]

Test on one position.

Parameters:

__i1 _Iterator on first sequence.

__i2 _Iterator on second sequence (unused).

__pred Find predicate.

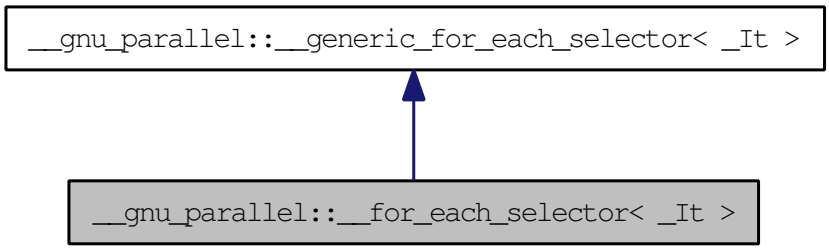
Definition at line 60 of file find_selectors.h.

The documentation for this struct was generated from the following file:

- find_selectors.h

5.101 __gnu_parallel::__for_each_selector< _It > Struct Template Reference

std::for_each() selector. Inheritance diagram for __gnu_parallel::__for_each_selector< _It >:



Public Member Functions

- template<typename _Op >
  bool operator() (_Op &__o, _It __i)

Public Attributes

- _It _M_finish_iterator

5.101.1 Detailed Description

template<typename _It> struct __gnu_parallel::__for_each_selector< _It >

std::for_each() selector.

Definition at line 52 of file for_each_selectors.h.

5.101.2 Member Function Documentation

5.101.2.1 template<typename _It> template<typename _Op > bool __gnu_parallel::__for_each_selector< _It >::operator() (_Op & *__o*, _It *__i*) [inline]

Functor execution.

Parameters:

__o Operator.

__i iterator referencing object.

Definition at line 59 of file for_each_selectors.h.

5.101.3 Member Data Documentation

5.101.3.1 template<typename _It > _It __gnu_parallel::__generic_for_each_selector< _It >::_M_finish_iterator [inherited]

_Iterator on last element processed; needed for some algorithms (e. g. std::transform()).

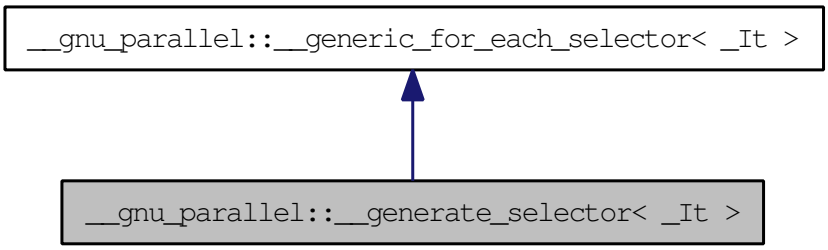
Definition at line 47 of file for_each_selectors.h.

The documentation for this struct was generated from the following file:

- for_each_selectors.h

5.102 __gnu_parallel::__generate_selector< _It > Struct Template Reference

std::generate() selector. Inheritance diagram for __gnu_parallel::__generate_selector< _It >:



Public Member Functions

- template<typename _Op >
  bool operator() (_Op &__o, _It __i)

Public Attributes

- _It _M_finish_iterator

5.102.1 Detailed Description

template<typename _It> struct __gnu_parallel::__generate_selector< _It >

std::generate() selector.

Definition at line 68 of file for_each_selectors.h.

5.102.2 Member Function Documentation

5.102.2.1 template<typename _It> template<typename _Op > bool __gnu_parallel::__generate_selector< _It >::operator() (_Op & *__o*, _It *__i*) [inline]

Functor execution.

Parameters:

__o Operator.

__i iterator referencing object.

Definition at line 75 of file for_each_selectors.h.

5.102.3 Member Data Documentation

5.102.3.1 template<typename _It > _It __gnu_parallel::__generic_for_each_selector< _It >::_M_finish_iterator [inherited]

_Iterator on last element processed; needed for some algorithms (e. g. std::transform()).

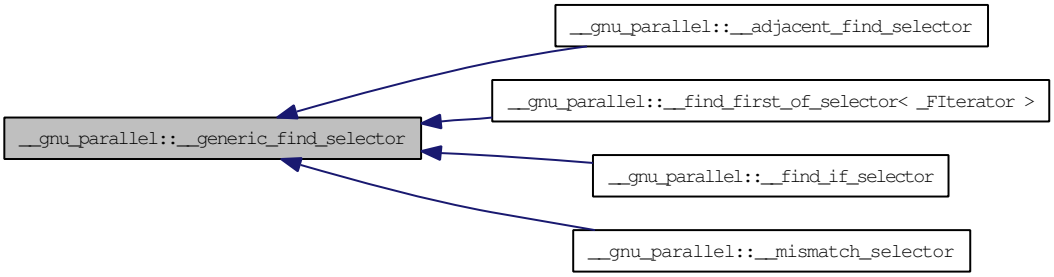
Definition at line 47 of file for_each_selectors.h.

The documentation for this struct was generated from the following file:

- for_each_selectors.h

5.103 __gnu_parallel::__generic_find_selector Struct Reference

Base class of all __gnu_parallel::__find_template selectors. Inheritance diagram for __gnu_parallel::__generic_find_selector:



5.103.1 Detailed Description

Base class of all __gnu_parallel::__find_template selectors.

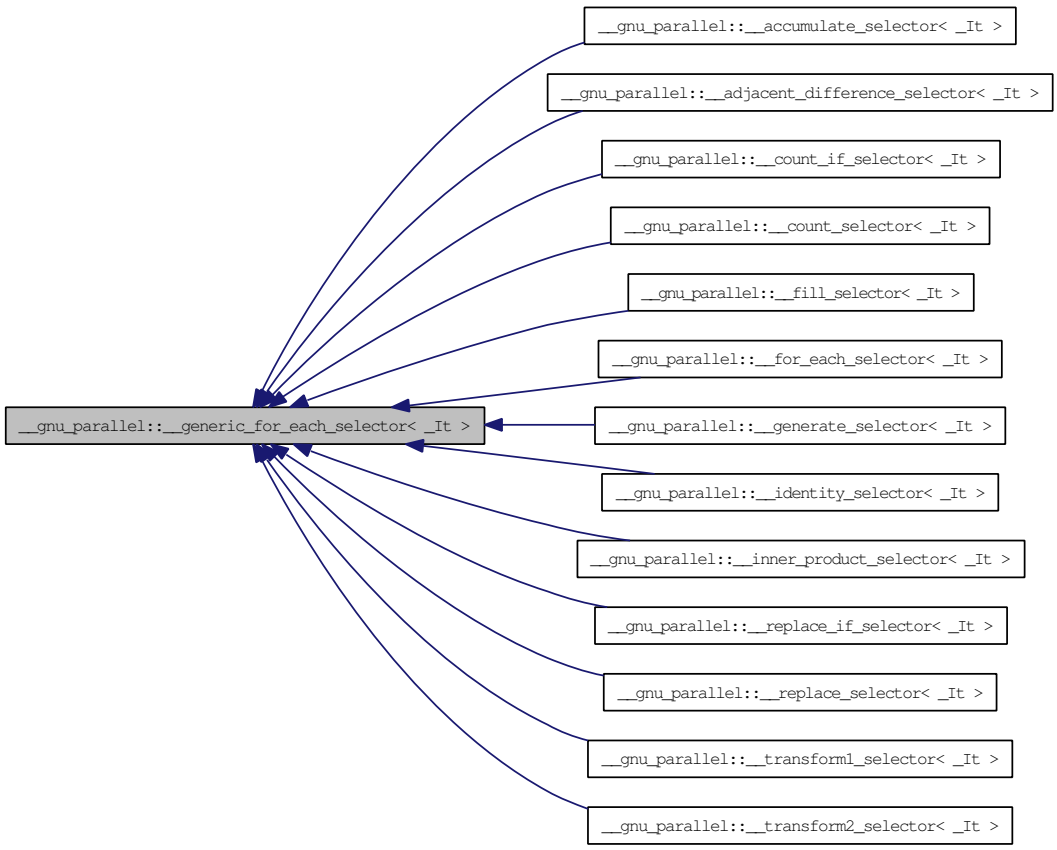
Definition at line 43 of file find_selectors.h.

The documentation for this struct was generated from the following file:

- find_selectors.h

5.104 __gnu_parallel::__generic_for_each_selector< _It > Struct Template Reference

Generic __selector for embarrassingly parallel functions. Inheritance diagram for __gnu_parallel::__generic_for_each_selector< _It >:



Public Attributes

- _It _M_finish_iterator

5.104.1 Detailed Description

template<typename _It> struct __gnu_parallel::__generic_for_each_selector< _It >

Generic __selector for embarrassingly parallel functions.

Definition at line 42 of file for_each_selectors.h.

5.104.2 Member Data Documentation

5.104.2.1 template<typename _It > _It __gnu_parallel::__generic_for_each_selector< _It >::_M_finish_iterator

_Iterator on last element processed; needed for some algorithms (e. g. std::transform()).

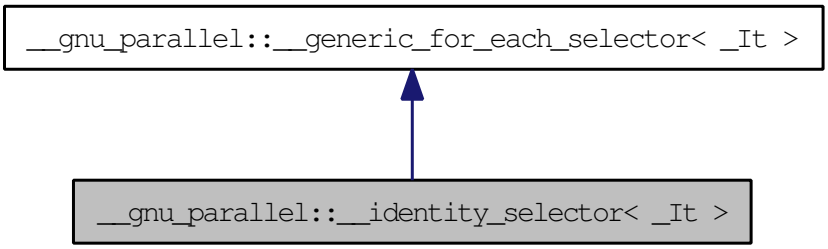
Definition at line 47 of file for_each_selectors.h.

The documentation for this struct was generated from the following file:

- for_each_selectors.h

5.105 __gnu_parallel::__identity_selector< _It > Struct Template Reference

Selector that just returns the passed iterator. Inheritance diagram for __gnu_parallel::_-_identity_selector< _It >:



Public Member Functions

- template<typename _Op >
  _It operator() (_Op __o, _It __i)

Public Attributes

- _It _M_finish_iterator

5.105.1 Detailed Description

template<typename _It> struct __gnu_parallel::__identity_selector< _It >

Selector that just returns the passed iterator.

Definition at line 253 of file for_each_selectors.h.

5.105.2 Member Function Documentation

5.105.2.1 template<typename _It> template<typename _Op > _It __gnu_parallel::__identity_selector< _It >::operator() (_Op __*o*, _It __*i*) [inline]

Functor execution.

Parameters:

__o Operator (unused).

__i iterator referencing object.

Returns:

Passed iterator.

Definition at line 261 of file for_each_selectors.h.

5.105.3 Member Data Documentation

5.105.3.1 template<typename _It > _It __gnu_parallel::__generic_for_each_selector< _It >::_M_finish_iterator [inherited]

_Iterator on last element processed; needed for some algorithms (e. g. std::transform()).

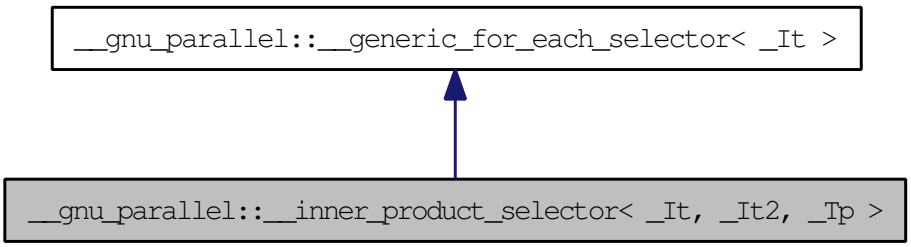
Definition at line 47 of file for_each_selectors.h.

The documentation for this struct was generated from the following file:

- for_each_selectors.h

5.106 __gnu_parallel::__inner_product_selector< _It, _It2, _Tp > Struct Template Reference

std::inner_product() selector. Inheritance diagram for __gnu_parallel::__inner_product_selector< _It, _It2, _Tp >:



Public Member Functions

- __inner_product_selector (_It __b1, _It2 __b2)
- template<typename _Op >
  _Tp operator() (_Op __mult, _It __current)

Public Attributes

- _It __begin1_iterator
- _It2 __begin2_iterator
- _It _M_finish_iterator

5.106.1 Detailed Description

template<typename _It, typename _It2, typename _Tp> struct __gnu_parallel::__inner_product_selector< _It, _It2, _Tp >

std::inner_product() selector.

Definition at line 222 of file for_each_selectors.h.

5.106.2 Constructor & Destructor Documentation

5.106.2.1 template<typename _It , typename _It2 , typename _Tp > __gnu_parallel::__inner_product_selector< _It, _It2, _Tp >::__inner_product_selector (_It *__b1*, _It2 *__b2*) [inline, explicit]

Constructor.

Parameters:

b1 Begin iterator of first sequence.

b2 Begin iterator of second sequence.

Definition at line 234 of file for_each_selectors.h.

5.106.3 Member Function Documentation

5.106.3.1 template<typename _It , typename _It2 , typename _Tp > template<typename _Op > _Tp __gnu_parallel::__inner_product_selector< _It, _It2, _Tp >::operator() (_Op *__mult*, _It *__current*) [inline]

Functor execution.

Parameters:

__mult Multiplication functor.

__current iterator referencing object.

Returns:

Inner product elemental __result.

Definition at line 243 of file for_each_selectors.h.

References __gnu_parallel::__inner_product_selector< _It, _It2, _Tp >::__begin1_iterator, and __gnu_parallel::__inner_product_selector< _It, _It2, _Tp >::__begin2_iterator.

5.106.4 Member Data Documentation

5.106.4.1 template<typename _It , typename _It2 , typename _Tp > _It __gnu_parallel::__inner_product_selector< _It, _It2, _Tp >::__begin1_iterator

Begin iterator of first sequence.

Definition at line 225 of file for_each_selectors.h.

Referenced by __gnu_parallel::__inner_product_selector< _It, _It2, _Tp >::operator()().

5.106.4.2 template<typename _It , typename _It2 , typename _Tp > _It2 __gnu_parallel::__inner_product_selector< _It, _It2, _Tp >::__begin2_iterator

Begin iterator of second sequence.

Definition at line 228 of file for_each_selectors.h.

Referenced by __gnu_parallel::__inner_product_selector< _It, _It2, _Tp >::operator()().

5.106.4.3 template<typename _It > _It __gnu_parallel::__generic_for_each_selector< _It >::_M_finish_iterator [inherited]

_Iterator on last element processed; needed for some algorithms (e. g. std::transform()).

Definition at line 47 of file for_each_selectors.h.

The documentation for this struct was generated from the following file:

- for_each_selectors.h

5.107 __gnu_parallel::__max_element_reduct< _Compare, _It > Struct Template Reference

Reduction for finding the maximum element, using a comparator.

Public Member Functions

- **__max_element_reduct** (_Compare &__c)
- _It **operator()** (_It __x, _It __y)

Public Attributes

- _Compare & **__comp**

5.107.1 Detailed Description

template<typename _Compare, typename _It> struct __gnu_parallel::__max_element_reduct< _Compare, _It >

Reduction for finding the maximum element, using a comparator.

Definition at line 321 of file for_each_selectors.h.

The documentation for this struct was generated from the following file:

- for_each_selectors.h

5.108 __gnu_parallel::__min_element_reduct< _Compare, _It > Struct Template Reference

Reduction for finding the maximum element, using a comparator.

Public Member Functions

- **__min_element_reduct** (_Compare &__c)
- _It **operator()** (_It __x, _It __y)

Public Attributes

- _Compare & **__comp**

5.108.1 Detailed Description

template<typename _Compare, typename _It> struct __gnu_parallel::__min_element_reduct< _Compare, _It >

Reduction for finding the maximum element, using a comparator.

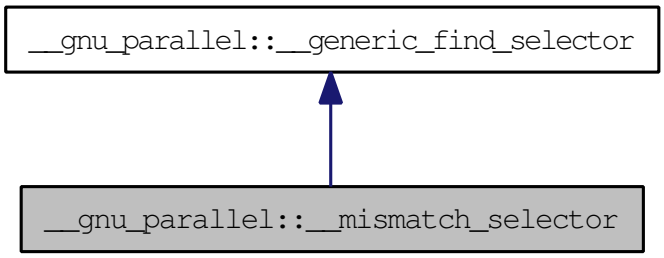
Definition at line 307 of file for_each_selectors.h.

The documentation for this struct was generated from the following file:

- for_each_selectors.h

5.109 __gnu_parallel::__mismatch_selector Struct Reference

Test inverted predicate on a single element. Inheritance diagram for __gnu_parallel::__mismatch_selector:



Public Member Functions

- template<typename _RAIter1 , typename _RAIter2 , typename _Pred > std::pair< _RAIter1, _RAIter2 > _M_sequential_algorithm (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _Pred __pred)
- template<typename _RAIter1 , typename _RAIter2 , typename _Pred > bool operator() (_RAIter1 __i1, _RAIter2 __i2, _Pred __pred)

5.109.1 Detailed Description

Test inverted predicate on a single element.

Definition at line 119 of file find_selectors.h.

5.109.2 Member Function Documentation

5.109.2.1 template<typename _RAIter1 , typename _RAIter2 , typename _Pred > std::pair<_RAIter1, _RAIter2> __gnu_parallel::__mismatch_selector::_M_sequential_algorithm (_RAIter1 *__begin1*, _RAIter1 *__end1*, _RAIter2 *__begin2*, _Pred *__pred*) [inline]

Corresponding sequential algorithm on a sequence.

Parameters:

__begin1 Begin iterator of first sequence.

__end1 End iterator of first sequence.

__begin2 Begin iterator of second sequence.

__pred Find predicate.

Definition at line 143 of file find_selectors.h.

5.109.2.2 template<typename _RAIter1 , typename _RAIter2 , typename _Pred > bool __gnu_parallel::__mismatch_selector::operator() (_RAIter1 *__i1*, _RAIter2 *__i2*, _Pred *__pred*) [inline]

Test on one position.

Parameters:

__i1 _Iterator on first sequence.

__i2 _Iterator on second sequence (unused).

__pred Find predicate.

Definition at line 130 of file find_selectors.h.

The documentation for this struct was generated from the following file:

- find_selectors.h

5.110 __gnu_parallel::__multiway_merge_3_variant_sentinel_switch< __sentinels, _RAIterIterator, _RAIter3, _DifferenceTp, _Compare > Struct Template Reference

Switch for 3-way merging with __sentinels turned off.

Public Member Functions

- _RAIter3 **operator()** (_RAIterIterator __seqs_begin, _RAIterIterator __seqs_end, _RAIter3 __target, _DifferenceTp __length, _Compare __comp)

5.110.1 Detailed Description

template<bool __sentinels, typename _RAIterIterator, typename _RAIter3, typename _DifferenceTp, typename _Compare> struct __gnu_parallel::__multiway_merge_3_variant_sentinel_switch< __sentinels, _RAIterIterator, _RAIter3, _DifferenceTp, _Compare >

Switch for 3-way merging with __sentinels turned off. Note that 3-way merging is always stable!

Definition at line 748 of file multiway_merge.h.

The documentation for this struct was generated from the following file:

- multiway_merge.h

5.111 __gnu_parallel::__multiway_merge_3_variant_sentinel_switch< true, _RAIterIterator, _RAIter3, _DifferenceTp, _Compare > Struct Template Reference

Switch for 3-way merging with __sentinels turned on.

Public Member Functions

- _RAIter3 **operator()** (_RAIterIterator __seqs_begin, _RAIterIterator __seqs_end, _RAIter3 __target, _DifferenceTp __length, _Compare __comp)

5.111.1 Detailed Description

template<typename _RAIterIterator, typename _RAIter3, typename _DifferenceTp, typename _Compare> struct __gnu_parallel::__multiway_merge_3_variant_sentinel_switch< true, _RAIterIterator, _RAIter3, _DifferenceTp, _Compare >

Switch for 3-way merging with __sentinels turned on. Note that 3-way merging is always stable!

Definition at line 768 of file multiway_merge.h.

The documentation for this struct was generated from the following file:

- multiway_merge.h

5.112 __gnu_parallel::__multiway_merge_4_variant_sentinel_switch< __sentinels, _RAIterIterator, _RAIter3, _DifferenceTp, _Compare > Struct Template Reference

Switch for 4-way merging with __sentinels turned off.

Public Member Functions

- _RAIter3 **operator()** (_RAIterIterator __seqs_begin, _RAIterIterator __seqs_end, _RAIter3 __target, _DifferenceTp __length, _Compare __comp)

5.112.1 Detailed Description

template<bool __sentinels, typename _RAIterIterator, typename _RAIter3, typename _DifferenceTp, typename _Compare> struct __gnu_parallel::__multiway_merge_4_variant_sentinel_switch< __sentinels, _RAIterIterator, _RAIter3, _DifferenceTp, _Compare >

Switch for 4-way merging with __sentinels turned off. Note that 4-way merging is always stable!

Definition at line 791 of file multiway_merge.h.

The documentation for this struct was generated from the following file:

- multiway_merge.h

5.113 __gnu_parallel::__multiway_merge_4_variant_sentinel_switch< true, _RAIterIterator, _RAIter3, _DifferenceTp, _Compare > Struct Template Reference

Switch for 4-way merging with __sentinels turned on.

Public Member Functions

- _RAIter3 **operator()** (_RAIterIterator __seqs_begin, _RAIterIterator __seqs_end, _RAIter3 __target, _DifferenceTp __length, _Compare __comp)

5.113.1 Detailed Description

template<typename _RAIterIterator, typename _RAIter3, typename _DifferenceTp, typename _Compare> struct __gnu_parallel::__multiway_merge_4_variant_sentinel_switch< true, _RAIterIterator, _RAIter3, _DifferenceTp, _Compare >

Switch for 4-way merging with __sentinels turned on. Note that 4-way merging is always stable!

Definition at line 811 of file multiway_merge.h.

The documentation for this struct was generated from the following file:

- multiway_merge.h

5.114 __gnu_parallel::__multiway_merge_k_variant_sentinel_switch< __sentinels, __stable, _RAIterIterator, _RAIter3, _DifferenceTp, _Compare > Struct Template Reference

Switch for k-way merging with __sentinels turned on.

Public Member Functions

- _RAIter3 **operator()** (_RAIterIterator __seqs_begin, _RAIterIterator __seqs_end, _RAIter3 __target, const typename std::iterator_traits< typename std::iterator_traits< _RAIterIterator >::value_type::first_type >::value_type &__sentinel, _DifferenceTp __length, _Compare __comp)

5.114.1 Detailed Description

template<bool __sentinels, bool __stable, typename _RAIterIterator, typename _RAIter3, typename _DifferenceTp, typename _Compare> struct __gnu_parallel::__multiway_merge_k_variant_sentinel_switch< __sentinels, __stable, _RAIterIterator, _RAIter3, _DifferenceTp, _Compare >

Switch for k-way merging with __sentinels turned on.

Definition at line 833 of file multiway_merge.h.

The documentation for this struct was generated from the following file:

- multiway_merge.h

5.115 __gnu_parallel::__multiway_merge_k_variant_sentinel_switch< false, __stable, _RAIterIterator, _RAIter3, _DifferenceTp, _Compare > Struct Template Reference

Switch for k-way merging with __sentinels turned off.

Public Member Functions

- _RAIter3 **operator()** (_RAIterIterator __seqs_begin, _RAIterIterator __seqs_end, _RAIter3 __target, const typename std::iterator_traits< typename std::iterator_traits< _RAIterIterator >::value_type::first_type >::value_type &__sentinel, _DifferenceTp __length, _Compare __comp)

5.115.1 Detailed Description

template<bool __stable, typename _RAIterIterator, typename _RAIter3, typename _DifferenceTp, typename _Compare> struct __gnu_parallel::__multiway_merge_k_variant_sentinel_switch< false, __stable, _RAIterIterator, _RAIter3, _DifferenceTp, _Compare >

Switch for k-way merging with __sentinels turned off.

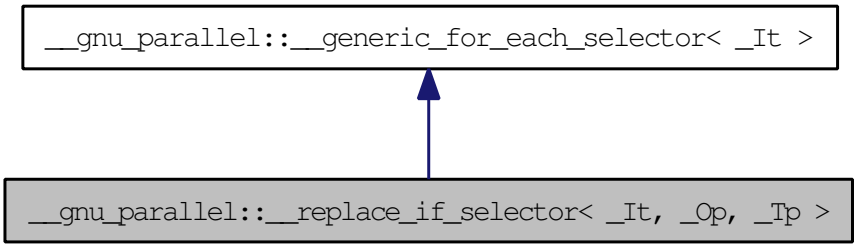
Definition at line 868 of file multiway_merge.h.

The documentation for this struct was generated from the following file:

- multiway_merge.h

5.116 __gnu_parallel::__replace_if_selector< _It, _Op, _Tp > Struct Template Reference

std::replace() selector. Inheritance diagram for __gnu_parallel::__replace_if_selector< _It, _Op, _Tp >:



Public Member Functions

- __replace_if_selector (const _Tp &__new_val)
- bool operator() (_Op &__o, _It __i)

Public Attributes

- const _Tp & __new_val
- _It _M_finish_iterator

5.116.1 Detailed Description

template<typename _It, typename _Op, typename _Tp> struct __gnu_parallel::__replace_if_selector< _It, _Op, _Tp >

std::replace() selector.

Definition at line 156 of file for_each_selectors.h.

5.116.2 Constructor & Destructor Documentation

5.116.2.1 template<typename _It , typename _Op , typename _Tp > __gnu_parallel::__replace_if_selector< _It, _Op, _Tp >::__replace_if_selector (const _Tp & *__new_val*) [inline, explicit]

Constructor.

Parameters:

__new_val Value to replace with.

Definition at line 164 of file for_each_selectors.h.

5.116.3 Member Function Documentation

5.116.3.1 template<typename _It , typename _Op , typename _Tp > bool __gnu_parallel::__replace_if_selector< _It, _Op, _Tp >::operator() (_Op & *__o*, _It *__i*) [inline]

Functor execution.

Parameters:

__o Operator.

__i iterator referencing object.

Definition at line 170 of file for_each_selectors.h.

References __gnu_parallel::__replace_if_selector< _It, _Op, _Tp >::__new_val.

5.116.4 Member Data Documentation

5.116.4.1 template<typename _It , typename _Op , typename _Tp > const _Tp& __gnu_parallel::__replace_if_selector< _It, _Op, _Tp >::__new_val

Value to replace with.

Definition at line 159 of file for_each_selectors.h.

Referenced by __gnu_parallel::__replace_if_selector< _It, _Op, _Tp >::operator()().

5.116.4.2 template<typename _It > _It __gnu_parallel::__-generic_for_each_selector< _It >::_M_finish_iterator [inherited]

_Iterator on last element processed; needed for some algorithms (e. g. std::transform()).

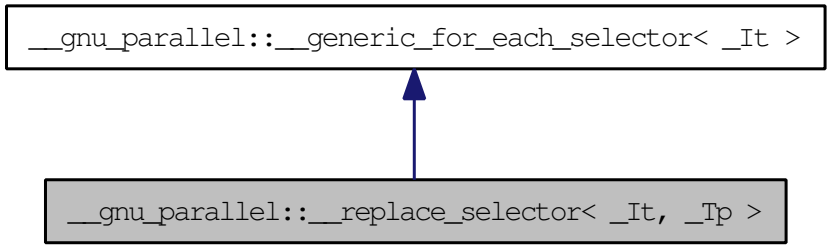
Definition at line 47 of file for_each_selectors.h.

The documentation for this struct was generated from the following file:

- for_each_selectors.h

5.117 __gnu_parallel::__replace_selector< _It, _Tp > Struct Template Reference

std::replace() selector. Inheritance diagram for __gnu_parallel::__replace_selector< _It, _Tp >:



Public Member Functions

- __replace_selector (const _Tp &__new_val)
- bool operator() (_Tp &__v, _It __i)

Public Attributes

- const _Tp & __new_val
- _It _M_finish_iterator

5.117.1 Detailed Description

template<typename _It, typename _Tp> struct __gnu_parallel::__replace_selector< _It, _Tp >

std::replace() selector.

Definition at line 132 of file for_each_selectors.h.

5.117.2 Constructor & Destructor Documentation

5.117.2.1 template<typename _It , typename _Tp > __gnu_parallel::__replace_selector< _It, _Tp >::__replace_selector (const _Tp & *__new_val*) [inline, explicit]

Constructor.

Parameters:

__new_val Value to replace with.

Definition at line 140 of file for_each_selectors.h.

5.117.3 Member Function Documentation

5.117.3.1 template<typename _It , typename _Tp > bool __gnu_parallel::__replace_selector< _It, _Tp >::operator() (_Tp & *__v*, _It *__i*) [inline]

Functor execution.

Parameters:

__v Current value.

__i iterator referencing object.

Definition at line 146 of file for_each_selectors.h.

References __gnu_parallel::__replace_selector< _It, _Tp >::__new_val.

5.117.4 Member Data Documentation

5.117.4.1 template<typename _It , typename _Tp > const _Tp& __gnu_parallel::__replace_selector< _It, _Tp >::__new_val

Value to replace with.

Definition at line 135 of file for_each_selectors.h.

Referenced by __gnu_parallel::__replace_selector< _It, _Tp >::operator()().

5.117.4.2 template<typename _It > _It __gnu_parallel::__generic_for_each_selector< _It >::_M_finish_iterator [inherited]

_Iterator on last element processed; needed for some algorithms (e. g. std::transform()).

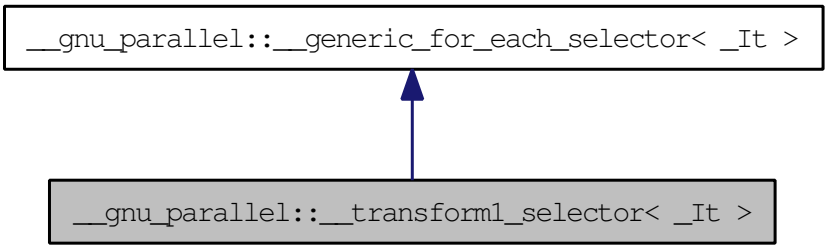
Definition at line 47 of file for_each_selectors.h.

The documentation for this struct was generated from the following file:

- for_each_selectors.h

5.118 __gnu_parallel::__transform1_selector< _It > Struct Template Reference

std::transform() __selector, one input sequence variant. Inheritance diagram for __gnu_parallel::__transform1_selector< _It >:



Public Member Functions

- template<typename _Op >
  bool operator() (_Op &__o, _It __i)

Public Attributes

- _It _M_finish_iterator

5.118.1 Detailed Description

template<typename _It> struct __gnu_parallel::__transform1_selector< _It >

std::transform() __selector, one input sequence variant.

Definition at line 100 of file for_each_selectors.h.

5.118.2 Member Function Documentation

5.118.2.1 template<typename _It> template<typename _Op > bool __gnu_parallel::__transform1_selector< _It >::operator() (_Op & *__o*, _It *__i*) [inline]

Functor execution.

Parameters:

__o Operator.

__i iterator referencing object.

Definition at line 107 of file for_each_selectors.h.

5.118.3 Member Data Documentation

5.118.3.1 template<typename _It > _It __gnu_parallel::__-generic_for_each_selector< _It >::_M_finish_iterator [inherited]

_Iterator on last element processed; needed for some algorithms (e. g. std::transform()).

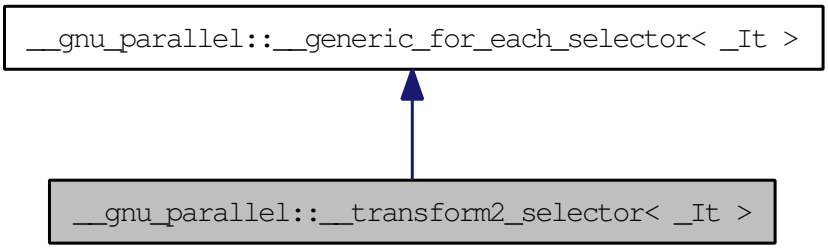
Definition at line 47 of file for_each_selectors.h.

The documentation for this struct was generated from the following file:

- for_each_selectors.h

5.119 __gnu_parallel::__transform2_selector< _It > Struct Template Reference

std::transform() __selector, two input sequences variant. Inheritance diagram for __gnu_parallel::__transform2_selector< _It >:



Public Member Functions

- template<typename _Op >
  bool operator() (_Op &__o, _It __i)

Public Attributes

- _It _M_finish_iterator

5.119.1 Detailed Description

template<typename _It> struct __gnu_parallel::__transform2_selector< _It >

std::transform() __selector, two input sequences variant.

Definition at line 116 of file for_each_selectors.h.

5.119.2 Member Function Documentation

5.119.2.1 template<typename _It> template<typename _Op > bool __gnu_parallel::__transform2_selector< _It >::operator() (_Op & *__o*, _It *__i*) [inline]

Functor execution.

Parameters:

__o Operator.

__i iterator referencing object.

Definition at line 123 of file for_each_selectors.h.

5.119.3 Member Data Documentation

5.119.3.1 template<typename _It > _It __gnu_parallel::__-generic_for_each_selector< _It >::_M_finish_iterator [inherited]

_Iterator on last element processed; needed for some algorithms (e. g. std::transform()).

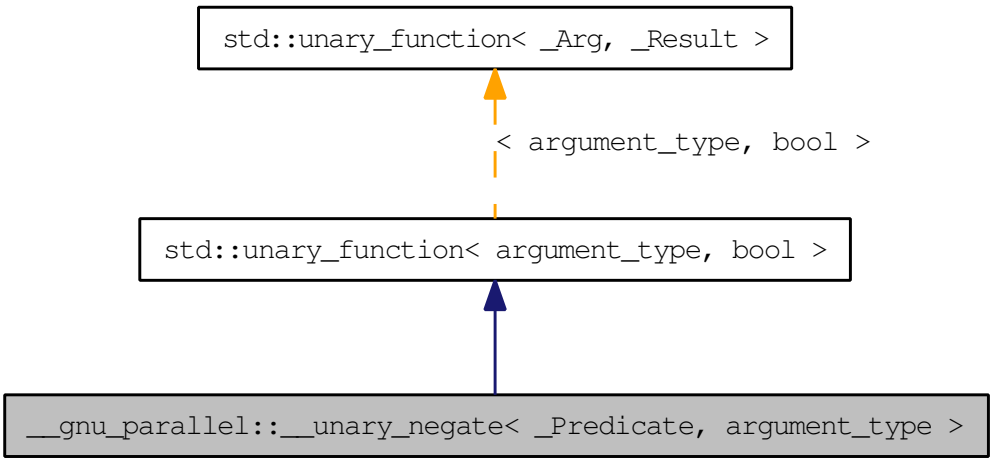
Definition at line 47 of file for_each_selectors.h.

The documentation for this struct was generated from the following file:

- for_each_selectors.h

5.120 __gnu_parallel::__unary_negate< _Predicate, argument_type > Class Template Reference

Similar to std::unary_negate, but giving the argument types explicitly. Inheritance diagram for __gnu_parallel::__unary_negate< _Predicate, argument_type >:



Public Types

- typedef argument_type argument_type
- typedef bool result_type

Public Member Functions

- **__unary_negate** (const _Predicate &__x)
- bool **operator()** (const argument_type &__x)

Protected Attributes

- _Predicate **_M_pred**

5.120.1 Detailed Description

template<typename _Predicate, typename argument_type> class __gnu_parallel::__unary_negate< _Predicate, argument_type >

Similar to std::unary_negate, but giving the argument types explicitly.

Definition at line 173 of file parallel/base.h.

5.120.2 Member Typedef Documentation

5.120.2.1 typedef argument_type std::unary_function< argument_type , bool >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.120.2.2 typedef bool std::unary_function< argument_type , bool >::result_type [inherited]

`result_type` is the return type

Definition at line 105 of file stl_function.h.

The documentation for this class was generated from the following file:

- parallel/base.h

5.121 __gnu_parallel::_DRandomShufflingGlobalData< _RAIter > Struct Template Reference

Data known to every thread participating in __gnu_parallel::__parallel_random_shuffle().

Public Types

- typedef _TraitsType::difference_type **_DifferenceType**
- typedef std::iterator_traits< _RAIter > **_TraitsType**
- typedef _TraitsType::value_type **_ValueType**

Public Member Functions

- _DRandomShufflingGlobalData (_RAIter &__source)

Public Attributes

- _ThreadIndex * _M_bin_proc
- _DifferenceType ** _M_dist
- int _M_num_bins
- int _M_num_bits
- _RAIter & _M_source
- _DifferenceType * _M_starts
- _ValueType ** _M_temporaries

5.121.1 Detailed Description

template<typename _RAIter> struct __gnu_parallel::_DRandomShufflingGlobalData< _RAIter >

Data known to every thread participating in __gnu_parallel::__parallel_random_shuffle().

Definition at line 52 of file random_shuffle.h.

5.121.2 Constructor & Destructor Documentation

5.121.2.1 template<typename _RAIter> __gnu_parallel::_DRandomShufflingGlobalData< _RAIter >::_DRandomShufflingGlobalData (_RAIter & *__source*) [inline]

Constructor.

Definition at line 83 of file random_shuffle.h.

5.121.3 Member Data Documentation

5.121.3.1 template<typename _RAIter> _ThreadIndex* __gnu_parallel::_DRandomShufflingGlobalData< _RAIter >::_M_bin_proc

Number of the thread that will further process the corresponding bin.

Definition at line 74 of file random_shuffle.h.

Referenced by __gnu_parallel::__parallel_random_shuffle_drs().

5.121.3.2 template<typename _RAIter> _DifferenceType** __gnu_parallel::_DRandomShufflingGlobalData< _RAIter >::_M_dist

Two-dimensional array to hold the thread-bin distribution. Dimensions (_M_num_threads + 1) __x (_M_num_bins + 1).

Definition at line 67 of file random_shuffle.h.

Referenced by __gnu_parallel::__parallel_random_shuffle_drs(), and __gnu_parallel::__parallel_random_shuffle_drs_pu().

5.121.3.3 template<typename _RAIter> int __gnu_parallel::_DRandomShufflingGlobalData< _RAIter >::_M_num_bins

Number of bins to distribute to.

Definition at line 77 of file random_shuffle.h.

Referenced by __gnu_parallel::__parallel_random_shuffle_drs(), and __gnu_parallel::__parallel_random_shuffle_drs_pu().

5.121.3.4 template<typename _RAIter> int __gnu_parallel::_DRandomShufflingGlobalData< _RAIter >::_M_num_bits

Number of bits needed to address the bins.

Definition at line 80 of file random_shuffle.h.

Referenced by __gnu_parallel::__parallel_random_shuffle_drs(), and __gnu_parallel::__parallel_random_shuffle_drs_pu().

5.121.3.5 template<typename _RAIter> _RAIter& __gnu_parallel::_DRandomShufflingGlobalData< _RAIter >::_M_source

Begin iterator of the __source.

Definition at line 59 of file random_shuffle.h.

5.121.3.6 template<typename _RAIter> _DifferenceType* __gnu_parallel::_DRandomShufflingGlobalData< _RAIter >::_M_starts

Start indexes of the threads' __chunks.

Definition at line 70 of file random_shuffle.h.

Referenced by __gnu_parallel::__parallel_random_shuffle_drs(), and __gnu_parallel::__parallel_random_shuffle_drs_pu().

5.121.3.7 template<typename _RAIter> _ValueType** __gnu_parallel::_DRandomShufflingGlobalData< _RAIter >::_M_temporaries

Temporary arrays for each thread.

Definition at line 62 of file random_shuffle.h.

Referenced by __gnu_parallel::__parallel_random_shuffle_drs().

The documentation for this struct was generated from the following file:

- random_shuffle.h

5.122 __gnu_parallel::_DRSSorterPU< _RAIter, _RandomNumberGenerator > Struct Template Reference

Local data for a thread participating in __gnu_parallel::__parallel_random_shuffle().

Public Attributes

- _BinIndex __bins_end
- _BinIndex _M_bins_begin
- int _M_num_threads
- _DRandomShufflingGlobalData< _RAIter > * _M_sd
- uint32_t _M_seed

5.122.1 Detailed Description

template<typename _RAIter, typename _RandomNumberGenerator> struct __gnu_parallel::_DRSSorterPU< _RAIter, _RandomNumberGenerator >

Local data for a thread participating in __gnu_parallel::__parallel_random_shuffle().

Definition at line 91 of file random_shuffle.h.

5.122.2 Member Data Documentation

5.122.2.1 template<typename _RAIter, typename _RandomNumberGenerator> _BinIndex __gnu_parallel::_DRSSorterPU< _RAIter, _RandomNumberGenerator >::__bins_end

End index for bins taken care of by this thread.

Definition at line 100 of file random_shuffle.h.

Referenced by __gnu_parallel::__parallel_random_shuffle_drs().

5.122.2.2 template<typename _RAIter, typename _RandomNumberGenerator> _BinIndex __gnu_parallel::_DRSSorterPU< _RAIter, _RandomNumberGenerator >::_M_bins_begin

Begin index for bins taken care of by this thread.

Definition at line 97 of file random_shuffle.h.

Referenced by __gnu_parallel::__parallel_random_shuffle_drs().

5.122.2.3 template<typename _RAIter, typename _RandomNumberGenerator> int __gnu_parallel::_DRSSorterPU< _RAIter, _RandomNumberGenerator >::_M_num_threads

Number of threads participating in total.

Definition at line 94 of file random_shuffle.h.

Referenced by __gnu_parallel::__parallel_random_shuffle_drs(), and __gnu_parallel::__parallel_random_shuffle_drs_pu().

5.122.2.4 template<typename _RAIter, typename _RandomNumberGenerator> _DRandomShufflingGlobalData<_RAIter>* __gnu_parallel::_DRSSorterPU< _RAIter, _RandomNumberGenerator >::_M_sd

Pointer to global data.

Definition at line 106 of file random_shuffle.h.

Referenced by __gnu_parallel::__parallel_random_shuffle_drs(), and __gnu_parallel::__parallel_random_shuffle_drs_pu().

5.122.2.5 template<typename _RAIter, typename _RandomNumberGenerator> uint32_t __gnu_parallel::_DRSSorterPU< _RAIter, _RandomNumberGenerator >::_M_seed

Random _M_seed for this thread.

Definition at line 103 of file random_shuffle.h.

Referenced by __gnu_parallel::__parallel_random_shuffle_drs(), and __gnu_parallel::__parallel_random_shuffle_drs_pu().

The documentation for this struct was generated from the following file:

- random_shuffle.h

5.123 __gnu_parallel::_DummyReduct Struct Reference

Reduction function doing nothing.

Public Member Functions

- bool **operator()** (bool, bool) const

5.123.1 Detailed Description

Reduction function doing nothing.

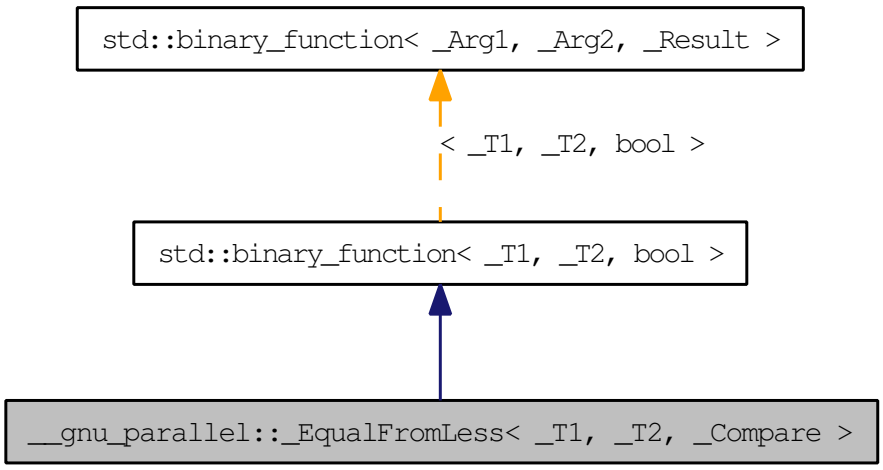
Definition at line 298 of file for_each_selectors.h.

The documentation for this struct was generated from the following file:

- for_each_selectors.h

5.124 __gnu_parallel::_EqualFromLess< _T1, _T2, _Compare > Class Template Reference

Constructs predicate for equality from strict weak ordering predicate. Inheritance diagram for __gnu_parallel::_EqualFromLess< _T1, _T2, _Compare >:



Public Types

- typedef _T1 first_argument_type
- typedef bool result_type
- typedef _T2 second_argument_type

Public Member Functions

- **_EqualFromLess** (_Compare &__comp)
- bool **operator()** (const _T1 &__a, const _T2 &__b)

5.124.1 Detailed Description

template<typename _T1, typename _T2, typename _Compare> class __gnu_parallel::_EqualFromLess< _T1, _T2, _Compare >

Constructs predicate for equality from strict weak ordering predicate.

Definition at line 157 of file parallel/base.h.

5.124.2 Member Typedef Documentation

5.124.2.1 typedef _T1 std::binary_function< _T1 , _T2 , bool >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.124.2.2 typedef bool std::binary_function< _T1 , _T2 , bool >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.124.2.3 typedef _T2 std::binary_function< _T1 , _T2 , bool >::second_argument_type [inherited]

the type of the second argument

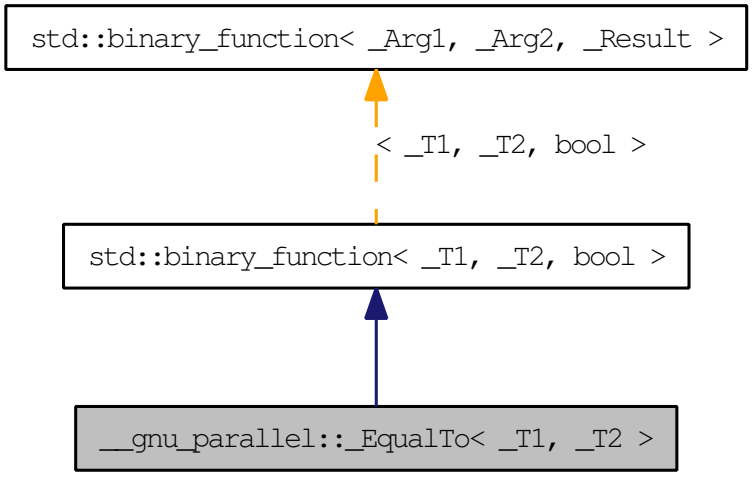
Definition at line 117 of file stl_function.h.

The documentation for this class was generated from the following file:

- parallel/base.h

5.125 __gnu_parallel::_EqualTo< _T1, _T2 > Struct Template Reference

Similar to std::equal_to, but allows two different types. Inheritance diagram for __gnu_parallel::_EqualTo< _T1, _T2 >:



Public Types

- typedef _T1 first_argument_type
- typedef bool result_type
- typedef _T2 second_argument_type

Public Member Functions

- bool **operator()** (const _T1 &__t1, const _T2 &__t2) const

5.125.1 Detailed Description

template<typename _T1, typename _T2> struct __gnu_parallel::_EqualTo< _T1, _T2 >

Similar to std::equal_to, but allows two different types.

Definition at line 244 of file parallel/base.h.

5.125.2 Member Typedef Documentation

5.125.2.1 typedef _T1 std::binary_function< _T1 , _T2 , bool >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.125.2.2 typedef bool std::binary_function< _T1 , _T2 , bool >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.125.2.3 typedef _T2 std::binary_function< _T1 , _T2 , bool >::second_argument_type [inherited]

the type of the second argument

Definition at line 117 of file stl_function.h.

The documentation for this struct was generated from the following file:

- parallel/base.h

5.126 __gnu_parallel::_GuardedIterator< _RAIter, _Compare > Class Template Reference

_Iterator wrapper supporting an implicit supremum at the end of the sequence, dominating all comparisons.

Public Member Functions

- _GuardedIterator (_RAIter __begin, _RAIter __end, _Compare &__comp)
- operator _RAIter ()
- std::iterator_traits< _RAIter >::value_type & operator* ()
- _GuardedIterator< _RAIter, _Compare > & operator++ ()

Friends

- bool operator< (_GuardedIterator< _RAIter, _Compare > &__bi1, _GuardedIterator< _RAIter, _Compare > &__bi2)
- bool operator<= (_GuardedIterator< _RAIter, _Compare > &__bi1, _GuardedIterator< _RAIter, _Compare > &__bi2)

5.126.1 Detailed Description

template<typename _RAIter, typename _Compare> class __gnu_parallel::_GuardedIterator< _RAIter, _Compare >

_Iterator wrapper supporting an implicit supremum at the end of the sequence, dominating all comparisons. The implicit supremum comes with a performance cost.

Deriving from _RAIter is not possible since _RAIter need not be a class.

Definition at line 66 of file multiway_merge.h.

5.126.2 Constructor & Destructor Documentation

5.126.2.1 template<typename _RAIter , typename _Compare > __gnu_parallel::_GuardedIterator< _RAIter, _Compare >::_GuardedIterator (_RAIter *__begin*, _RAIter *__end*, _Compare & *__comp*) [inline]

Constructor. Sets iterator to beginning of sequence.

Parameters:

__begin Begin iterator of sequence.

__end End iterator of sequence.

__comp Comparator provided for associated overloaded compare operators.

Definition at line 84 of file multiway_merge.h.

5.126.3 Member Function Documentation

5.126.3.1 template<typename _RAIter , typename _Compare > __gnu_parallel::_GuardedIterator< _RAIter, _Compare >::operator _RAIter () [inline]

Convert to wrapped iterator.

Returns:

Wrapped iterator.

Definition at line 105 of file multiway_merge.h.

5.126.3.2 template<typename _RAIter , typename _Compare > std::iterator_traits<_RAIter>::value_type& __gnu_parallel::_GuardedIterator< _RAIter, _Compare >::operator* () [inline]

Dereference operator.

Returns:

Referenced element.

Definition at line 100 of file multiway_merge.h.

5.126.3.3 template<typename _RAIter , typename _Compare > _GuardedIterator<_RAIter, _Compare>& __gnu_parallel::_GuardedIterator< _RAIter, _Compare >::operator++ () [inline]

Pre-increment operator.

Returns:

This.

Definition at line 91 of file multiway_merge.h.

5.126.4 Friends And Related Function Documentation

5.126.4.1 template<typename _RAIter , typename _Compare > bool operator< (_GuardedIterator< _RAIter, _Compare > & *__bi1*, _GuardedIterator< _RAIter, _Compare > & *__bi2*) [friend]

Compare two elements referenced by guarded iterators.

Parameters:

__bi1 First iterator.

__bi2 Second iterator.

Returns:

`true` if less.

Definition at line 113 of file multiway_merge.h.

5.126.4.2 template<typename _RAIter , typename _Compare > bool operator<= (_GuardedIterator< _RAIter, _Compare > & *__bi1*, _GuardedIterator< _RAIter, _Compare > & *__bi2*) [friend]

Compare two elements referenced by guarded iterators.

Parameters:

__bi1 First iterator.

__bi2 Second iterator.

Returns:

`True` if less equal.

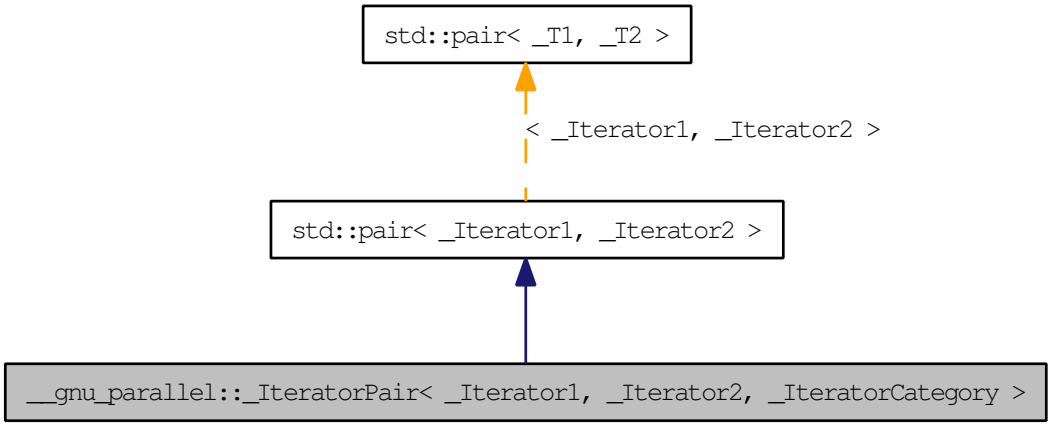
Definition at line 128 of file multiway_merge.h.

The documentation for this class was generated from the following file:

- multiway_merge.h

5.127 __gnu_parallel::_IteratorPair< _Iterator1, _Iterator2, _IteratorCategory > Class Template Reference

A pair of iterators. The usual iterator operations are applied to both child iterators. Inheritance diagram for __gnu_parallel::_IteratorPair< _Iterator1, _Iterator2, _IteratorCategory >:



Public Types

- typedef std::iterator_traits< _Iterator1 > **_TraitsType**
- typedef _TraitsType::difference_type **difference_type**
- typedef _Iterator1 first_type
- typedef _IteratorCategory **iterator_category**
- typedef _IteratorPair * **pointer**
- typedef _IteratorPair & **reference**
- typedef _Iterator2 second_type
- typedef void **value_type**

Public Member Functions

- **_IteratorPair** (const _Iterator1 &__first, const _Iterator2 &__second)
- **operator _Iterator2** () const
- _IteratorPair **operator+** (difference_type __delta) const
- const _IteratorPair **operator++** (int)
- _IteratorPair & **operator++** ()

- difference_type **operator-** (const _IteratorPair &__other) const
- const _IteratorPair **operator--** (int)
- _IteratorPair & **operator--** ()
- _IteratorPair & **operator=** (const _IteratorPair &__other)
- void **swap** (pair &__p)

Public Attributes

- _Iterator1 first
- _Iterator2 second

5.127.1 Detailed Description

template<typename _Iterator1, typename _Iterator2, typename _IteratorCategory> class __gnu_parallel::_IteratorPair< _Iterator1, _Iterator2, _IteratorCategory >

A pair of iterators. The usual iterator operations are applied to both child iterators.

Definition at line 45 of file iterator.h.

5.127.2 Member Typedef Documentation

5.127.2.1 typedef _Iterator1 std::pair< _Iterator1 , _Iterator2 >::first_type [inherited]

`first_type` is the first bound type

Definition at line 73 of file stl_pair.h.

5.127.2.2 typedef _Iterator2 std::pair< _Iterator1 , _Iterator2 >::second_type [inherited]

`second_type` is the second bound type

Definition at line 74 of file stl_pair.h.

5.127.3 Member Data Documentation

5.127.3.1 _Iterator1 std::pair< _Iterator1 , _Iterator2 >::first [inherited]

`first` is a copy of the first object

Definition at line 76 of file stl_pair.h.

5.127.3.2 _Iterator2 std::pair< _Iterator1 , _Iterator2 >::second [inherited]

`second` is a copy of the second object

Definition at line 77 of file stl_pair.h.

The documentation for this class was generated from the following file:

- iterator.h

5.128 __gnu_parallel::_IteratorTriple< _Iterator1, _Iterator2, _Iterator3, _IteratorCategory > Class Template Reference

A triple of iterators. The usual iterator operations are applied to all three child iterators.

Public Types

- typedef std::iterator_traits< _Iterator1 >::difference_type **difference_type**
- typedef _IteratorCategory **iterator_category**
- typedef _IteratorTriple * **pointer**
- typedef _IteratorTriple & **reference**
- typedef void **value_type**

Public Member Functions

- **_IteratorTriple** (const _Iterator1 &__first, const _Iterator2 &__second, const _Iterator3 &__third)
- **operator _Iterator3** () const
- _IteratorTriple **operator+** (difference_type __delta) const
- const _IteratorTriple **operator++** (int)
- _IteratorTriple & **operator++** ()
- difference_type **operator-** (const _IteratorTriple &__other) const
- const _IteratorTriple **operator--** (int)
- _IteratorTriple & **operator--** ()
- _IteratorTriple & **operator=** (const _IteratorTriple &__other)

Public Attributes

- _Iterator1 **_M_first**
- _Iterator2 **_M_second**
- _Iterator3 **_M_third**

5.128.1 Detailed Description

template<typename _Iterator1, typename _Iterator2, typename _Iterator3, typename _IteratorCategory> class __gnu_parallel::_IteratorTriple< _Iterator1, _Iterator2, _Iterator3, _IteratorCategory >

A triple of iterators. The usual iterator operations are applied to all three child iterators.

Definition at line 120 of file iterator.h.

The documentation for this class was generated from the following file:

- iterator.h

5.129 __gnu_parallel::_Job< _DifferenceTp > Struct Template Reference

One __job for a certain thread.

Public Types

- typedef _DifferenceTp **_DifferenceType**

Public Attributes

- volatile _DifferenceType _M_first
- volatile _DifferenceType _M_last
- volatile _DifferenceType _M_load

5.129.1 Detailed Description

template<typename _DifferenceTp> struct __gnu_parallel::_Job< _DifferenceTp >

One __job for a certain thread.

Definition at line 54 of file workstealing.h.

5.129.2 Member Data Documentation

5.129.2.1 template<typename _DifferenceTp> volatile _DifferenceType __gnu_parallel::_Job< _DifferenceTp >::_M_first

First element. Changed by owning and stealing thread. By stealing thread, always incremented.

Definition at line 62 of file workstealing.h.

Referenced by __gnu_parallel::__for_each_template_random_access_workstealing().

5.129.2.2 template<typename _DifferenceTp> volatile _DifferenceType __gnu_parallel::_Job< _DifferenceTp >::_M_last

Last element. Changed by owning thread only.

Definition at line 67 of file workstealing.h.

Referenced by __gnu_parallel::__for_each_template_random_access_workstealing().

5.129.2.3 template<typename _DifferenceTp> volatile _DifferenceType __gnu_parallel::_Job< _DifferenceTp >::_M_load

Number of elements, i.e. `_M_last-_M_first+1`. Changed by owning thread only.

Definition at line 72 of file workstealing.h.

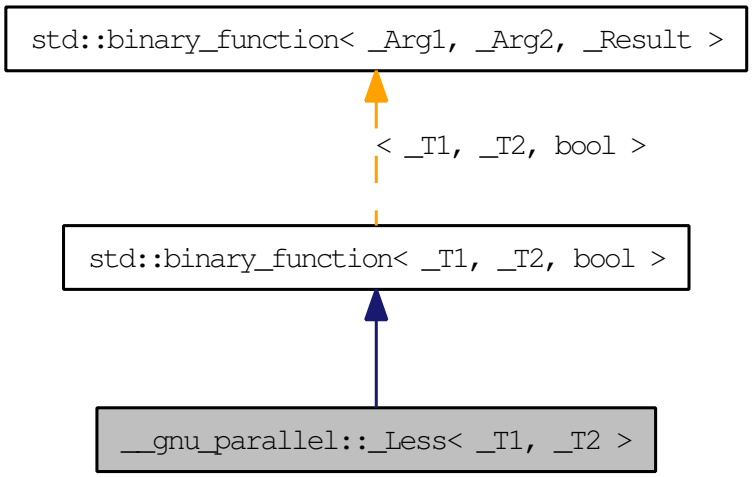
Referenced by __gnu_parallel::__for_each_template_random_access_workstealing().

The documentation for this struct was generated from the following file:

- workstealing.h

5.130 __gnu_parallel::_Less< _T1, _T2 > Struct Template Reference

Similar to std::less, but allows two different types. Inheritance diagram for __gnu_parallel::_Less< _T1, _T2 >:



Public Types

- typedef _T1 first_argument_type
- typedef bool result_type
- typedef _T2 second_argument_type

Public Member Functions

- bool **operator()** (const _T2 &__t2, const _T1 &__t1) const
- bool **operator()** (const _T1 &__t1, const _T2 &__t2) const

5.130.1 Detailed Description

template<typename _T1, typename _T2> struct __gnu_parallel::_Less< _T1, _T2 >

Similar to std::less, but allows two different types.

Definition at line 252 of file parallel/base.h.

5.130.2 Member Typedef Documentation

5.130.2.1 typedef _T1 std::binary_function< _T1 , _T2 , bool >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.130.2.2 typedef bool std::binary_function< _T1 , _T2 , bool >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.130.2.3 typedef _T2 std::binary_function< _T1 , _T2 , bool >::second_argument_type [inherited]

the type of the second argument

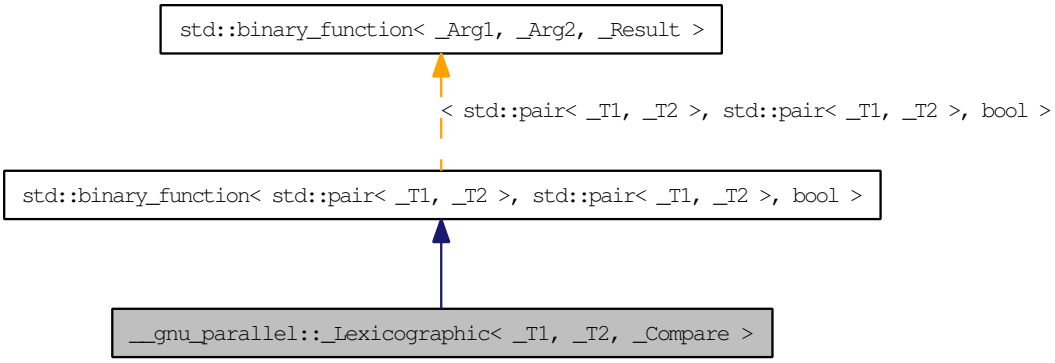
Definition at line 117 of file stl_function.h.

The documentation for this struct was generated from the following file:

- parallel/base.h

5.131 __gnu_parallel::_Lexicographic< _T1, _T2, _Compare > Class Template Reference

Compare __a pair of types lexicographically, ascending. Inheritance diagram for __gnu_parallel::_Lexicographic< _T1, _T2, _Compare >:



Public Types

- typedef std::pair< _T1, _T2 > first_argument_type
- typedef bool result_type
- typedef std::pair< _T1, _T2 > second_argument_type

Public Member Functions

- **_Lexicographic** (_Compare &__comp)
- bool **operator()** (const std::pair< _T1, _T2 > &__p1, const std::pair< _T1, _T2 > &__p2) const

5.131.1 Detailed Description

template<typename _T1, typename _T2, typename _Compare> class __gnu_parallel::_Lexicographic< _T1, _T2, _Compare >

Compare __a pair of types lexicographically, ascending.

Definition at line 55 of file multiseq_selection.h.

5.131.2 Member Typedef Documentation

5.131.2.1 typedef std::pair< _T1, _T2 > std::binary_function< std::pair< _T1, _T2 > , std::pair< _T1, _T2 > , bool >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.131.2.2 typedef bool std::binary_function< std::pair< _T1, _T2 > , std::pair< _T1, _T2 > , bool >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.131.2.3 typedef std::pair< _T1, _T2 > std::binary_function< std::pair< _T1, _T2 > , std::pair< _T1, _T2 > , bool >::second_argument_type [inherited]

the type of the second argument

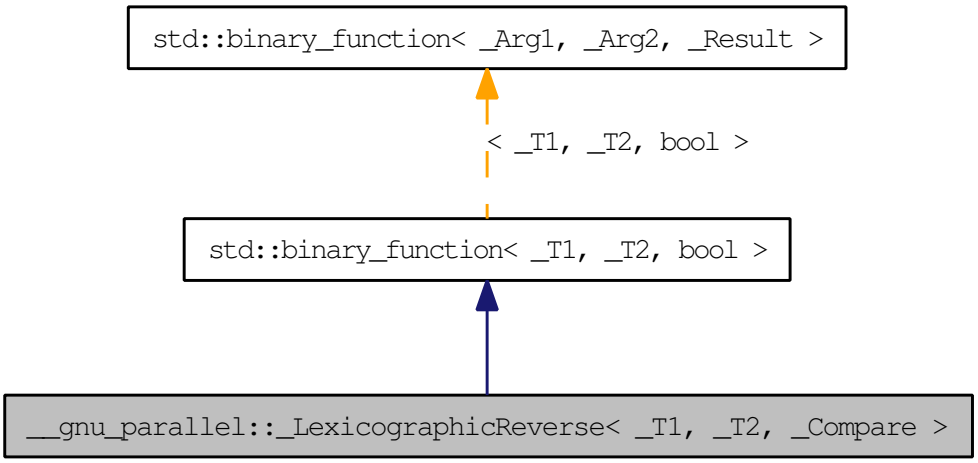
Definition at line 117 of file stl_function.h.

The documentation for this class was generated from the following file:

- multiseq_selection.h

5.132 __gnu_parallel::_LexicographicReverse< _T1, _T2, _Compare > Class Template Reference

Compare __a pair of types lexicographically, descending. Inheritance diagram for __gnu_parallel::_LexicographicReverse< _T1, _T2, _Compare >:



Public Types

- typedef _T1 first_argument_type
- typedef bool result_type
- typedef _T2 second_argument_type

Public Member Functions

- **_LexicographicReverse** (_Compare &__comp)
- bool **operator()** (const std::pair< _T1, _T2 > &__p1, const std::pair< _T1, _T2 > &__p2) const

5.132.1 Detailed Description

template<typename _T1, typename _T2, typename _Compare> class __gnu_parallel::_LexicographicReverse< _T1, _T2, _Compare >

Compare __a pair of types lexicographically, descending.

Definition at line 82 of file multiseq_selection.h.

5.132.2 Member Typedef Documentation

5.132.2.1 typedef _T1 std::binary_function< _T1 , _T2 , bool >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.132.2.2 typedef bool std::binary_function< _T1 , _T2 , bool >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.132.2.3 typedef _T2 std::binary_function< _T1 , _T2 , bool >::second_argument_type [inherited]

the type of the second argument

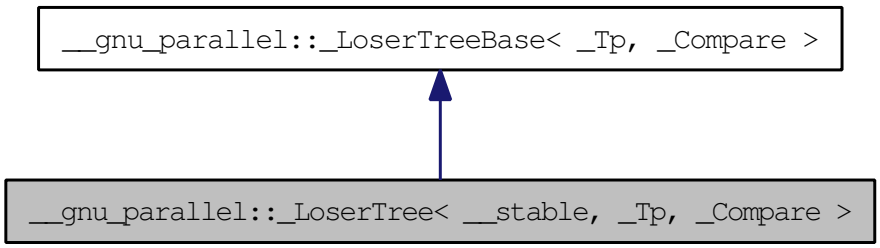
Definition at line 117 of file stl_function.h.

The documentation for this class was generated from the following file:

- multiseq_selection.h

5.133 __gnu_parallel::_LoserTree< __stable, _Tp, _Compare > Class Template Reference

Stable _LoserTree variant. Inheritance diagram for __gnu_parallel::_LoserTree< __stable, _Tp, _Compare >:



Public Member Functions

- **_LoserTree** (unsigned int __k, _Compare __comp)
- void __delete_min_insert (_Tp __key, bool __sup)
- int __get_min_source ()
- void **__init** ()
- unsigned int **__init_winner** (unsigned int __root)
- void __insert_start (const _Tp &__key, int __source, bool __sup)

Protected Attributes

- _Compare _M_comp
- bool _M_first_insert
- unsigned int **_M_ik**
- unsigned int **_M_k**
- unsigned int _M_log_k
- _Loser * _M_losers
- unsigned int **_M_offset**

5.133.1 Detailed Description

template<bool __stable, typename _Tp, typename _Compare> class __gnu_parallel::_LoserTree< __stable, _Tp, _Compare >

Stable _LoserTree variant. Provides the stable implementations of insert_start, __init_winner, __init and __delete_min_insert.

Unstable variant is done using partial specialisation below.

Definition at line 165 of file losertree.h.

5.133.2 Member Function Documentation

5.133.2.1 template<bool __stable, typename _Tp , typename _Compare > void __gnu_parallel::_LoserTree< __stable, _Tp, _Compare >::__delete_min_insert (_Tp *__key*, bool *__sup*) [inline]

Delete the smallest element and insert a new element from the previously smallest element's sequence. This implementation is stable.

Definition at line 217 of file losertree.h.

References std::swap().

5.133.2.2 template<typename _Tp , typename _Compare > int __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::__get_min_source () [inline, inherited]

Returns:

the index of the sequence with the smallest element.

Definition at line 151 of file losertree.h.

References __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_M_losers, and __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_Loser::_M_source.

5.133.2.3 template<typename _Tp , typename _Compare > void __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::__insert_start (const _Tp & *__key*, int *__source*, bool *__sup*) [inline, inherited]

Initializes the sequence "_M_source" with the element "__key".

Parameters:

__key the element to insert

__source __index of the __source __sequence

__sup flag that determines whether the value to insert is an explicit __supremum.

Definition at line 130 of file losertree.h.

References __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_M_first_insert, __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_Loser::_M_key,

__gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_M_losers, __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_Loser::_M_source, and __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_Loser::_M_sup.

5.133.3 Member Data Documentation

5.133.3.1 template<typename _Tp , typename _Compare > _Compare __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_M_comp [protected, inherited]

_Compare to use.

Definition at line 78 of file losertree.h.

5.133.3.2 template<typename _Tp , typename _Compare > bool __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_M_first_insert [protected, inherited]

State flag that determines whether the _LoserTree is empty. Only used for building the _LoserTree.

Definition at line 85 of file losertree.h.

Referenced by __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::__insert_start(), and __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_LoserTreeBase().

5.133.3.3 template<typename _Tp , typename _Compare > unsigned int __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_M_log_k [protected, inherited]

log_2{_M_k}

Definition at line 72 of file losertree.h.

Referenced by __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_LoserTreeBase().

5.133.3.4 template<typename _Tp , typename _Compare > _Loser* __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_M_losers [protected, inherited]

_LoserTree __elements.

Definition at line 75 of file losertree.h.

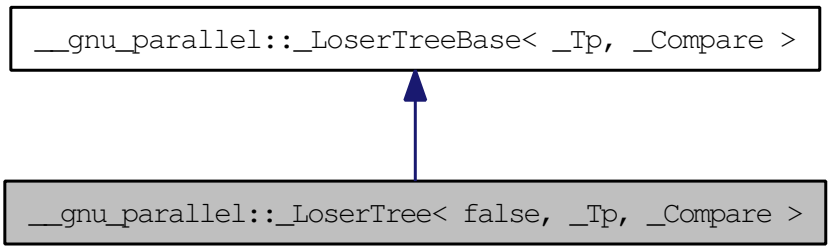
Referenced by __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::__get_min_source(), __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::__insert_start(), __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_LoserTreeBase(), and __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::~_LoserTreeBase().

The documentation for this class was generated from the following file:

- losertree.h

5.134 __gnu_parallel::_LoserTree< false, _Tp, _Compare > Class Template Reference

Unstable _LoserTree variant. Inheritance diagram for __gnu_parallel::_LoserTree< false, _Tp, _Compare >:



Public Member Functions

- **_LoserTree** (unsigned int __k, _Compare __comp)
- void __delete_min_insert (_Tp __key, bool __sup)
- int __get_min_source ()
- void **__init** ()
- unsigned int __init_winner (unsigned int __root)
- void __insert_start (const _Tp &__key, int __source, bool __sup)

Protected Attributes

- _Compare _M_comp
- bool _M_first_insert
- unsigned int **_M_ik**
- unsigned int **_M_k**
- unsigned int _M_log_k
- _Loser * _M_losers
- unsigned int **_M_offset**

5.134.1 Detailed Description

template<typename _Tp, typename _Compare> class __gnu_parallel::_LoserTree< false, _Tp, _Compare >

Unstable _LoserTree variant. Stability (non-stable here) is selected with partial specialization.

Definition at line 255 of file losertree.h.

5.134.2 Member Function Documentation

5.134.2.1 template<typename _Tp , typename _Compare > void __gnu_parallel::_LoserTree< false, _Tp, _Compare >::__delete_min_insert (_Tp *__key*, bool *__sup*) [inline]

Delete the _M_key smallest element and insert the element __key instead.

Parameters:

__key the _M_key to insert

__sup true iff __key is an explicitly marked supremum

Definition at line 317 of file losertree.h.

References std::swap().

5.134.2.2 template<typename _Tp , typename _Compare > int __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::__get_min_source () [inline, inherited]

Returns:

the index of the sequence with the smallest element.

Definition at line 151 of file losertree.h.

References __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_M_losers, and __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_Loser::_M_source.

5.134.2.3 template<typename _Tp , typename _Compare > unsigned int __gnu_parallel::_LoserTree< false, _Tp, _Compare >::__init_winner (unsigned int *__root*) [inline]

Computes the winner of the competition at position "__root".

Called recursively (starting at 0) to build the initial tree.

Parameters:

__root __index of the "game" to start.

Definition at line 277 of file losertree.h.

5.134.2.4 template<typename _Tp , typename _Compare > void __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::__insert_start (const _Tp & *__key*, int *__source*, bool *__sup*) [inline, inherited]

Initializes the sequence "_M_source" with the element "__key".

Parameters:

__key the element to insert

__source __index of the __source __sequence

__sup flag that determines whether the value to insert is an explicit __supremum.

Definition at line 130 of file losertree.h.

References __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_M_first_insert, __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_Loser::_M_key, __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_M_losers, __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_Loser::_M_source, and __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_Loser::_M_sup.

5.134.3 Member Data Documentation

5.134.3.1 template<typename _Tp , typename _Compare > _Compare __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_M_comp [protected, inherited]

_Compare to use.

Definition at line 78 of file losertree.h.

5.134.3.2 template<typename _Tp , typename _Compare > bool __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_M_first_insert [protected, inherited]

State flag that determines whether the _LoserTree is empty. Only used for building the _LoserTree.

Definition at line 85 of file losertree.h.

Referenced by __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::__insert_start(), and __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_LoserTreeBase().

5.134.3.3 template<typename _Tp , typename _Compare > unsigned int __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_M_log_k [protected, inherited]

log_2{_M_k}

Definition at line 72 of file losertree.h.

Referenced by __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_-LoserTreeBase().

5.134.3.4 template<typename _Tp , typename _Compare > _Loser* __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_M_losers [protected, inherited]

_LoserTree __elements.

Definition at line 75 of file losertree.h.

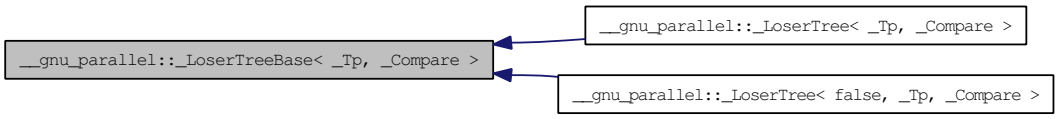
Referenced by __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::__get_min_-source(), __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::__insert_start(), __-gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_LoserTreeBase(), and __gnu_-parallel::_LoserTreeBase< _Tp, _Compare >::~_LoserTreeBase().

The documentation for this class was generated from the following file:

- losertree.h

5.135 __gnu_parallel::_LoserTreeBase< _Tp, _Compare > Class Template Reference

Guarded loser/tournament tree. Inheritance diagram for __gnu_parallel::_LoserTreeBase< _Tp, _Compare >:



Classes

- struct _Loser

  Internal representation of a _LoserTree element.

Public Member Functions

- _LoserTreeBase (unsigned int __k, _Compare __comp)
- ~_LoserTreeBase ()
- int __get_min_source ()
- void __insert_start (const _Tp &__key, int __source, bool __sup)

Protected Attributes

- _Compare _M_comp
- bool _M_first_insert
- unsigned int **_M_ik**
- unsigned int **_M_k**
- unsigned int _M_log_k
- _Loser * _M_losers
- unsigned int **_M_offset**

5.135.1 Detailed Description

template<typename _Tp, typename _Compare> class __gnu_parallel::_LoserTreeBase< _Tp, _Compare >

Guarded loser/tournament tree. The smallest element is at the top.

Guarding is done explicitly through one flag _M_sup per element, inf is not needed due to a better initialization routine. This is a well-performing variant.

Parameters:

_Tp the element type

_Compare the comparator to use, defaults to std::less<_Tp>

Definition at line 55 of file losertree.h.

5.135.2 Constructor & Destructor Documentation

5.135.2.1 template<typename _Tp , typename _Compare > __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_LoserTreeBase (unsigned int *__k*, _Compare *__comp*) [inline]

The constructor.

Parameters:

__k The number of sequences to merge.

__comp The comparator to use.

Definition at line 94 of file losertree.h.

References __gnu_parallel::__rd_log2(), __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_M_first_insert, __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_M_log_k, and __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_M_losers.

5.135.2.2 template<typename _Tp , typename _Compare > __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::~_LoserTreeBase () [inline]

The destructor.

Definition at line 118 of file losertree.h.

References __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_M_losers.

5.135.3 Member Function Documentation

5.135.3.1 template<typename _Tp , typename _Compare > int __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::__get_min_source () [inline]

Returns:

the index of the sequence with the smallest element.

Definition at line 151 of file losertree.h.

References __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_M_losers, and __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_Loser::_M_source.

5.135.3.2 template<typename _Tp , typename _Compare > void __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::__insert_start (const _Tp & *__key*, int *__source*, bool *__sup*) [inline]

Initializes the sequence "_M_source" with the element "__key".

Parameters:

__key the element to insert

__source __index of the __source __sequence

__sup flag that determines whether the value to insert is an explicit __supremum.

Definition at line 130 of file losertree.h.

References __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_M_first_insert, __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_Loser::_M_key, __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_M_losers, __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_Loser::_M_source, and __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_Loser::_M_sup.

5.135.4 Member Data Documentation

5.135.4.1 template<typename _Tp , typename _Compare > _Compare __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_M_comp [protected]

_Compare to use.

Definition at line 78 of file losertree.h.

5.135.4.2 template<typename _Tp , typename _Compare > bool __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_M_first_insert [protected]

State flag that determines whether the _LoserTree is empty. Only used for building the _LoserTree.

Definition at line 85 of file losertree.h.

Referenced by __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::__insert_start(), and __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_LoserTreeBase().

5.135.4.3 template<typename _Tp , typename _Compare > unsigned int __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_M_log_k [protected]

log_2{_M_k}

Definition at line 72 of file losertree.h.

Referenced by __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_LoserTreeBase().

5.135.4.4 template<typename _Tp , typename _Compare > _Loser* __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_M_losers [protected]

_LoserTree __elements.

Definition at line 75 of file losertree.h.

Referenced by __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::__get_min_source(), __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::__insert_start(), __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_LoserTreeBase(), and __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::~_LoserTreeBase().

The documentation for this class was generated from the following file:

- losertree.h

5.136 __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_Loser Struct Reference

Internal representation of a _LoserTree element.

Public Attributes

- _Tp _M_key
- int _M_source
- bool _M_sup

5.136.1 Detailed Description

template<typename _Tp, typename _Compare> struct __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_Loser

Internal representation of a _LoserTree element.

Definition at line 59 of file losertree.h.

5.136.2 Member Data Documentation

5.136.2.1 template<typename _Tp , typename _Compare > _Tp __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_Loser::_M_key

_M_key of the element in the _LoserTree.

Definition at line 66 of file losertree.h.

Referenced by __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::__insert_start().

5.136.2.2 template<typename _Tp , typename _Compare > int __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_Loser::_M_source

__index of the __source __sequence.

Definition at line 64 of file losertree.h.

Referenced by __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::__get_min_source(), and __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::__insert_start().

5.136.2.3 template<typename _Tp , typename _Compare > bool __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_Loser::_M_sup

flag, true iff this is a "maximum" __sentinel.

Definition at line 62 of file losertree.h.

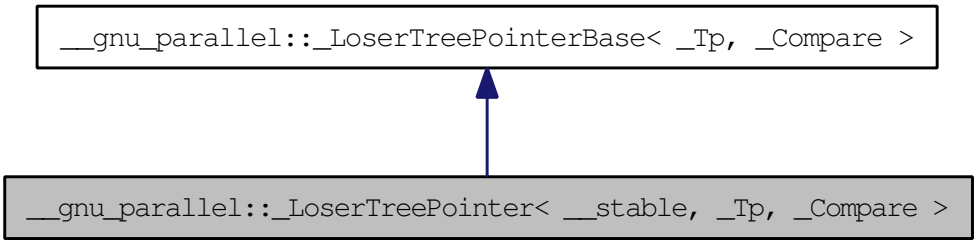
Referenced by __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::__insert_start().

The documentation for this struct was generated from the following file:

- losertree.h

5.137 __gnu_parallel::_LoserTreePointer< __stable, _Tp, _Compare > Class Template Reference

Stable _LoserTree implementation. Inheritance diagram for __gnu_parallel::_LoserTreePointer< __stable, _Tp, _Compare >:



Public Member Functions

- **_LoserTreePointer** (unsigned int __k, _Compare __comp=std::less< _Tp >())
- void **__delete_min_insert** (const _Tp &__key, bool __sup)
- int **__get_min_source** ()
- void **__init** ()
- unsigned int **__init_winner** (unsigned int __root)
- void **__insert_start** (const _Tp &__key, int __source, bool __sup)

Protected Attributes

- _Compare **_M_comp**
- unsigned int **_M_ik**
- unsigned int **_M_k**
- _Loser * **_M_losers**
- unsigned int **_M_offset**

5.137.1 Detailed Description

template<bool __stable, typename _Tp, typename _Compare> class __gnu_parallel::_LoserTreePointer< __stable, _Tp, _Compare >

Stable _LoserTree implementation. The unstable variant is implemented using partial instantiation below.

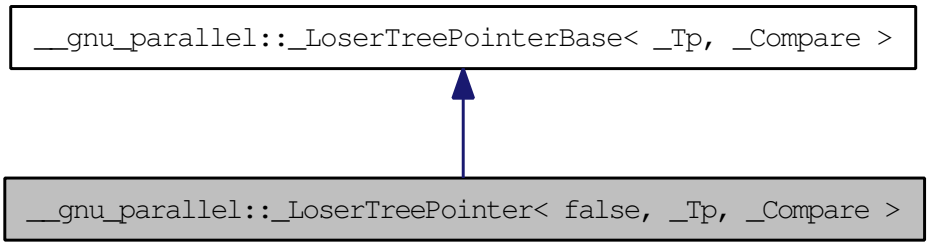
Definition at line 401 of file losertree.h.

The documentation for this class was generated from the following file:

- losertree.h

5.138 __gnu_parallel::_LoserTreePointer< false, _Tp, _Compare > Class Template Reference

Unstable _LoserTree implementation. Inheritance diagram for __gnu_parallel::_LoserTreePointer< false, _Tp, _Compare >:



Public Member Functions

- **_LoserTreePointer** (unsigned int __k, _Compare __comp=std::less< _Tp >())
- void **__delete_min_insert** (const _Tp &__key, bool __sup)
- int **__get_min_source** ()
- void **__init** ()
- unsigned int **__init_winner** (unsigned int __root)
- void **__insert_start** (const _Tp &__key, int __source, bool __sup)

Protected Attributes

- _Compare **_M_comp**
- unsigned int **_M_ik**
- unsigned int **_M_k**
- _Loser * **_M_losers**
- unsigned int **_M_offset**

5.138.1 Detailed Description

template<typename _Tp, typename _Compare> class __gnu_parallel::_LoserTreePointer< false, _Tp, _Compare >

Unstable _LoserTree implementation. The stable variant is above.

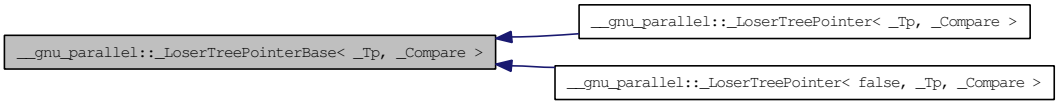
Definition at line 482 of file losertree.h.

The documentation for this class was generated from the following file:

- losertree.h

5.139 __gnu_parallel::_LoserTreePointerBase< _Tp, _Compare > Class Template Reference

Base class of _Loser Tree implementation using pointers. Inheritance diagram for __gnu_parallel::_LoserTreePointerBase< _Tp, _Compare >:



Classes

- struct _Loser

  Internal representation of _LoserTree __elements.

Public Member Functions

- **_LoserTreePointerBase** (unsigned int __k, _Compare __comp=std::less< _Tp >())
- int **__get_min_source** ()
- void **__insert_start** (const _Tp &__key, int __source, bool __sup)

Protected Attributes

- _Compare **_M_comp**
- unsigned int **_M_ik**
- unsigned int **_M_k**
- _Loser * **_M_losers**
- unsigned int **_M_offset**

5.139.1 Detailed Description

template<typename _Tp, typename _Compare> class __gnu_parallel::_LoserTreePointerBase< _Tp, _Compare >

Base class of _Loser Tree implementation using pointers.

Definition at line 349 of file losertree.h.

The documentation for this class was generated from the following file:

- losertree.h

5.140 __gnu_parallel::_LoserTreePointerBase< _Tp, _Compare >::_Loser Struct Reference

Internal representation of _LoserTree __elements.

Public Attributes

- const _Tp * **_M_keyp**
- int **_M_source**
- bool **_M_sup**

5.140.1 Detailed Description

template<typename _Tp, typename _Compare> struct __gnu_parallel::_LoserTreePointerBase< _Tp, _Compare >::_Loser

Internal representation of _LoserTree __elements.

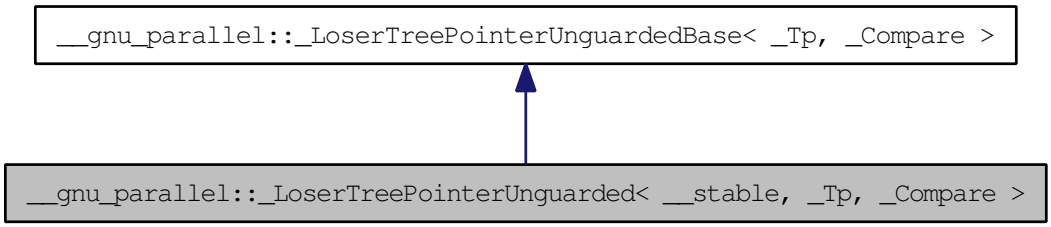
Definition at line 353 of file losertree.h.

The documentation for this struct was generated from the following file:

- losertree.h

5.141 __gnu_parallel::_LoserTreePointerUnguarded< __stable, _Tp, _Compare > Class Template Reference

Stable unguarded _LoserTree variant storing pointers. Inheritance diagram for __gnu_parallel::_LoserTreePointerUnguarded< __stable, _Tp, _Compare >:



Public Member Functions

- **_LoserTreePointerUnguarded** (unsigned int __k, const _Tp &__sentinel, _Compare __comp=std::less< _Tp >())
- void **__delete_min_insert** (const _Tp &__key, bool __sup)
- int **__get_min_source** ()
- void **__init** ()
- unsigned int **__init_winner** (unsigned int __root)
- void **__insert_start** (const _Tp &__key, int __source, bool)

Protected Attributes

- _Compare **_M_comp**
- unsigned int **_M_ik**
- unsigned int **_M_k**
- _Loser * **_M_losers**
- unsigned int **_M_offset**

5.141.1 Detailed Description

template<bool __stable, typename _Tp, typename _Compare> class __gnu_parallel::_LoserTreePointerUnguarded< __stable, _Tp, _Compare >

Stable unguarded _LoserTree variant storing pointers. Unstable variant is implemented below using partial specialization.

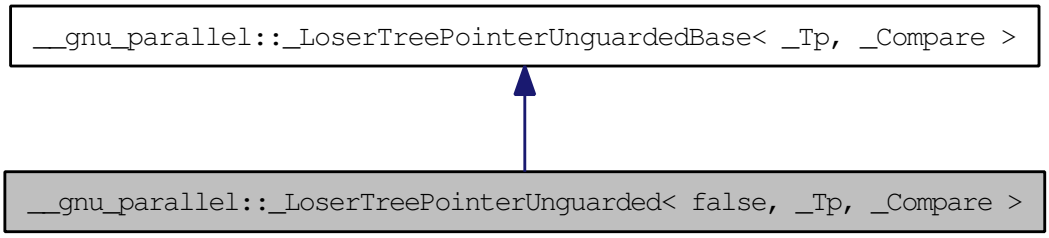
Definition at line 868 of file losertree.h.

The documentation for this class was generated from the following file:

- losertree.h

5.142 __gnu_parallel::_LoserTreePointerUnguarded< false, _Tp, _Compare > Class Template Reference

Unstable unguarded _LoserTree variant storing pointers. Inheritance diagram for __gnu_parallel::_LoserTreePointerUnguarded< false, _Tp, _Compare >:



Public Member Functions

- **_LoserTreePointerUnguarded** (unsigned int __k, const _Tp &__sentinel, _Compare __comp=std::less< _Tp >())
- void **__delete_min_insert** (const _Tp &__key, bool __sup)
- int **__get_min_source** ()
- void **__init** ()
- unsigned int **__init_winner** (unsigned int __root)
- void **__insert_start** (const _Tp &__key, int __source, bool)

Protected Attributes

- _Compare **_M_comp**
- unsigned int **_M_ik**
- unsigned int **_M_k**
- _Loser * **_M_losers**
- unsigned int **_M_offset**

5.142.1 Detailed Description

template<typename _Tp, typename _Compare> class __gnu_parallel::_LoserTreePointerUnguarded< false, _Tp, _Compare >

Unstable unguarded _LoserTree variant storing pointers. Stable variant is above.

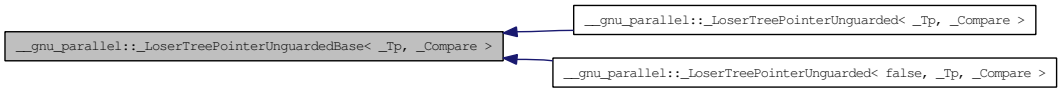
Definition at line 953 of file losertree.h.

The documentation for this class was generated from the following file:

- losertree.h

5.143 __gnu_parallel::_LoserTreePointerUnguardedBase< _Tp, _Compare > Class Template Reference

Unguarded loser tree, keeping only pointers to the elements in the tree structure. Inheritance diagram for __gnu_parallel::_LoserTreePointerUnguardedBase< _Tp, _Compare >:



Public Member Functions

- **_LoserTreePointerUnguardedBase** (unsigned int __k, const _Tp &__sentinel, _Compare __comp=std::less< _Tp >())
- int **__get_min_source** ()
- void **__insert_start** (const _Tp &__key, int __source, bool)

Protected Attributes

- _Compare **_M_comp**
- unsigned int **_M_ik**
- unsigned int **_M_k**
- _Loser * **_M_losers**
- unsigned int **_M_offset**

5.143.1 Detailed Description

template<typename _Tp, typename _Compare> class __gnu_parallel::_LoserTreePointerUnguardedBase< _Tp, _Compare >

Unguarded loser tree, keeping only pointers to the elements in the tree structure. No guarding is done, therefore not a single input sequence must run empty. This is a very fast variant.

Definition at line 805 of file losertree.h.

The documentation for this class was generated from the following file:

- losertree.h

5.144 __gnu_parallel::_LoserTreeTraits< _Tp > Struct Template Reference

Traits for determining whether the loser tree should use pointers or copies.

Static Public Attributes

- static const bool _M_use_pointer

5.144.1 Detailed Description

template<typename _Tp> struct __gnu_parallel::_LoserTreeTraits< _Tp >

Traits for determining whether the loser tree should use pointers or copies. The field "_M_use_pointer" is used to determine whether to use pointers in he loser trees or whether to copy the values into the loser tree.

The default behavior is to use pointers if the data type is 4 times as big as the pointer to it.

Specialize for your data type to customize the behavior.

Example:

template<> struct _LoserTreeTraits<int> { static const bool _M_use_pointer = false; };

template<> struct _LoserTreeTraits<heavyweight_type> { static const bool _M_use_pointer = true; };

Parameters:

_Tp type to give the loser tree traits for.

Definition at line 727 of file multiway_merge.h.

5.144.2 Member Data Documentation

5.144.2.1 template<typename _Tp > const bool __gnu_parallel::_LoserTreeTraits< _Tp >::_M_use_pointer [static]

True iff to use pointers instead of values in loser trees. The default behavior is to use pointers if the data type is four times as big as the pointer to it.

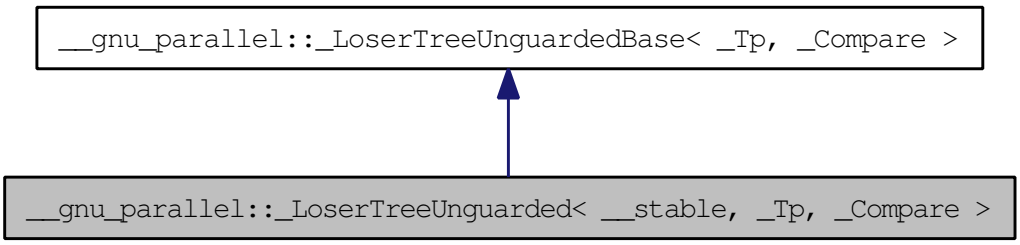
Definition at line 735 of file multiway_merge.h.

The documentation for this struct was generated from the following file:

- multiway_merge.h

5.145 __gnu_parallel::_LoserTreeUnguarded< _stable, _Tp, _Compare > Class Template Reference

Stable implementation of unguarded _LoserTree. Inheritance diagram for __gnu_parallel::_LoserTreeUnguarded< __stable, _Tp, _Compare >:



Public Member Functions

- **_LoserTreeUnguarded** (unsigned int __k, const _Tp __sentinel, _Compare __comp=std::less< _Tp >())
- void **__delete_min_insert** (_Tp __key, bool)
- int **__get_min_source** ()
- void **__init** ()
- unsigned int **__init_winner** (unsigned int __root)
- void **__insert_start** (const _Tp &__key, int __source, bool)

Protected Attributes

- _Compare **_M_comp**
- unsigned int **_M_ik**
- unsigned int **_M_k**
- _Loser * **_M_losers**
- unsigned int **_M_offset**

5.145.1 Detailed Description

template<bool __stable, typename _Tp, typename _Compare> class __gnu_parallel::_LoserTreeUnguarded< __stable, _Tp, _Compare >

Stable implementation of unguarded _LoserTree. Unstable variant is selected below with partial specialization.

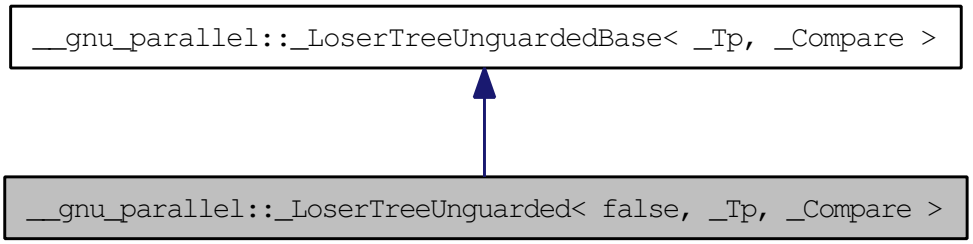
Definition at line 627 of file losertree.h.

The documentation for this class was generated from the following file:

- losertree.h

5.146 __gnu_parallel::_LoserTreeUnguarded< false, _Tp, _Compare > Class Template Reference

Non-Stable implementation of unguarded _LoserTree. Inheritance diagram for __gnu_parallel::_LoserTreeUnguarded< false, _Tp, _Compare >:



Public Member Functions

- **_LoserTreeUnguarded** (unsigned int __k, const _Tp __sentinel, _Compare __comp=std::less< _Tp >())
- void **__delete_min_insert** (_Tp __key, bool)
- int **__get_min_source** ()
- void **__init** ()
- unsigned int **__init_winner** (unsigned int __root)
- void **__insert_start** (const _Tp &__key, int __source, bool)

Protected Attributes

- _Compare **_M_comp**
- unsigned int **_M_ik**
- unsigned int **_M_k**
- _Loser * **_M_losers**
- unsigned int **_M_offset**

5.146.1 Detailed Description

template<typename _Tp, typename _Compare> class __gnu_parallel::_LoserTreeUnguarded< false, _Tp, _Compare >

Non-Stable implementation of unguarded _LoserTree. Stable implementation is above.

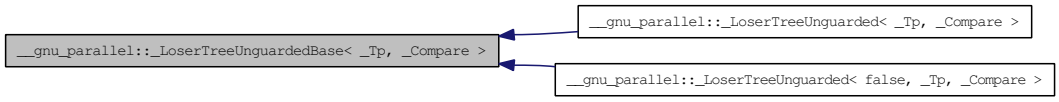
Definition at line 713 of file losertree.h.

The documentation for this class was generated from the following file:

- losertree.h

5.147 __gnu_parallel::_LoserTreeUnguardedBase< _Tp, _Compare > Class Template Reference

Base class for unguarded _LoserTree implementation. Inheritance diagram for __gnu_parallel::_LoserTreeUnguardedBase< _Tp, _Compare >:



Public Member Functions

- **_LoserTreeUnguardedBase** (unsigned int __k, const _Tp __sentinel, _Compare __comp=std::less< _Tp >())
- int **__get_min_source** ()
- void **__insert_start** (const _Tp &__key, int __source, bool)

Protected Attributes

- _Compare **_M_comp**
- unsigned int **_M_ik**
- unsigned int **_M_k**
- _Loser * **_M_losers**
- unsigned int **_M_offset**

5.147.1 Detailed Description

template<typename _Tp, typename _Compare> class __gnu_parallel::_LoserTreeUnguardedBase< _Tp, _Compare >

Base class for unguarded _LoserTree implementation. The whole element is copied into the tree structure.

No guarding is done, therefore not a single input sequence must run empty. Unused __sequence heads are marked with a sentinel which is > all elements that are to be merged.

This is a very fast variant.

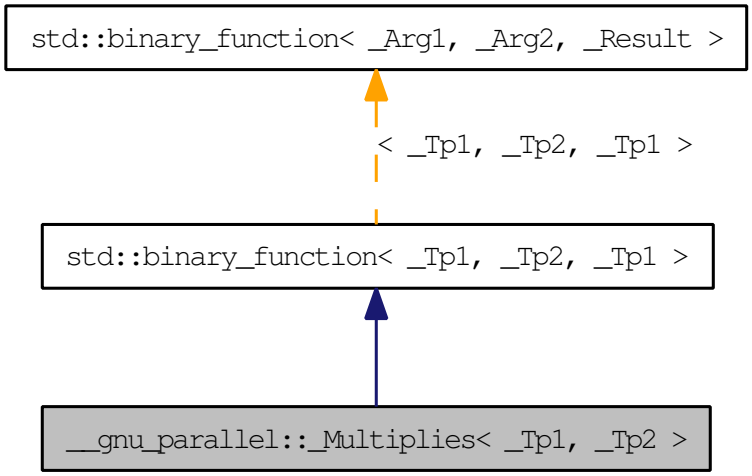
Definition at line 564 of file losertree.h.

The documentation for this class was generated from the following file:

- losertree.h

5.148 __gnu_parallel::_Multiplies< _Tp1, _Tp2 > Struct Template Reference

Similar to std::multiplies, but allows two different types. Inheritance diagram for __gnu_parallel::_Multiplies< _Tp1, _Tp2 >:



Public Types

- typedef _Tp1 first_argument_type
- typedef _Tp1 result_type
- typedef _Tp2 second_argument_type
- typedef __typeof__(∗)(const _Tp1 &__x, const _Tp2 &__y **static_cast**)(NULL)∗∗static_cast< _Tp2 ∗ >(NULL)) __result;__resultoperator(

5.148.1 Detailed Description

template<typename _Tp1, typename _Tp2> struct __gnu_parallel::_Multiplies< _Tp1, _Tp2 >

Similar to std::multiplies, but allows two different types.

Definition at line 300 of file parallel/base.h.

5.148.2 Member Typedef Documentation

5.148.2.1 typedef _Tp1 std::binary_function< _Tp1 , _Tp2 , _Tp1 >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.148.2.2 typedef _Tp1 std::binary_function< _Tp1 , _Tp2 , _Tp1 >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.148.2.3 typedef _Tp2 std::binary_function< _Tp1 , _Tp2 , _Tp1 >::second_argument_type [inherited]

the type of the second argument

Definition at line 117 of file stl_function.h.

The documentation for this struct was generated from the following file:

- parallel/base.h

5.149 __gnu_parallel::_Nothing Struct Reference

Functor doing nothing.

Public Member Functions

- template<typename _It >
  void operator() (_It)

5.149.1 Detailed Description

Functor doing nothing. For some __reduction tasks (this is not a function object, but is passed as __selector __dummy parameter.

Definition at line 288 of file for_each_selectors.h.

5.149.2 Member Function Documentation

5.149.2.1 template<typename _It > void __gnu_parallel::_Nothing::operator() (_It) [inline]

Functor execution.

Parameters:

__i iterator referencing object.

Definition at line 294 of file for_each_selectors.h.

The documentation for this struct was generated from the following file:

- for_each_selectors.h

5.150 __gnu_parallel::_Piece< _DifferenceTp > Struct Template Reference

Subsequence description.

Public Types

- typedef _DifferenceTp **_DifferenceType**

Public Attributes

- _DifferenceType _M_begin
- _DifferenceType _M_end

5.150.1 Detailed Description

template<typename _DifferenceTp> struct __gnu_parallel::_Piece< _DifferenceTp >

Subsequence description.

Definition at line 46 of file multiway_mergesort.h.

5.150.2 Member Data Documentation

5.150.2.1 template<typename _DifferenceTp > _DifferenceType __gnu_parallel::_Piece< _DifferenceTp >::_M_begin

Begin of subsequence.

Definition at line 51 of file multiway_mergesort.h.

5.150.2.2 template<typename _DifferenceTp > _DifferenceType __gnu_parallel::_Piece< _DifferenceTp >::_M_end

End of subsequence.

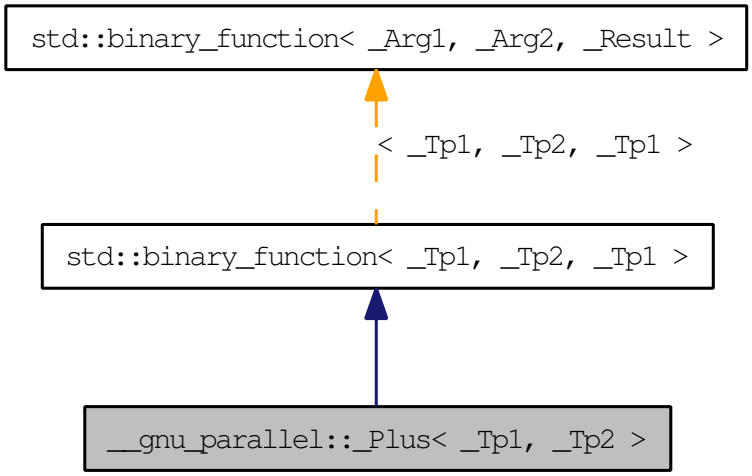
Definition at line 54 of file multiway_mergesort.h.

The documentation for this struct was generated from the following file:

- multiway_mergesort.h

5.151 __gnu_parallel::_Plus< _Tp1, _Tp2 > Struct Template Reference

Similar to std::plus, but allows two different types. Inheritance diagram for __gnu_parallel::_Plus< _Tp1, _Tp2 >:



Public Types

- typedef _Tp1 first_argument_type
- typedef _Tp1 result_type
- typedef _Tp2 second_argument_type
- typedef __typeof__(*)(const _Tp1 &__x, const _Tp2 &__y **static_cast**)(NULL)+*static_cast< _Tp2 * >(NULL)) __result;__resultoperator(

5.151.1 Detailed Description

template<typename _Tp1, typename _Tp2> struct __gnu_parallel::_Plus< _Tp1, _Tp2 >

Similar to std::plus, but allows two different types.

Definition at line 275 of file parallel/base.h.

5.151.2 Member Typedef Documentation

5.151.2.1 typedef _Tp1 std::binary_function< _Tp1 , _Tp2 , _Tp1 >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.151.2.2 typedef _Tp1 std::binary_function< _Tp1 , _Tp2 , _Tp1 >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.151.2.3 typedef _Tp2 std::binary_function< _Tp1 , _Tp2 , _Tp1 >::second_argument_type [inherited]

the type of the second argument

Definition at line 117 of file stl_function.h.

The documentation for this struct was generated from the following file:

- parallel/base.h

5.152 __gnu_parallel::_PMWMSSortingData< _RAIter > Struct Template Reference

Data accessed by all threads.

Public Types

- typedef _TraitsType::difference_type **_DifferenceType**
- typedef std::iterator_traits< _RAIter > **_TraitsType**
- typedef _TraitsType::value_type **_ValueType**

Public Attributes

- _ThreadIndex _M_num_threads
- _DifferenceType * _M_offsets
- std::vector< _Piece< _DifferenceType > > * _M_pieces
- _ValueType * _M_samples
- _RAIter _M_source
- _DifferenceType * _M_starts
- _ValueType ** _M_temporary

5.152.1 Detailed Description

template<typename _RAIter> struct __gnu_parallel::_PMWMSSortingData< _RAIter >

Data accessed by all threads. PMWMS = parallel multiway mergesort

Definition at line 61 of file multiway_mergesort.h.

5.152.2 Member Data Documentation

5.152.2.1 template<typename _RAIter> _ThreadIndex __gnu_parallel::_PMWMSSortingData< _RAIter >::_M_num_threads

Number of threads involved.

Definition at line 68 of file multiway_mergesort.h.

Referenced by __gnu_parallel::parallel_sort_mwms(), and __gnu_parallel::parallel_sort_mwms_pu().

5.152.2.2 template<typename _RAIter> _DifferenceType* __gnu_parallel::_PMWMSSortingData< _RAIter >::_M_offsets

Offsets to add to the found positions.

Definition at line 83 of file multiway_mergesort.h.

Referenced by __gnu_parallel::parallel_sort_mwms().

5.152.2.3 template<typename _RAIter> std::vector<_Piece<_-DifferenceType> >* __gnu_parallel::_PMWMSSortingData< _RAIter >::_M_pieces

Pieces of data to merge [thread][__sequence].

Definition at line 86 of file multiway_mergesort.h.

Referenced by __gnu_parallel::parallel_sort_mwms(), and __gnu_parallel::parallel_-sort_mwms_pu().

5.152.2.4 template<typename _RAIter> _ValueType* __gnu_parallel::_PMWMSSortingData< _RAIter >::_M_samples

Samples.

Definition at line 80 of file multiway_mergesort.h.

Referenced by __gnu_parallel::__determine_samples(), and __gnu_parallel::parallel_-sort_mwms().

5.152.2.5 template<typename _RAIter> _RAIter __gnu_parallel::_PMWMSSortingData< _RAIter >::_M_source

Input __begin.

Definition at line 71 of file multiway_mergesort.h.

Referenced by __gnu_parallel::__determine_samples(), __gnu_parallel::parallel_-sort_mwms(), and __gnu_parallel::parallel_sort_mwms_pu().

5.152.2.6 template<typename _RAIter> _DifferenceType* __gnu_parallel::_PMWMSSortingData< _RAIter >::_M_starts

Start indices, per thread.

Definition at line 74 of file multiway_mergesort.h.

Referenced by __gnu_parallel::__determine_samples(), __gnu_parallel::parallel_sort_mwms(), and __gnu_parallel::parallel_sort_mwms_pu().

5.152.2.7 template<typename _RAIter> _ValueType** __gnu_parallel::_PMWMSSortingData< _RAIter >::_M_temporary

Storage in which to sort.

Definition at line 77 of file multiway_mergesort.h.

Referenced by __gnu_parallel::parallel_sort_mwms(), and __gnu_parallel::parallel_sort_mwms_pu().

The documentation for this struct was generated from the following file:

- multiway_mergesort.h

5.153 __gnu_parallel::_PseudoSequence< _Tp, _DifferenceTp > Class Template Reference

Sequence that conceptually consists of multiple copies of the same element. The copies are not stored explicitly, of course.

Public Types

- typedef _DifferenceTp **_DifferenceType**
- typedef _PseudoSequenceIterator< _Tp, uint64_t > **iterator**

Public Member Functions

- _PseudoSequence (const _Tp &__val, _DifferenceType __count)
- iterator begin () const
- iterator end () const

5.153.1 Detailed Description

template<typename _Tp, typename _DifferenceTp> class __gnu_parallel::_PseudoSequence< _Tp, _DifferenceTp >

Sequence that conceptually consists of multiple copies of the same element. The copies are not stored explicitly, of course.

Parameters:

_Tp Sequence _M_value type.

_DifferenceType Sequence difference type.

Definition at line 386 of file parallel/base.h.

5.153.2 Constructor & Destructor Documentation

5.153.2.1 template<typename _Tp, typename _DifferenceTp> __gnu_parallel::_PseudoSequence< _Tp, _DifferenceTp >::_PseudoSequence (const _Tp & *__val*, _DifferenceType *__count*) [inline]

Constructor.

Parameters:

_M_val Element of the sequence.

__count Number of (virtual) copies.

Definition at line 398 of file parallel/base.h.

5.153.3 Member Function Documentation

5.153.3.1 template<typename _Tp, typename _DifferenceTp> iterator __gnu_parallel::_PseudoSequence< _Tp, _DifferenceTp >::begin () const [inline]

Begin iterator.

Definition at line 403 of file parallel/base.h.

5.153.3.2 template<typename _Tp, typename _DifferenceTp> iterator __gnu_parallel::_PseudoSequence< _Tp, _DifferenceTp >::end () const [inline]

End iterator.

Definition at line 408 of file parallel/base.h.

The documentation for this class was generated from the following file:

- parallel/base.h

5.154 __gnu_parallel::_PseudoSequenceIterator< _Tp, _DifferenceTp > Class Template Reference

_Iterator associated with __gnu_parallel::_PseudoSequence. If features the usual random-access iterator functionality.

Public Types

- typedef _DifferenceTp **_DifferenceType**

Public Member Functions

- **_PseudoSequenceIterator** (const _Tp &__val, _DifferenceType __pos)
- _DifferenceType **operator!=** (const _PseudoSequenceIterator &__i2)
- const _Tp & **operator*** () const
- const _PseudoSequenceIterator **operator++** (int)
- _PseudoSequenceIterator & **operator++** ()
- _DifferenceType **operator-** (const _PseudoSequenceIterator &__i2)
- bool **operator==** (const _PseudoSequenceIterator &__i2)
- const _Tp & **operator[ ]** (_DifferenceType) const

5.154.1 Detailed Description

template<typename _Tp, typename _DifferenceTp> class __gnu_parallel::_PseudoSequenceIterator< _Tp, _DifferenceTp >

_Iterator associated with __gnu_parallel::_PseudoSequence. If features the usual random-access iterator functionality.

Parameters:

_Tp Sequence _M_value type.

_DifferenceType Sequence difference type.

Definition at line 332 of file parallel/base.h.

The documentation for this class was generated from the following file:

- parallel/base.h

5.155 __gnu_parallel::_QSBThreadLocal< _RAIter > Struct Template Reference

Information local to one thread in the parallel quicksort run.

Public Types

- typedef _TraitsType::difference_type **_DifferenceType**
- typedef std::pair< _RAIter, _RAIter > _Piece
- typedef std::iterator_traits< _RAIter > **_TraitsType**

Public Member Functions

- _QSBThreadLocal (int __queue_size)

Public Attributes

- volatile _DifferenceType * _M_elements_leftover
- _Piece _M_global
- _Piece _M_initial
- _RestrictedBoundedConcurrentQueue< _Piece > _M_leftover_parts
- _ThreadIndex _M_num_threads

5.155.1 Detailed Description

template<typename _RAIter> struct __gnu_parallel::_QSBThreadLocal< _RAIter >

Information local to one thread in the parallel quicksort run.

Definition at line 62 of file balanced_quicksort.h.

5.155.2 Member Typedef Documentation

5.155.2.1 template<typename _RAIter> typedef std::pair<_RAIter, _RAIter> __gnu_parallel::_QSBThreadLocal< _RAIter >::_Piece

Continuous part of the sequence, described by an iterator pair.

Definition at line 69 of file balanced_quicksort.h.

5.155.3 Constructor & Destructor Documentation

5.155.3.1 template<typename _RAIter> __gnu_parallel::_QSBThreadLocal< _RAIter >::_QSBThreadLocal (int *__queue_size*) [inline]

Constructor.

Parameters:

__queue_size size of the work-stealing queue.

Definition at line 88 of file balanced_quicksort.h.

5.155.4 Member Data Documentation

5.155.4.1 template<typename _RAIter> volatile _DifferenceType* __gnu_parallel::_QSBThreadLocal< _RAIter >::_M_elements_leftover

Pointer to a counter of elements left over to sort.

Definition at line 81 of file balanced_quicksort.h.

Referenced by __gnu_parallel::__qsb_conquer(), and __gnu_parallel::__qsb_local_sort_with_helping().

5.155.4.2 template<typename _RAIter> _Piece __gnu_parallel::_QSBThreadLocal< _RAIter >::_M_global

The complete sequence to sort.

Definition at line 84 of file balanced_quicksort.h.

5.155.4.3 template<typename _RAIter> _Piece __gnu_parallel::_QSBThreadLocal< _RAIter >::_M_initial

Initial piece to work on.

Definition at line 72 of file balanced_quicksort.h.

Referenced by __gnu_parallel::__qsb_conquer(), and __gnu_parallel::__qsb_local_sort_with_helping().

5.155.4.4 template<typename _RAIter> _RestrictedBoundedConcurrentQueue<_Piece> __gnu_parallel::_QSBThreadLocal< _RAIter >::_M_leftover_parts

Work-stealing queue.

Definition at line 75 of file balanced_quicksort.h.

Referenced by __gnu_parallel::__qsb_local_sort_with_helping().

5.155.4.5 template<typename _RAIter> _ThreadIndex __gnu_parallel::_QSBThreadLocal< _RAIter >::_M_num_threads

Number of threads involved in this algorithm.

Definition at line 78 of file balanced_quicksort.h.

Referenced by __gnu_parallel::__qsb_local_sort_with_helping().

The documentation for this struct was generated from the following file:

- balanced_quicksort.h

5.156 __gnu_parallel::_RandomNumber Class Reference

Random number generator, based on the Mersenne twister.

Public Member Functions

- _RandomNumber (uint32_t __seed, uint64_t _M_supremum=0x100000000ULL)
- _RandomNumber ()
- unsigned long __genrand_bits (int __bits)
- uint32_t operator() (uint64_t local_supremum)
- uint32_t operator() ()

5.156.1 Detailed Description

Random number generator, based on the Mersenne twister.

Definition at line 42 of file random_number.h.

5.156.2 Constructor & Destructor Documentation

5.156.2.1 __gnu_parallel::_RandomNumber::_RandomNumber () [inline]

Default constructor. Seed with 0.

Definition at line 74 of file random_number.h.

5.156.2.2 __gnu_parallel::_RandomNumber::_RandomNumber (uint32_t *__seed*, uint64_t *_M_supremum* = 0x100000000ULL) [inline]

Constructor.

Parameters:

__seed Random __seed.

_M_supremum Generate integer random numbers in the interval [0,_M_supremum).

Definition at line 85 of file random_number.h.

5.156.3 Member Function Documentation

5.156.3.1 unsigned long __gnu_parallel::_RandomNumber::__genrand_bits (int *__bits*) [inline]

Generate a number of random bits, run-time parameter.

Parameters:

bits Number of bits to generate.

Definition at line 109 of file random_number.h.

5.156.3.2 uint32_t __gnu_parallel::_RandomNumber::operator() (uint64_t *local_supremum*) [inline]

Generate unsigned random 32-bit integer in the interval [0,local_supremum).

Definition at line 100 of file random_number.h.

5.156.3.3 uint32_t __gnu_parallel::_RandomNumber::operator() () [inline]

Generate unsigned random 32-bit integer.

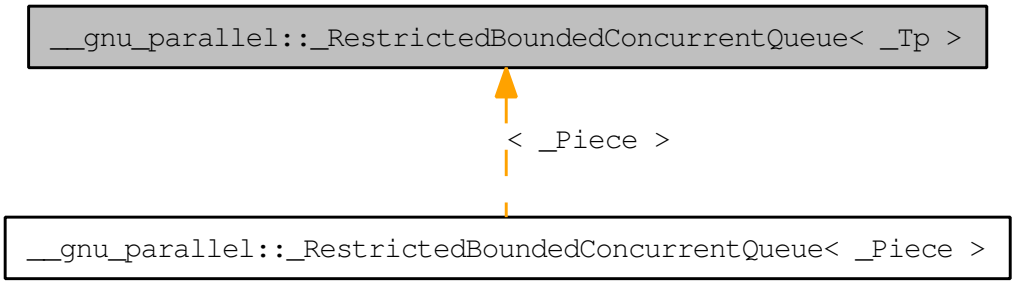
Definition at line 94 of file random_number.h.

The documentation for this class was generated from the following file:

- random_number.h

5.157 __gnu_parallel::_RestrictedBoundedConcurrentQueue< _Tp > Class Template Reference

Double-ended queue of bounded size, allowing lock-free atomic access. push_front() and pop_front() must not be called concurrently to each other, while pop_back() can be called concurrently at all times. `empty()`, `size()`, and `top()` are intentionally not provided. Calling them would not make sense in a concurrent setting. Inheritance diagram for __gnu_parallel::_RestrictedBoundedConcurrentQueue< _Tp >:



Public Member Functions

- _RestrictedBoundedConcurrentQueue (_SequenceIndex __max_size)
- ~_RestrictedBoundedConcurrentQueue ()
- bool pop_back (_Tp &__t)
- bool pop_front (_Tp &__t)
- void push_front (const _Tp &__t)

5.157.1 Detailed Description

template<typename _Tp> class __gnu_parallel::_RestrictedBoundedConcurrentQueue< _Tp >

Double-ended queue of bounded size, allowing lock-free atomic access. push_front() and pop_front() must not be called concurrently to each other, while pop_back() can be called concurrently at all times. `empty()`, `size()`, and `top()` are intentionally not provided. Calling them would not make sense in a concurrent setting.

Parameters:

_Tp Contained element type.

Definition at line 52 of file queue.h.

5.157.2 Constructor & Destructor Documentation

5.157.2.1 template<typename _Tp> __gnu_parallel::_RestrictedBoundedConcurrentQueue< _Tp >::_RestrictedBoundedConcurrentQueue (_SequenceIndex *__max_size*) [inline]

Constructor. Not to be called concurrent, of course.

Parameters:

_M_max_size Maximal number of elements to be contained.

Definition at line 68 of file queue.h.

5.157.2.2 template<typename _Tp> __gnu_parallel::_RestrictedBoundedConcurrentQueue< _Tp >::~_RestrictedBoundedConcurrentQueue () [inline]

Destructor. Not to be called concurrent, of course.

Definition at line 77 of file queue.h.

5.157.3 Member Function Documentation

5.157.3.1 template<typename _Tp> bool __gnu_parallel::_RestrictedBoundedConcurrentQueue< _Tp >::pop_back (_Tp & *__t*) [inline]

Pops one element from the queue at the front end. Must not be called concurrently with pop_front().

Definition at line 127 of file queue.h.

5.157.3.2 template<typename _Tp> bool __gnu_parallel::_RestrictedBoundedConcurrentQueue< _Tp >::pop_front (_Tp & *__t*) [inline]

Pops one element from the queue at the front end. Must not be called concurrently with pop_front().

Definition at line 100 of file queue.h.

Referenced by __gnu_parallel::__qsb_local_sort_with_helping().

5.157.3.3 template<typename _Tp> void __gnu_parallel::_RestrictedBoundedConcurrentQueue< _Tp >::push_front (const _Tp & __t) [inline]

Pushes one element into the queue at the front end. Must not be called concurrently with pop_front().

Definition at line 83 of file queue.h.

Referenced by __gnu_parallel::__qsb_local_sort_with_helping().

The documentation for this class was generated from the following file:

- queue.h

5.158 __gnu_parallel::_SamplingSorter< __stable, _RAIter, _StrictWeakOrdering > Struct Template Reference

Stable sorting functor.

Public Member Functions

- void **operator()** (_RAIter __first, _RAIter __last, _StrictWeakOrdering __comp)

5.158.1 Detailed Description

template<bool __stable, class _RAIter, class _StrictWeakOrdering> struct __gnu_parallel::_SamplingSorter< __stable, _RAIter, _StrictWeakOrdering >

Stable sorting functor. Used to reduce code instanciation in multiway_merge_sampling_splitting.

Definition at line 1004 of file multiway_merge.h.

The documentation for this struct was generated from the following file:

- multiway_merge.h

5.159 __gnu_parallel::_SamplingSorter< false, _RAIter, _StrictWeakOrdering > Struct Template Reference

Non-__stable sorting functor.

Public Member Functions

- void **operator()** (_RAIter __first, _RAIter __last, _StrictWeakOrdering __comp)

5.159.1 Detailed Description

template<class _RAIter, class _StrictWeakOrdering> struct __gnu_parallel::_SamplingSorter< false, _RAIter, _StrictWeakOrdering >

Non-__stable sorting functor. Used to reduce code instantiation in multiway_merge_sampling_splitting.

Definition at line 1017 of file multiway_merge.h.

The documentation for this struct was generated from the following file:

- multiway_merge.h

5.160 __gnu_parallel::_Settings Struct Reference

class _Settings Run-time settings for the parallel mode including all tunable parameters.

Public Member Functions

- __attribute__ ((__const__)) static const _Settings &get() throw ()

Static Public Member Functions

- static void set (_Settings &) throw ()

Public Attributes

- _SequenceIndex accumulate_minimal_n
- unsigned int adjacent_difference_minimal_n
- _AlgorithmStrategy **algorithm_strategy**
- unsigned int cache_line_size
- _SequenceIndex count_minimal_n
- _SequenceIndex fill_minimal_n
- _FindAlgorithm **find_algorithm**
- double find_increasing_factor
- _SequenceIndex find_initial_block_size
- _SequenceIndex find_maximum_block_size
- _SequenceIndex find_sequential_search_size
- _SequenceIndex for_each_minimal_n
- _SequenceIndex generate_minimal_n
- unsigned long long L1_cache_size
- unsigned long long L2_cache_size
- _SequenceIndex max_element_minimal_n
- _SequenceIndex merge_minimal_n
- unsigned int merge_oversampling
- _SplittingAlgorithm **merge_splitting**
- _SequenceIndex min_element_minimal_n
- _MultiwayMergeAlgorithm **multiway_merge_algorithm**
- int multiway_merge_minimal_k
- _SequenceIndex multiway_merge_minimal_n
- unsigned int multiway_merge_oversampling
- _SplittingAlgorithm **multiway_merge_splitting**
- _SequenceIndex nth_element_minimal_n

- _SequenceIndex partial_sort_minimal_n
- _PartialSumAlgorithm **partial_sum_algorithm**
- float partial_sum_dilation
- unsigned int partial_sum_minimal_n
- double partition_chunk_share
- _SequenceIndex partition_chunk_size
- _SequenceIndex partition_minimal_n
- _SequenceIndex qsb_steals
- unsigned int random_shuffle_minimal_n
- _SequenceIndex replace_minimal_n
- _SequenceIndex search_minimal_n
- _SequenceIndex set_difference_minimal_n
- _SequenceIndex set_intersection_minimal_n
- _SequenceIndex set_symmetric_difference_minimal_n
- _SequenceIndex set_union_minimal_n
- _SortAlgorithm **sort_algorithm**
- _SequenceIndex sort_minimal_n
- unsigned int sort_mwms_oversampling
- unsigned int sort_qs_num_samples_preset
- _SequenceIndex sort_qsb_base_case_maximal_n
- _SplittingAlgorithm **sort_splitting**
- unsigned int TLB_size
- _SequenceIndex transform_minimal_n
- _SequenceIndex unique_copy_minimal_n
- _SequenceIndex **workstealing_chunk_size**

5.160.1 Detailed Description

class _Settings Run-time settings for the parallel mode including all tunable parameters.

Definition at line 123 of file settings.h.

5.160.2 Member Function Documentation

5.160.2.1 __gnu_parallel::_Settings::__attribute__ ((__const__)) const throw ()

Get the global settings.

5.160.2.2 static void __gnu_parallel::_Settings::set (_Settings &) throw () [static]

Set the global settings.

5.160.3 Member Data Documentation

5.160.3.1 _SequenceIndex __gnu_parallel::_Settings::accumulate_minimal_n

Minimal input size for accumulate.

Definition at line 139 of file settings.h.

5.160.3.2 unsigned int __gnu_parallel::_Settings::adjacent_difference_minimal_n

Minimal input size for adjacent_difference.

Definition at line 142 of file settings.h.

5.160.3.3 unsigned int __gnu_parallel::_Settings::cache_line_size

Overestimation of cache line size. Used to avoid false sharing, i.e. elements of different threads are at least this amount apart.

Definition at line 265 of file settings.h.

Referenced by __gnu_parallel::__for_each_template_random_access_workstealing().

5.160.3.4 _SequenceIndex __gnu_parallel::_Settings::count_minimal_n

Minimal input size for count and count_if.

Definition at line 145 of file settings.h.

5.160.3.5 _SequenceIndex __gnu_parallel::_Settings::fill_minimal_n

Minimal input size for fill.

Definition at line 148 of file settings.h.

5.160.3.6 double __gnu_parallel::_Settings::find_increasing_factor

Block size increase factor for find.

Definition at line 151 of file settings.h.

Referenced by __gnu_parallel::__find_template().

5.160.3.7 _SequenceIndex __gnu_parallel::_Settings::find_initial_block_size

Initial block size for find.

Definition at line 154 of file settings.h.

Referenced by __gnu_parallel::__find_template().

5.160.3.8 _SequenceIndex __gnu_parallel::_Settings::find_maximum_block_size

Maximal block size for find.

Definition at line 157 of file settings.h.

Referenced by __gnu_parallel::__find_template().

5.160.3.9 _SequenceIndex __gnu_parallel::_Settings::find_sequential_search_size

Start with looking for this many elements sequentially, for find.

Definition at line 160 of file settings.h.

Referenced by __gnu_parallel::__find_template().

5.160.3.10 _SequenceIndex __gnu_parallel::_Settings::for_each_minimal_n

Minimal input size for for_each.

Definition at line 163 of file settings.h.

5.160.3.11 _SequenceIndex __gnu_parallel::_Settings::generate_minimal_n

Minimal input size for generate.

Definition at line 166 of file settings.h.

5.160.3.12 unsigned long long __gnu_parallel::_Settings::L1_cache_size

size of the L1 cache in bytes (underestimation).

Definition at line 254 of file settings.h.

5.160.3.13 unsigned long long __gnu_parallel::_Settings::L2_cache_size

size of the L2 cache in bytes (underestimation).

Definition at line 257 of file settings.h.

Referenced by __gnu_parallel::__parallel_random_shuffle_drs(), and __gnu_parallel::__sequential_random_shuffle().

5.160.3.14 _SequenceIndex __gnu_parallel::_Settings::max_element_minimal_n

Minimal input size for max_element.

Definition at line 169 of file settings.h.

5.160.3.15 _SequenceIndex __gnu_parallel::_Settings::merge_minimal_n

Minimal input size for merge.

Definition at line 172 of file settings.h.

5.160.3.16 unsigned int __gnu_parallel::_Settings::merge_oversampling

Oversampling factor for merge.

Definition at line 175 of file settings.h.

5.160.3.17 _SequenceIndex __gnu_parallel::_Settings::min_element_minimal_n

Minimal input size for min_element.

Definition at line 178 of file settings.h.

5.160.3.18 int __gnu_parallel::_Settings::multiway_merge_minimal_k

Oversampling factor for multiway_merge.

Definition at line 184 of file settings.h.

5.160.3.19 _SequenceIndex __gnu_parallel::_Settings::multiway_merge_minimal_n

Minimal input size for multiway_merge.

Definition at line 181 of file settings.h.

5.160.3.20 unsigned int __gnu_parallel::_Settings::multiway_merge_oversampling

Oversampling factor for multiway_merge.

Definition at line 187 of file settings.h.

5.160.3.21 _SequenceIndex __gnu_parallel::_Settings::nth_element_minimal_n

Minimal input size for nth_element.

Definition at line 190 of file settings.h.

Referenced by __gnu_parallel::__parallel_nth_element().

5.160.3.22 _SequenceIndex __gnu_parallel::_Settings::partial_sort_minimal_n

Minimal input size for partial_sort.

Definition at line 203 of file settings.h.

5.160.3.23 float __gnu_parallel::_Settings::partial_sum_dilation

Ratio for partial_sum. Assume "sum and write result" to be this factor slower than just "sum".

Definition at line 207 of file settings.h.

Referenced by __gnu_parallel::__parallel_partial_sum_linear().

5.160.3.24 unsigned int __gnu_parallel::_Settings::partial_sum_minimal_n

Minimal input size for partial_sum.

Definition at line 210 of file settings.h.

5.160.3.25 double __gnu_parallel::_Settings::partition_chunk_share

Chunk size for partition, relative to input size. If > 0.0, this value overrides partition_chunk_size.

Definition at line 197 of file settings.h.

Referenced by __gnu_parallel::__parallel_partition().

5.160.3.26 _SequenceIndex __gnu_parallel::_Settings::partition_chunk_size

Chunk size for partition.

Definition at line 193 of file settings.h.

Referenced by __gnu_parallel::__parallel_partition().

5.160.3.27 _SequenceIndex __gnu_parallel::_Settings::partition_minimal_n

Minimal input size for partition.

Definition at line 200 of file settings.h.

Referenced by __gnu_parallel::__parallel_nth_element().

5.160.3.28 _SequenceIndex __gnu_parallel::_Settings::qsb_steals

The number of stolen ranges in load-balanced quicksort.

Definition at line 270 of file settings.h.

5.160.3.29 unsigned int __gnu_parallel::_Settings::random_shuffle_minimal_n

Minimal input size for random_shuffle.

Definition at line 213 of file settings.h.

5.160.3.30 _SequenceIndex __gnu_parallel::_Settings::replace_minimal_n

Minimal input size for replace and replace_if.

Definition at line 216 of file settings.h.

5.160.3.31 _SequenceIndex __gnu_parallel::_Settings::search_minimal_n

Minimal input size for search and search_n.

Definition at line 273 of file settings.h.

5.160.3.32 _SequenceIndex __gnu_parallel::_Settings::set_difference_minimal_n

Minimal input size for set_difference.

Definition at line 219 of file settings.h.

5.160.3.33 _SequenceIndex __gnu_parallel::_Settings::set_intersection_-minimal_n

Minimal input size for set_intersection.

Definition at line 222 of file settings.h.

5.160.3.34 _SequenceIndex __gnu_parallel::_Settings::set_symmetric_-difference_minimal_n

Minimal input size for set_symmetric_difference.

Definition at line 225 of file settings.h.

5.160.3.35 _SequenceIndex __gnu_parallel::_Settings::set_union_minimal_n

Minimal input size for set_union.

Definition at line 228 of file settings.h.

5.160.3.36 _SequenceIndex __gnu_parallel::_Settings::sort_minimal_n

Minimal input size for parallel sorting.

Definition at line 231 of file settings.h.

5.160.3.37 unsigned int __gnu_parallel::_Settings::sort_mwms_oversampling

Oversampling factor for parallel std::sort (MWMS).

Definition at line 234 of file settings.h.

5.160.3.38 unsigned int __gnu_parallel::_Settings::sort_qs_num_samples_-preset

Such many samples to take to find a good pivot (quicksort).

Definition at line 237 of file settings.h.

5.160.3.39 _SequenceIndex __gnu_parallel::_Settings::sort_qsb_base_case_-maximal_n

Maximal subsequence __length to switch to unbalanced __base case. Applies to std::sort with dynamically load-balanced quicksort.

Definition at line 241 of file settings.h.

5.160.3.40 unsigned int __gnu_parallel::_Settings::TLB_size

size of the Translation Lookaside Buffer (underestimation).

Definition at line 260 of file settings.h.

Referenced by __gnu_parallel::__parallel_random_shuffle_drs(), and __gnu_parallel::__sequential_random_shuffle().

5.160.3.41 _SequenceIndex __gnu_parallel::_Settings::transform_minimal_n

Minimal input size for parallel std::transform.

Definition at line 244 of file settings.h.

5.160.3.42 _SequenceIndex __gnu_parallel::_Settings::unique_copy_minimal_n

Minimal input size for unique_copy.

Definition at line 247 of file settings.h.

The documentation for this struct was generated from the following file:

- settings.h

5.161 __gnu_parallel::_SplitConsistently< __exact, _RAIter, _Compare, _SortingPlacesIterator > Struct Template Reference

Split consistently.

5.161.1 Detailed Description

template<bool __exact, typename _RAIter, typename _Compare, typename _SortingPlacesIterator> struct __gnu_parallel::_SplitConsistently< __exact, _RAIter, _Compare, _SortingPlacesIterator >

Split consistently.

Definition at line 122 of file multiway_mergesort.h.

The documentation for this struct was generated from the following file:

- multiway_mergesort.h

5.162 __gnu_parallel::_SplitConsistently< false, _RAIter, _Compare, _SortingPlacesIterator > Struct Template Reference

Split by sampling.

Public Member Functions

- void **operator()** (const _ThreadIndex __iam, _PMWMSSortingData< _RAIter > *__sd, _Compare &__comp, const typename std::iterator_traits< _RAIter >::difference_type __num_samples) const

5.162.1 Detailed Description

template<typename _RAIter, typename _Compare, typename _SortingPlacesIterator> struct __gnu_parallel::_SplitConsistently< false, _RAIter, _Compare, _SortingPlacesIterator >

Split by sampling.

Definition at line 187 of file multiway_mergesort.h.

The documentation for this struct was generated from the following file:

- multiway_mergesort.h

5.163 __gnu_parallel::_SplitConsistently< true, _RAIter, _Compare, _SortingPlacesIterator > Struct Template Reference

Split by exact splitting.

Public Member Functions

- void **operator()** (const _ThreadIndex __iam, _PMWMSSortingData< _RAIter > *__sd, _Compare &__comp, const typename std::iterator_traits< _RAIter >::difference_type __num_samples) const

5.163.1 Detailed Description

template<typename _RAIter, typename _Compare, typename _SortingPlacesIterator> struct __gnu_parallel::_SplitConsistently< true, _RAIter, _Compare, _SortingPlacesIterator >

Split by exact splitting.

Definition at line 128 of file multiway_mergesort.h.

The documentation for this struct was generated from the following file:

- multiway_mergesort.h

5.164 __gnu_parallel::_VoidFunctor< _ValueTp > Class Template Reference

Functor that does nothing.

5.164.1 Detailed Description

template<typename _ValueTp> class __gnu_parallel::_VoidFunctor< _ValueTp >

Functor that does nothing.

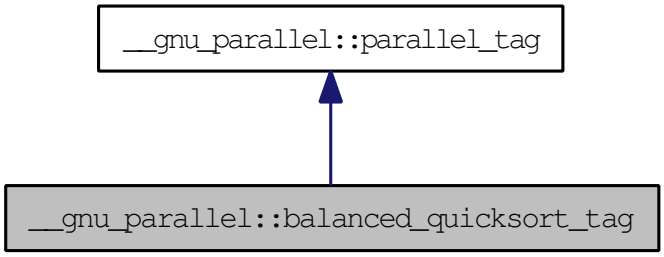
Definition at line 418 of file parallel/base.h.

The documentation for this class was generated from the following file:

- parallel/base.h

5.165 __gnu_parallel::balanced_quicksort_tag Struct Reference

Forces parallel sorting using balanced quicksort at compile time. Inheritance diagram for __gnu_parallel::balanced_quicksort_tag:



Public Member Functions

- **balanced_quicksort_tag** (_ThreadIndex __num_threads)
- _ThreadIndex __get_num_threads ()
- void set_num_threads (_ThreadIndex __num_threads)

5.165.1 Detailed Description

Forces parallel sorting using balanced quicksort at compile time.

Definition at line 164 of file tags.h.

5.165.2 Member Function Documentation

5.165.2.1 _ThreadIndex __gnu_parallel::parallel_tag::__get_num_threads () [inline, inherited]

Find out desired number of threads.

Returns:

Desired number of threads.

Definition at line 63 of file tags.h.

Referenced by __gnu_parallel::__parallel_sort().

5.165.2.2 void __gnu_parallel::parallel_tag::set_num_threads (_ThreadIndex *__num_threads*) [inline, inherited]

Set the desired number of threads.

Parameters:

__num_threads Desired number of threads.

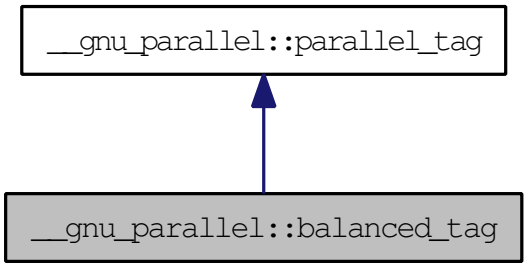
Definition at line 73 of file tags.h.

The documentation for this struct was generated from the following file:

- tags.h

5.166 __gnu_parallel::balanced_tag Struct Reference

Recommends parallel execution using dynamic load-balancing at compile time. Inheritance diagram for __gnu_parallel::balanced_tag:



Public Member Functions

- _ThreadIndex __get_num_threads ()
- void set_num_threads (_ThreadIndex __num_threads)

5.166.1 Detailed Description

Recommends parallel execution using dynamic load-balancing at compile time.

Definition at line 88 of file tags.h.

5.166.2 Member Function Documentation

5.166.2.1 _ThreadIndex __gnu_parallel::parallel_tag::__get_num_threads () [inline, inherited]

Find out desired number of threads.

Returns:

Desired number of threads.

Definition at line 63 of file tags.h.

Referenced by __gnu_parallel::__parallel_sort().

5.166.2.2 void __gnu_parallel::parallel_tag::set_num_threads (_ThreadIndex *__num_threads*) [inline, inherited]

Set the desired number of threads.

Parameters:

__num_threads Desired number of threads.

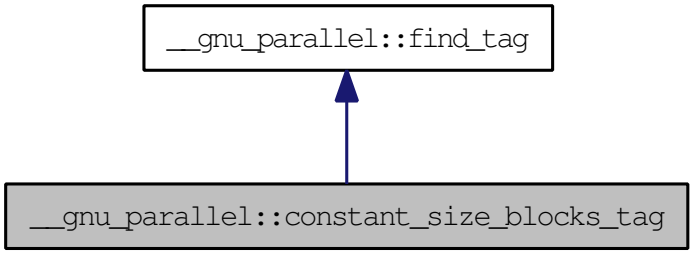
Definition at line 73 of file tags.h.

The documentation for this struct was generated from the following file:

- tags.h

5.167 __gnu_parallel::constant_size_blocks_tag Struct Reference

Selects the constant block size variant for std::find(). Inheritance diagram for __gnu_parallel::constant_size_blocks_tag:



5.167.1 Detailed Description

Selects the constant block size variant for std::find().

See also:

_GLIBCXX_FIND_CONSTANT_SIZE_BLOCKS

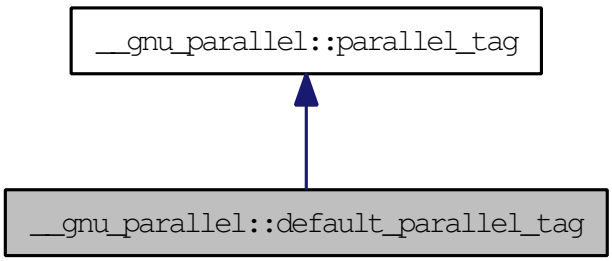
Definition at line 178 of file tags.h.

The documentation for this struct was generated from the following file:

- tags.h

5.168 __gnu_parallel::default_parallel_tag Struct Reference

Recommends parallel execution using the default parallel algorithm. Inheritance diagram for __gnu_parallel::default_parallel_tag:



Public Member Functions

- **default_parallel_tag** (_ThreadIndex __num_threads)
- _ThreadIndex __get_num_threads ()
- void set_num_threads (_ThreadIndex __num_threads)

5.168.1 Detailed Description

Recommends parallel execution using the default parallel algorithm.

Definition at line 79 of file tags.h.

5.168.2 Member Function Documentation

5.168.2.1 _ThreadIndex __gnu_parallel::parallel_tag::__get_num_threads () [inline, inherited]

Find out desired number of threads.

Returns:

Desired number of threads.

Definition at line 63 of file tags.h.

Referenced by __gnu_parallel::__parallel_sort().

5.168.2.2 void __gnu_parallel::parallel_tag::set_num_threads (_ThreadIndex *__num_threads*) [inline, inherited]

Set the desired number of threads.

Parameters:

__num_threads Desired number of threads.

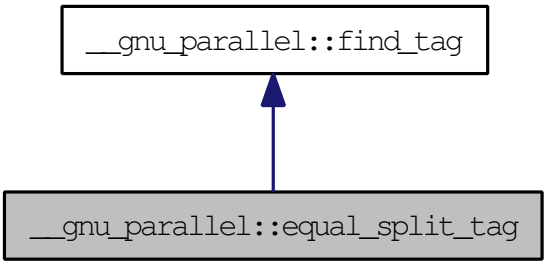
Definition at line 73 of file tags.h.

The documentation for this struct was generated from the following file:

- tags.h

5.169 __gnu_parallel::equal_split_tag Struct Reference

Selects the equal splitting variant for std::find(). Inheritance diagram for __gnu_parallel::equal_split_tag:



5.169.1 Detailed Description

Selects the equal splitting variant for std::find().

See also:

_GLIBCXX_FIND_EQUAL_SPLIT

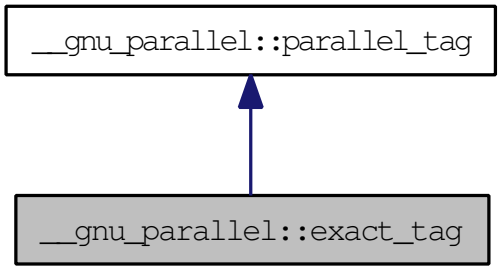
Definition at line 182 of file tags.h.

The documentation for this struct was generated from the following file:

- tags.h

5.170 __gnu_parallel::exact_tag Struct Reference

Forces parallel merging with exact splitting, at compile time. Inheritance diagram for __gnu_parallel::exact_tag:



Public Member Functions

- **exact_tag** (_ThreadIndex __num_threads)
- _ThreadIndex __get_num_threads ()
- void set_num_threads (_ThreadIndex __num_threads)

5.170.1 Detailed Description

Forces parallel merging with exact splitting, at compile time.

Definition at line 109 of file tags.h.

5.170.2 Member Function Documentation

5.170.2.1 _ThreadIndex __gnu_parallel::parallel_tag::__get_num_threads () [inline, inherited]

Find out desired number of threads.

Returns:

Desired number of threads.

Definition at line 63 of file tags.h.

Referenced by __gnu_parallel::__parallel_sort().

5.170.2.2 void __gnu_parallel::parallel_tag::set_num_threads (_ThreadIndex *__num_threads*) [inline, inherited]

Set the desired number of threads.

Parameters:

__num_threads Desired number of threads.

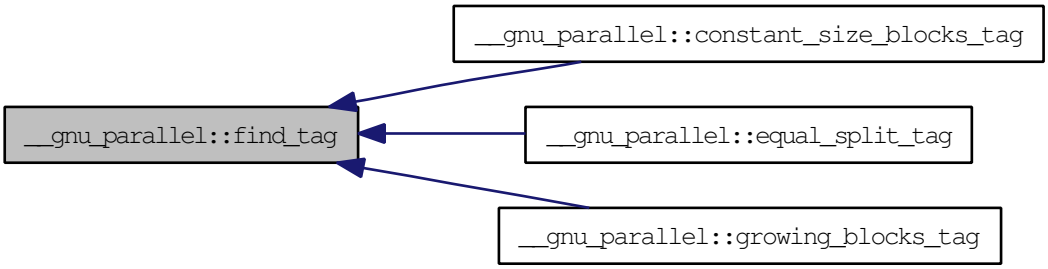
Definition at line 73 of file tags.h.

The documentation for this struct was generated from the following file:

- tags.h

5.171 __gnu_parallel::find_tag Struct Reference

Base class for for std::find() variants. Inheritance diagram for __gnu_parallel::find_tag:



5.171.1 Detailed Description

Base class for for std::find() variants.

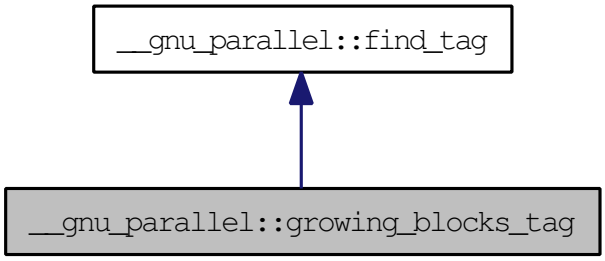
Definition at line 104 of file tags.h.

The documentation for this struct was generated from the following file:

- tags.h

5.172 __gnu_parallel::growing_blocks_tag Struct Reference

Selects the growing block size variant for std::find(). Inheritance diagram for __gnu_parallel::growing_blocks_tag:



5.172.1 Detailed Description

Selects the growing block size variant for std::find().

See also:

_GLIBCXX_FIND_GROWING_BLOCKS

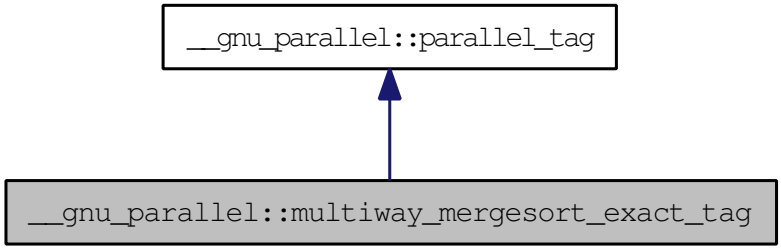
Definition at line 174 of file tags.h.

The documentation for this struct was generated from the following file:

- tags.h

5.173 __gnu_parallel::multiway_mergesort_exact_tag Struct Reference

Forces parallel sorting using multiway mergesort with exact splitting at compile time.
Inheritance diagram for __gnu_parallel::multiway_mergesort_exact_tag:



Public Member Functions

- **multiway_mergesort_exact_tag** (_ThreadIndex __num_threads)
- _ThreadIndex __get_num_threads ()
- void set_num_threads (_ThreadIndex __num_threads)

5.173.1 Detailed Description

Forces parallel sorting using multiway mergesort with exact splitting at compile time.

Definition at line 137 of file tags.h.

5.173.2 Member Function Documentation

5.173.2.1 _ThreadIndex __gnu_parallel::parallel_tag::__get_num_threads () [inline, inherited]

Find out desired number of threads.

Returns:

Desired number of threads.

Definition at line 63 of file tags.h.

Referenced by __gnu_parallel::__parallel_sort().

5.173.2.2 void __gnu_parallel::parallel_tag::set_num_threads (_ThreadIndex *__num_threads*) [inline, inherited]

Set the desired number of threads.

Parameters:

__num_threads Desired number of threads.

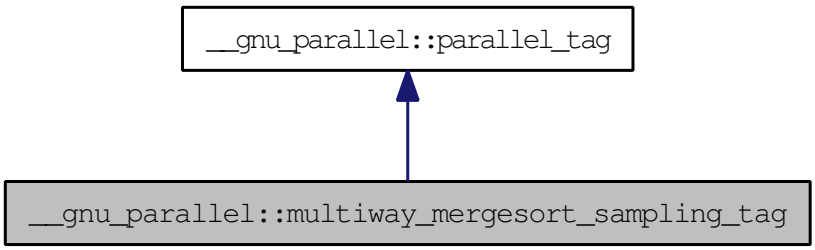
Definition at line 73 of file tags.h.

The documentation for this struct was generated from the following file:

- tags.h

5.174 __gnu_parallel::multiway_mergesort_-sampling_tag Struct Reference

Forces parallel sorting using multiway mergesort with splitting by sampling at compile time. Inheritance diagram for __gnu_parallel::multiway_mergesort_sampling_tag:



Public Member Functions

- **multiway_mergesort_sampling_tag** (_ThreadIndex __num_threads)
- _ThreadIndex __get_num_threads ()
- void set_num_threads (_ThreadIndex __num_threads)

5.174.1 Detailed Description

Forces parallel sorting using multiway mergesort with splitting by sampling at compile time.

Definition at line 146 of file tags.h.

5.174.2 Member Function Documentation

5.174.2.1 _ThreadIndex __gnu_parallel::parallel_tag::__get_num_threads () [inline, inherited]

Find out desired number of threads.

Returns:

Desired number of threads.

Definition at line 63 of file tags.h.

Referenced by __gnu_parallel::__parallel_sort().

5.174.2.2 void __gnu_parallel::parallel_tag::set_num_threads (_ThreadIndex *__num_threads*) [inline, inherited]

Set the desired number of threads.

Parameters:

__num_threads Desired number of threads.

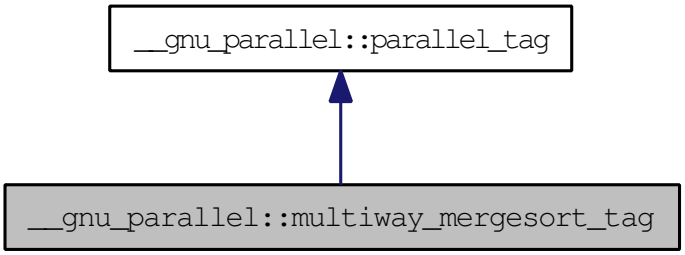
Definition at line 73 of file tags.h.

The documentation for this struct was generated from the following file:

- tags.h

5.175 __gnu_parallel::multiway_mergesort_tag Struct Reference

Forces parallel sorting using multiway mergesort at compile time. Inheritance diagram for __gnu_parallel::multiway_mergesort_tag:



Public Member Functions

- **multiway_mergesort_tag** (_ThreadIndex __num_threads)
- _ThreadIndex __get_num_threads ()
- void set_num_threads (_ThreadIndex __num_threads)

5.175.1 Detailed Description

Forces parallel sorting using multiway mergesort at compile time.

Definition at line 128 of file tags.h.

5.175.2 Member Function Documentation

5.175.2.1 _ThreadIndex __gnu_parallel::parallel_tag::__get_num_threads () [inline, inherited]

Find out desired number of threads.

Returns:

Desired number of threads.

Definition at line 63 of file tags.h.

Referenced by __gnu_parallel::__parallel_sort().

5.175.2.2 void __gnu_parallel::parallel_tag::set_num_threads (_ThreadIndex *__num_threads*) [inline, inherited]

Set the desired number of threads.

Parameters:

__num_threads Desired number of threads.

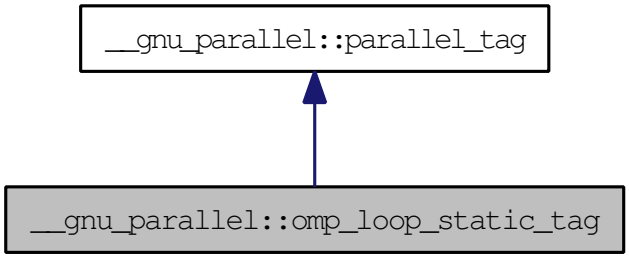
Definition at line 73 of file tags.h.

The documentation for this struct was generated from the following file:

- tags.h

5.176 __gnu_parallel::omp_loop_static_tag Struct Reference

Recommends parallel execution using OpenMP static load-balancing at compile time.
Inheritance diagram for __gnu_parallel::omp_loop_static_tag:



Public Member Functions

- _ThreadIndex __get_num_threads ()
- void set_num_threads (_ThreadIndex __num_threads)

5.176.1 Detailed Description

Recommends parallel execution using OpenMP static load-balancing at compile time.

Definition at line 100 of file tags.h.

5.176.2 Member Function Documentation

5.176.2.1 _ThreadIndex __gnu_parallel::parallel_tag::__get_num_threads () [inline, inherited]

Find out desired number of threads.

Returns:

Desired number of threads.

Definition at line 63 of file tags.h.

Referenced by __gnu_parallel::__parallel_sort().

5.176.2.2 void __gnu_parallel::parallel_tag::set_num_threads (_ThreadIndex *__num_threads*) [inline, inherited]

Set the desired number of threads.

Parameters:

__num_threads Desired number of threads.

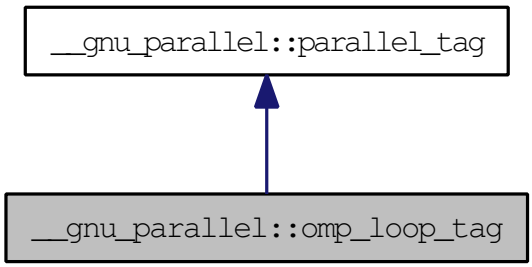
Definition at line 73 of file tags.h.

The documentation for this struct was generated from the following file:

- tags.h

5.177 __gnu_parallel::omp_loop_tag Struct Reference

Recommends parallel execution using OpenMP dynamic load-balancing at compile time. Inheritance diagram for __gnu_parallel::omp_loop_tag:



Public Member Functions

- _ThreadIndex __get_num_threads ()
- void set_num_threads (_ThreadIndex __num_threads)

5.177.1 Detailed Description

Recommends parallel execution using OpenMP dynamic load-balancing at compile time.

Definition at line 96 of file tags.h.

5.177.2 Member Function Documentation

5.177.2.1 _ThreadIndex __gnu_parallel::parallel_tag::__get_num_threads () [inline, inherited]

Find out desired number of threads.

Returns:

Desired number of threads.

Definition at line 63 of file tags.h.

Referenced by __gnu_parallel::__parallel_sort().

5.177.2.2 void __gnu_parallel::parallel_tag::set_num_threads (_ThreadIndex *__num_threads*) [inline, inherited]

Set the desired number of threads.

Parameters:

__num_threads Desired number of threads.

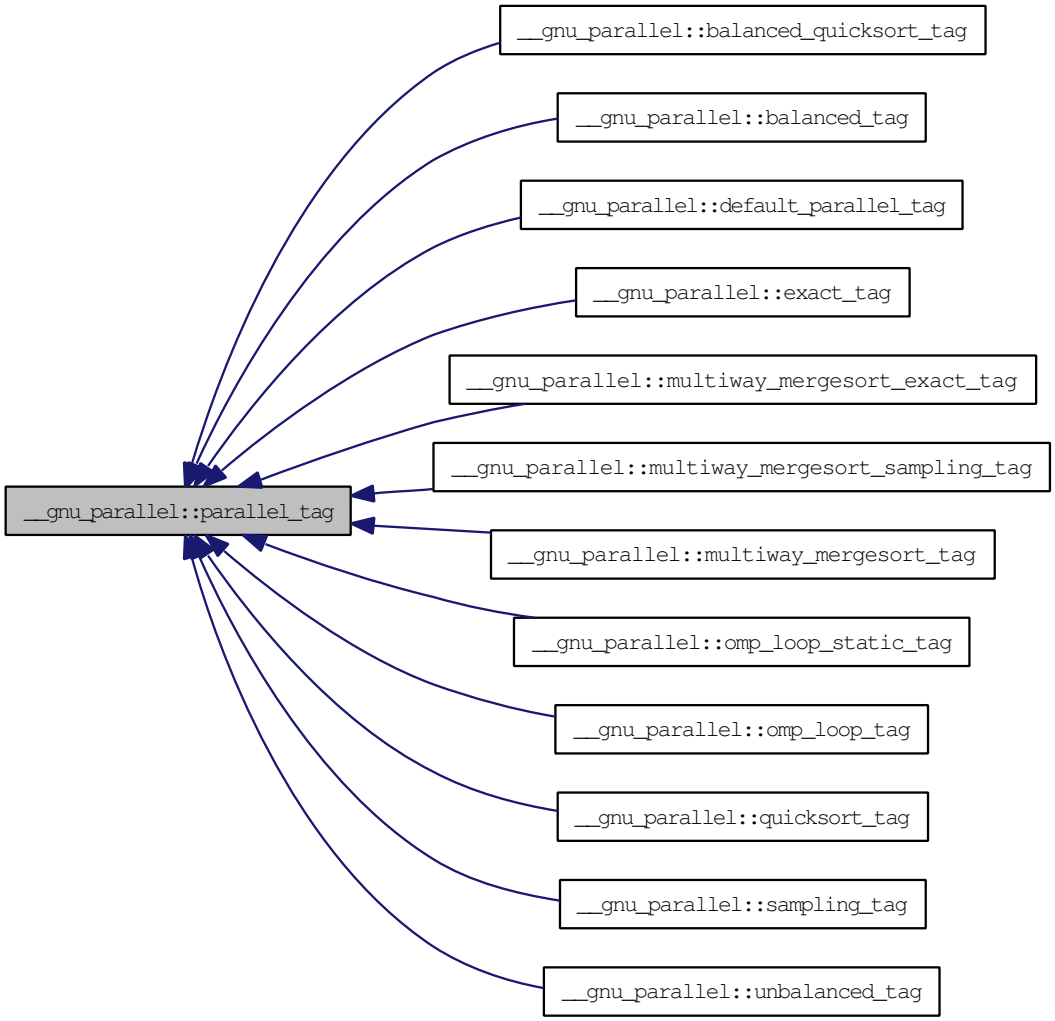
Definition at line 73 of file tags.h.

The documentation for this struct was generated from the following file:

- tags.h

5.178 __gnu_parallel::parallel_tag Struct Reference

Recommends parallel execution at compile time, optionally using a user-specified number of threads. Inheritance diagram for __gnu_parallel::parallel_tag:



Public Member Functions

- parallel_tag (_ThreadIndex __num_threads)
- parallel_tag ()
- _ThreadIndex __get_num_threads ()

- void set_num_threads (_ThreadIndex __num_threads)

5.178.1 Detailed Description

Recommends parallel execution at compile time, optionally using a user-specified number of threads.

Definition at line 46 of file tags.h.

5.178.2 Constructor & Destructor Documentation

5.178.2.1 __gnu_parallel::parallel_tag::parallel_tag () [inline]

Default constructor. Use default number of threads.

Definition at line 53 of file tags.h.

5.178.2.2 __gnu_parallel::parallel_tag::parallel_tag (_ThreadIndex *__num_threads*) [inline]

Default constructor. Recommend number of threads to use.

Parameters:

__num_threads Desired number of threads.

Definition at line 58 of file tags.h.

5.178.3 Member Function Documentation

5.178.3.1 _ThreadIndex __gnu_parallel::parallel_tag::__get_num_threads () [inline]

Find out desired number of threads.

Returns:

Desired number of threads.

Definition at line 63 of file tags.h.

Referenced by __gnu_parallel::__parallel_sort().

5.178.3.2 void __gnu_parallel::parallel_tag::set_num_threads (_ThreadIndex *__num_threads*) [inline]

Set the desired number of threads.

Parameters:

__num_threads Desired number of threads.

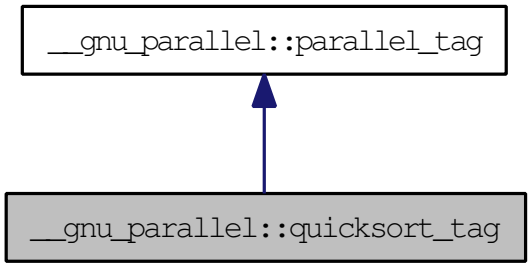
Definition at line 73 of file tags.h.

The documentation for this struct was generated from the following file:

- tags.h

5.179 __gnu_parallel::quicksort_tag Struct Reference

Forces parallel sorting using unbalanced quicksort at compile time. Inheritance diagram for __gnu_parallel::quicksort_tag:



Public Member Functions

- **quicksort_tag** (_ThreadIndex __num_threads)
- _ThreadIndex __get_num_threads ()
- void set_num_threads (_ThreadIndex __num_threads)

5.179.1 Detailed Description

Forces parallel sorting using unbalanced quicksort at compile time.

Definition at line 155 of file tags.h.

5.179.2 Member Function Documentation

5.179.2.1 _ThreadIndex __gnu_parallel::parallel_tag::__get_num_threads () [inline, inherited]

Find out desired number of threads.

Returns:

Desired number of threads.

Definition at line 63 of file tags.h.

Referenced by __gnu_parallel::__parallel_sort().

5.179.2.2 void __gnu_parallel::parallel_tag::set_num_threads (_ThreadIndex *__num_threads*) [inline, inherited]

Set the desired number of threads.

Parameters:

__num_threads Desired number of threads.

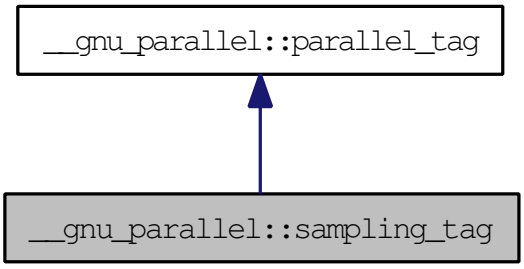
Definition at line 73 of file tags.h.

The documentation for this struct was generated from the following file:

- tags.h

5.180 __gnu_parallel::sampling_tag Struct Reference

Forces parallel merging with exact splitting, at compile time. Inheritance diagram for __gnu_parallel::sampling_tag:



Public Member Functions

- **sampling_tag** (_ThreadIndex __num_threads)
- _ThreadIndex __get_num_threads ()
- void set_num_threads (_ThreadIndex __num_threads)

5.180.1 Detailed Description

Forces parallel merging with exact splitting, at compile time.

Definition at line 118 of file tags.h.

5.180.2 Member Function Documentation

5.180.2.1 _ThreadIndex __gnu_parallel::parallel_tag::__get_num_threads () [inline, inherited]

Find out desired number of threads.

Returns:

Desired number of threads.

Definition at line 63 of file tags.h.

Referenced by __gnu_parallel::__parallel_sort().

5.180.2.2 void __gnu_parallel::parallel_tag::set_num_threads (_ThreadIndex *__num_threads*) [inline, inherited]

Set the desired number of threads.

Parameters:

__num_threads Desired number of threads.

Definition at line 73 of file tags.h.

The documentation for this struct was generated from the following file:

- tags.h

5.181 __gnu_parallel::sequential_tag Struct Reference

Forces sequential execution at compile time.

5.181.1 Detailed Description

Forces sequential execution at compile time.

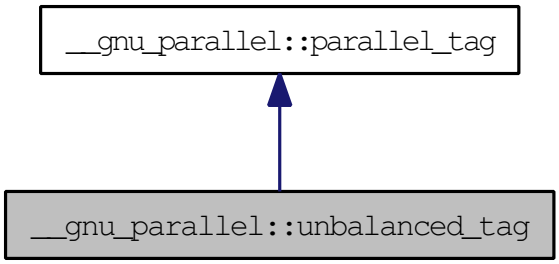
Definition at line 42 of file tags.h.

The documentation for this struct was generated from the following file:

- tags.h

5.182 __gnu_parallel::unbalanced_tag Struct Reference

Recommends parallel execution using static load-balancing at compile time. Inheritance diagram for __gnu_parallel::unbalanced_tag:



Public Member Functions

- _ThreadIndex __get_num_threads ()
- void set_num_threads (_ThreadIndex __num_threads)

5.182.1 Detailed Description

Recommends parallel execution using static load-balancing at compile time.

Definition at line 92 of file tags.h.

5.182.2 Member Function Documentation

5.182.2.1 _ThreadIndex __gnu_parallel::parallel_tag::__get_num_threads () [inline, inherited]

Find out desired number of threads.

Returns:

Desired number of threads.

Definition at line 63 of file tags.h.

Referenced by __gnu_parallel::__parallel_sort().

5.182.2.2 void __gnu_parallel::parallel_tag::set_num_threads (_ThreadIndex *__num_threads*) [inline, inherited]

Set the desired number of threads.

Parameters:

__num_threads Desired number of threads.

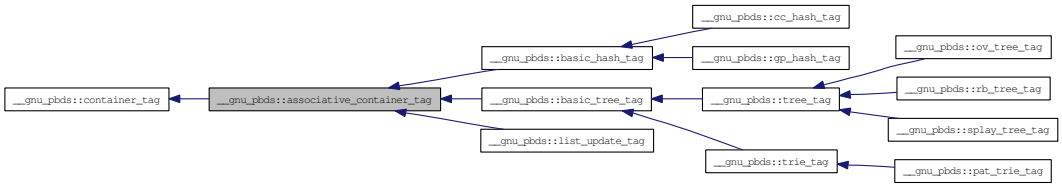
Definition at line 73 of file tags.h.

The documentation for this struct was generated from the following file:

- tags.h

5.183 __gnu_pbds::associative_container_tag Struct Reference

Basic associative-container. Inheritance diagram for __gnu_pbds::associative_-container_tag:



5.183.1 Detailed Description

Basic associative-container.

Definition at line 102 of file tag_and_trait.hpp.

The documentation for this struct was generated from the following file:

- tag_and_trait.hpp

5.184 __gnu_pbds::basic_hash_table< Key, Mapped, Hash_Fn, Eq_Fn, Resize_Policy, Store_Hash, Tag, Policy_TL, Allocator > Class Template Reference

An abstract basic hash-based associative container. Inheritance diagram for __gnu_pbds::basic_hash_table< Key, Mapped, Hash_Fn, Eq_Fn, Resize_Policy, Store_Hash, Tag, Policy_TL, Allocator >:

Public Types

- typedef Allocator **allocator_type**
- typedef base_type::const_iterator **const_iterator**
- typedef key_rebind::const_pointer **const_key_pointer**
- typedef key_rebind::const_reference **const_key_reference**
- typedef mapped_rebind::const_pointer **const_mapped_pointer**
- typedef mapped_rebind::const_reference **const_mapped_reference**
- typedef base_type::const_point_iterator **const_point_iterator**
- typedef value_rebind::const_pointer **const_pointer**
- typedef value_rebind::const_reference **const_reference**
- typedef Tag **container_category**
- typedef allocator_type::difference_type **difference_type**
- typedef base_type::iterator **iterator**
- typedef key_rebind::pointer **key_pointer**
- typedef allocator_type::template rebind< key_type >::other **key_rebind**
- typedef key_rebind::reference **key_reference**
- typedef allocator_type::template rebind< Key >::other::value_type **key_type**
- typedef mapped_rebind::pointer **mapped_pointer**
- typedef allocator_type::template rebind< mapped_type >::other **mapped_rebind**
- typedef mapped_rebind::reference **mapped_reference**
- typedef Mapped **mapped_type**
- typedef base_type::point_iterator **point_iterator**
- typedef value_rebind::pointer **pointer**
- typedef value_rebind::reference **reference**
- typedef allocator_type::size_type **size_type**
- typedef allocator_type::template rebind< value_type >::other **value_rebind**
- typedef base_type::value_type **value_type**

5.184.1 Detailed Description

template<typename Key, typename Mapped, typename Hash_Fn, typename Eq_Fn, typename Resize_Policy, bool Store_Hash, typename Tag, typename Policy_TL, typename Allocator> class __gnu_pbds::basic_hash_table< Key, Mapped, Hash_Fn, Eq_Fn, Resize_Policy, Store_Hash, Tag, Policy_TL, Allocator >

An abstract basic hash-based associative container.

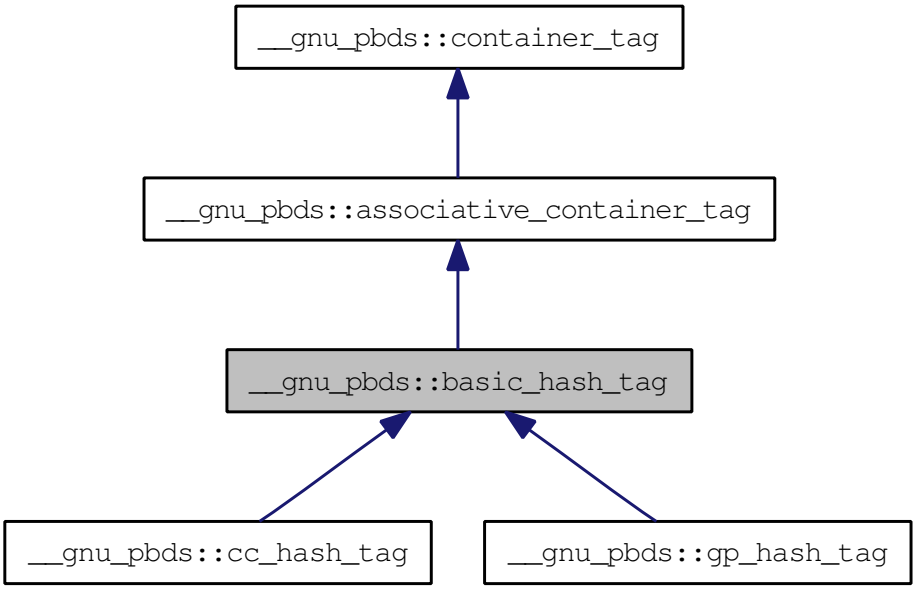
Definition at line 143 of file assoc_container.hpp.

The documentation for this class was generated from the following file:

- assoc_container.hpp

5.185 __gnu_pbds::basic_hash_tag Struct Reference

Basic hash. Inheritance diagram for __gnu_pbds::basic_hash_tag:



5.185.1 Detailed Description

Basic hash.

Definition at line 105 of file tag_and_trait.hpp.

The documentation for this struct was generated from the following file:

- tag_and_trait.hpp

5.186 __gnu_pbds::basic_tree< Key, Mapped, Tag, Node_Update, Policy_Tl, Allocator > Class Template Reference

An abstract basic tree-like (tree, trie) associative container. Inheritance diagram for __gnu_pbds::basic_tree< Key, Mapped, Tag, Node_Update, Policy_Tl, Allocator >:

Public Types

- typedef Allocator **allocator_type**
- typedef base_type::const_iterator **const_iterator**
- typedef key_rebind::const_pointer **const_key_pointer**
- typedef key_rebind::const_reference **const_key_reference**
- typedef mapped_rebind::const_pointer **const_mapped_pointer**
- typedef mapped_rebind::const_reference **const_mapped_reference**
- typedef base_type::const_point_iterator **const_point_iterator**
- typedef value_rebind::const_pointer **const_pointer**
- typedef value_rebind::const_reference **const_reference**
- typedef Tag **container_category**
- typedef allocator_type::difference_type **difference_type**
- typedef base_type::iterator **iterator**
- typedef key_rebind::pointer **key_pointer**
- typedef allocator_type::template rebind< key_type >::other **key_rebind**
- typedef key_rebind::reference **key_reference**
- typedef allocator_type::template rebind< Key >::other::value_type **key_type**
- typedef mapped_rebind::pointer **mapped_pointer**
- typedef allocator_type::template rebind< mapped_type >::other **mapped_rebind**
- typedef mapped_rebind::reference **mapped_reference**
- typedef Mapped **mapped_type**
- typedef Node_Update **node_update**
- typedef base_type::point_iterator **point_iterator**
- typedef value_rebind::pointer **pointer**
- typedef value_rebind::reference **reference**
- typedef allocator_type::size_type **size_type**
- typedef allocator_type::template rebind< value_type >::other **value_rebind**
- typedef base_type::value_type **value_type**

5.186.1 Detailed Description

template<typename Key, typename Mapped, typename Tag, typename Node_Update, typename Policy_Tl, typename Allocator> class __gnu_pbds::basic_tree< Key, Mapped, Tag, Node_Update, Policy_Tl, Allocator >

An abstract basic tree-like (tree, trie) associative container.

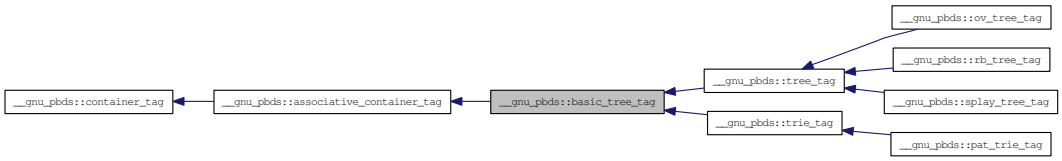
Definition at line 476 of file assoc_container.hpp.

The documentation for this class was generated from the following file:

- assoc_container.hpp

5.187 __gnu_pbds::basic_tree_tag Struct Reference

Basic tree. Inheritance diagram for __gnu_pbds::basic_tree_tag:



5.187.1 Detailed Description

Basic tree.

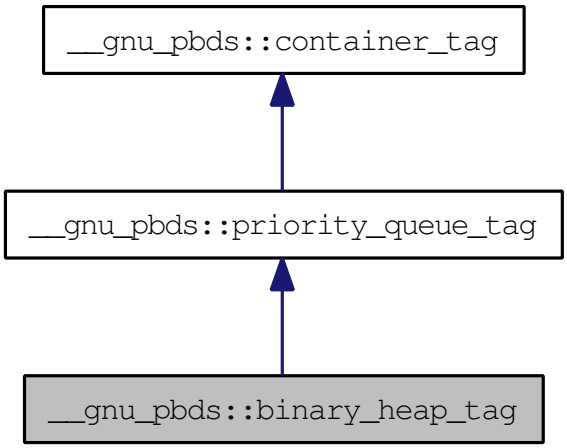
Definition at line 114 of file tag_and_trait.hpp.

The documentation for this struct was generated from the following file:

- tag_and_trait.hpp

5.188 __gnu_pbds::binary_heap_tag Struct Reference

Binary-heap (array-based). Inheritance diagram for __gnu_pbds::binary_heap_tag:



5.188.1 Detailed Description

Binary-heap (array-based).

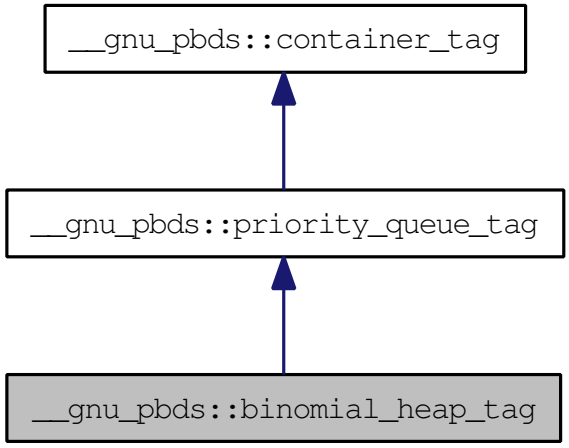
Definition at line 150 of file tag_and_trait.hpp.

The documentation for this struct was generated from the following file:

- tag_and_trait.hpp

5.189 __gnu_pbds::binomial_heap_tag Struct Reference

Binomial-heap. Inheritance diagram for __gnu_pbds::binomial_heap_tag:



5.189.1 Detailed Description

Binomial-heap.

Definition at line 144 of file tag_and_trait.hpp.

The documentation for this struct was generated from the following file:

- tag_and_trait.hpp

5.190 __gnu_pbds::cc_hash_table< Key, Mapped, Hash_Fn, Eq_Fn, Comb_Hash_Fn, Resize_Policy, Store_Hash, Allocator > Class Template Reference

A concrete collision-chaining hash-based associative container. Inheritance diagram for __gnu_pbds::cc_hash_table< Key, Mapped, Hash_Fn, Eq_Fn, Comb_Hash_Fn, Resize_Policy, Store_Hash, Allocator >:

Public Types

- typedef Allocator **allocator_type**
- typedef Comb_Hash_Fn **comb_hash_fn**
- typedef base_type::const_iterator **const_iterator**
- typedef key_rebind::const_pointer **const_key_pointer**
- typedef key_rebind::const_reference **const_key_reference**
- typedef mapped_rebind::const_pointer **const_mapped_pointer**
- typedef mapped_rebind::const_reference **const_mapped_reference**
- typedef base_type::const_point_iterator **const_point_iterator**
- typedef value_rebind::const_pointer **const_pointer**
- typedef value_rebind::const_reference **const_reference**
- typedef cc_hash_tag **container_category**
- typedef allocator_type::difference_type **difference_type**
- typedef Eq_Fn **eq_fn**
- typedef Hash_Fn **hash_fn**
- typedef base_type::iterator **iterator**
- typedef key_rebind::pointer **key_pointer**
- typedef allocator_type::template rebind< key_type >::other **key_rebind**
- typedef key_rebind::reference **key_reference**
- typedef allocator_type::template rebind< Key >::other::value_type **key_type**
- typedef mapped_rebind::pointer **mapped_pointer**
- typedef allocator_type::template rebind< mapped_type >::other **mapped_rebind**
- typedef mapped_rebind::reference **mapped_reference**
- typedef Mapped **mapped_type**
- typedef base_type::point_iterator **point_iterator**
- typedef value_rebind::pointer **pointer**
- typedef value_rebind::reference **reference**

- typedef Resize_Policy **resize_policy**
- typedef allocator_type::size_type **size_type**
- typedef allocator_type::template rebind< value_type >::other **value_rebind**
- typedef base_type::value_type **value_type**

Public Member Functions

- **cc_hash_table** (const cc_hash_table &other)
- template<typename It >
  cc_hash_table (It first, It last, const hash_fn &h, const eq_fn &e, const comb_hash_fn &ch, const resize_policy &rp)
- template<typename It >
  cc_hash_table (It first, It last, const hash_fn &h, const eq_fn &e, const comb_hash_fn &ch)
- template<typename It >
  cc_hash_table (It first, It last, const hash_fn &h, const eq_fn &e)
- template<typename It >
  cc_hash_table (It first, It last, const hash_fn &h)
- template<typename It >
  cc_hash_table (It first, It last)
- **cc_hash_table** (const hash_fn &h, const eq_fn &e, const comb_hash_fn &ch, const resize_policy &rp)
- **cc_hash_table** (const hash_fn &h, const eq_fn &e, const comb_hash_fn &ch)
- **cc_hash_table** (const hash_fn &h, const eq_fn &e)
- **cc_hash_table** (const hash_fn &h)
- cc_hash_table & **operator=** (const cc_hash_table &other)
- void **swap** (cc_hash_table &other)

5.190.1 Detailed Description

template<typename Key, typename Mapped, typename Hash_Fn = typename detail::default_hash_fn<Key>::type, typename Eq_Fn = typename detail::default_eq_fn<Key>::type, typename Comb_Hash_Fn = detail::default_comb_hash_fn::type, typename Resize_Policy = typename detail::default_resize_policy<Comb_Hash_Fn>::type, bool Store_Hash = detail::default_store_hash, typename Allocator = std::allocator<char>> class __gnu_pbds::cc_hash_table< Key, Mapped, Hash_Fn, Eq_Fn, Comb_Hash_Fn, Resize_Policy, Store_Hash, Allocator >

A concrete collision-chaining hash-based associative container.

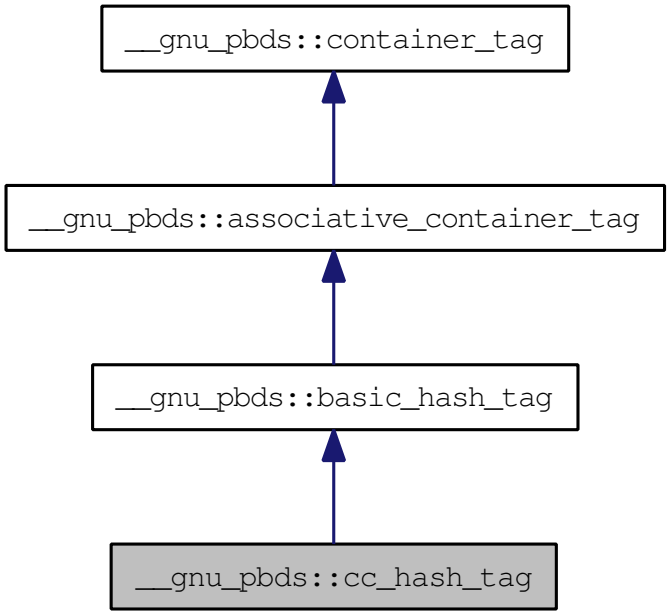
Definition at line 179 of file assoc_container.hpp.

The documentation for this class was generated from the following file:

- assoc_container.hpp

5.191 __gnu_pbds::cc_hash_tag Struct Reference

Collision-chaining hash. Inheritance diagram for __gnu_pbds::cc_hash_tag:



5.191.1 Detailed Description

Collision-chaining hash.

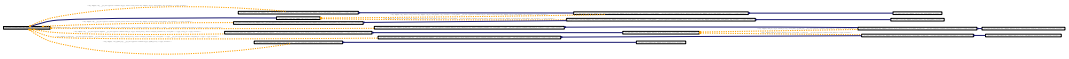
Definition at line 108 of file tag_and_trait.hpp.

The documentation for this struct was generated from the following file:

- tag_and_trait.hpp

5.192 __gnu_pbds::container_base< Key, Mapped, Tag, Policy_Tl, Allocator > Class Template Reference

An abstract basic associative container. Inheritance diagram for __gnu_pbds::container_base< Key, Mapped, Tag, Policy_Tl, Allocator >:



Public Types

- typedef Allocator **allocator_type**
- typedef base_type::const_iterator **const_iterator**
- typedef key_rebind::const_pointer **const_key_pointer**
- typedef key_rebind::const_reference **const_key_reference**
- typedef mapped_rebind::const_pointer **const_mapped_pointer**
- typedef mapped_rebind::const_reference **const_mapped_reference**
- typedef base_type::const_point_iterator **const_point_iterator**
- typedef value_rebind::const_pointer **const_pointer**
- typedef value_rebind::const_reference **const_reference**
- typedef Tag **container_category**
- typedef allocator_type::difference_type **difference_type**
- typedef base_type::iterator **iterator**
- typedef key_rebind::pointer **key_pointer**
- typedef allocator_type::template rebind< key_type >::other **key_rebind**
- typedef key_rebind::reference **key_reference**
- typedef allocator_type::template rebind< Key >::other::value_type **key_type**
- typedef mapped_rebind::pointer **mapped_pointer**
- typedef allocator_type::template rebind< mapped_type >::other **mapped_rebind**
- typedef mapped_rebind::reference **mapped_reference**
- typedef Mapped **mapped_type**
- typedef base_type::point_iterator **point_iterator**
- typedef value_rebind::pointer **pointer**
- typedef value_rebind::reference **reference**
- typedef allocator_type::size_type **size_type**
- typedef allocator_type::template rebind< value_type >::other **value_rebind**
- typedef base_type::value_type **value_type**

5.192.1 Detailed Description

template<typename Key, typename Mapped, typename Tag, typename Policy_Tl, typename Allocator> class __gnu_pbds::container_base< Key, Mapped, Tag, Policy_Tl, Allocator >

An abstract basic associative container.

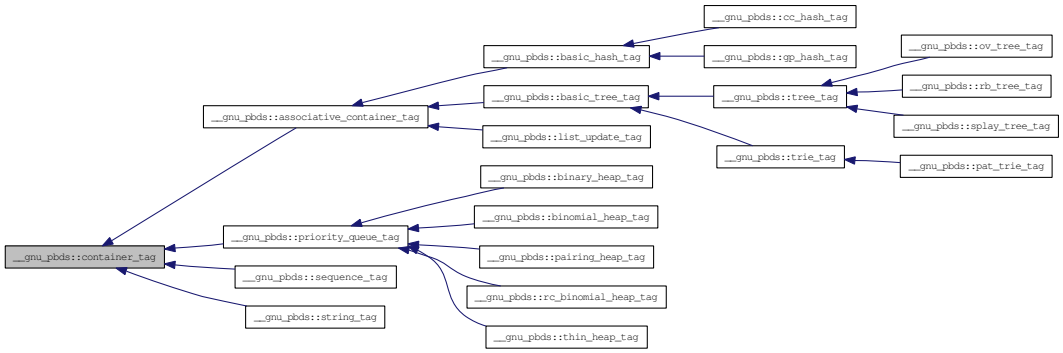
Definition at line 76 of file assoc_container.hpp.

The documentation for this class was generated from the following file:

- assoc_container.hpp

5.193 __gnu_pbds::container_tag Struct Reference

Base data structure tag. Inheritance diagram for __gnu_pbds::container_tag:



5.193.1 Detailed Description

Base data structure tag.

Definition at line 92 of file tag_and_trait.hpp.

The documentation for this struct was generated from the following file:

- tag_and_trait.hpp

5.194 __gnu_pbds::container_traits< Cntnr > Struct Template Reference

container_traits

Inherits container_traits_base< Cntnr::container_category >.

Public Types

- enum { **order_preserving**, **erase_can_throw**, **split_join_can_throw**, **reverse_iteration** }
- typedef container_traits_base< container_category > **base_type**
- typedef Cntnr::container_category **container_category**
- typedef Cntnr **container_type**
- typedef base_type::invalidation_guarantee **invalidation_guarantee**

5.194.1 Detailed Description

template<typename Cntnr> struct __gnu_pbds::container_traits< Cntnr >

container_traits

Definition at line 345 of file tag_and_trait.hpp.

The documentation for this struct was generated from the following file:

- tag_and_trait.hpp

5.195 __gnu_pbds::detail::value_type_base< Key, Mapped, Allocator, false > Struct Template Reference

Public Types

- typedef mapped_type_allocator::const_pointer **const_mapped_pointer**
- typedef mapped_type_allocator::const_reference **const_mapped_reference**
- typedef value_type_allocator::const_pointer **const_pointer**
- typedef value_type_allocator::const_reference **const_reference**
- typedef mapped_type_allocator::pointer **mapped_pointer**
- typedef mapped_type_allocator::reference **mapped_reference**
- typedef mapped_type_allocator::value_type **mapped_type**
- typedef Allocator::template rebind< Mapped >::other **mapped_type_allocator**

- typedef value_type_allocator::pointer **pointer**
- typedef value_type_allocator::reference **reference**
- typedef value_type_allocator::value_type **value_type**
- typedef Allocator::template rebind< std::pair< const Key, Mapped > >::other **value_type_allocator**

5.195.1 Detailed Description

template<typename Key, typename Mapped, typename Allocator> struct __gnu_pbds::detail::value_type_base< Key, Mapped, Allocator, false >

Specialization of value_type_base for the case where the hash value is not stored alongside each value.

Definition at line 61 of file basic_types.hpp.

The documentation for this struct was generated from the following file:

- basic_types.hpp

5.196 __gnu_pbds::detail::value_type_base< Key, Mapped, Allocator, true > Struct Template Reference

Public Types

- typedef mapped_type_allocator::const_pointer **const_mapped_pointer**
- typedef mapped_type_allocator::const_reference **const_mapped_reference**
- typedef value_type_allocator::const_pointer **const_pointer**
- typedef value_type_allocator::const_reference **const_reference**
- typedef mapped_type_allocator::pointer **mapped_pointer**
- typedef mapped_type_allocator::reference **mapped_reference**
- typedef mapped_type_allocator::value_type **mapped_type**
- typedef Allocator::template rebind< Mapped >::other **mapped_type_allocator**

- typedef value_type_allocator::pointer **pointer**
- typedef value_type_allocator::reference **reference**
- typedef value_type_allocator::value_type **value_type**
- typedef Allocator::template rebind< std::pair< const Key, Mapped > >::other **value_type_allocator**

5.196.1 Detailed Description

template<typename Key, typename Mapped, typename Allocator> struct __gnu_pbds::detail::value_type_base< Key, Mapped, Allocator, true >

Specialization of value_type_base for the case where the hash value is stored alongside each value.

Definition at line 88 of file basic_types.hpp.

The documentation for this struct was generated from the following file:

- basic_types.hpp

5.197 __gnu_pbds::detail::value_type_base< Key, null_mapped_type, Allocator, false > Struct Template Reference

Public Types

- typedef mapped_type_allocator::const_pointer **const_mapped_pointer**
- typedef mapped_type_allocator::const_reference **const_mapped_reference**
- typedef value_type_allocator::const_pointer **const_pointer**
- typedef value_type_allocator::const_reference **const_reference**
- typedef mapped_type_allocator::pointer **mapped_pointer**
- typedef mapped_type_allocator::reference **mapped_reference**
- typedef mapped_type_allocator::value_type **mapped_type**
- typedef Allocator::template rebind< null_mapped_type >::other **mapped_type_allocator**
- typedef value_type_allocator::pointer **pointer**
- typedef value_type_allocator::reference **reference**
- typedef Key **value_type**
- typedef Allocator::template rebind< value_type >::other **value_type_allocator**

Static Public Attributes

- static null_mapped_type **s_null_mapped**

5.197.1 Detailed Description

template<typename Key, typename Allocator> struct __gnu_pbds::detail::value_type_base< Key, null_mapped_type, Allocator, false >

Specialization of value_type_base for the case where the hash value is not stored alongside each value.

Definition at line 122 of file basic_types.hpp.

The documentation for this struct was generated from the following file:

- basic_types.hpp

5.198 __gnu_pbds::detail::value_type_base< Key, null_mapped_type, Allocator, true > Struct Template Reference

Public Types

- typedef mapped_type_allocator::const_pointer **const_mapped_pointer**
- typedef mapped_type_allocator::const_reference **const_mapped_reference**
- typedef value_type_allocator::const_pointer **const_pointer**
- typedef value_type_allocator::const_reference **const_reference**
- typedef mapped_type_allocator::pointer **mapped_pointer**
- typedef mapped_type_allocator::reference **mapped_reference**
- typedef mapped_type_allocator::value_type **mapped_type**
- typedef Allocator::template rebind< null_mapped_type >::other **mapped_type_allocator**
- typedef value_type_allocator::pointer **pointer**
- typedef value_type_allocator::reference **reference**
- typedef Key **value_type**
- typedef Allocator::template rebind< value_type >::other **value_type_allocator**

Static Public Attributes

- static null_mapped_type **s_null_mapped**

5.198.1 Detailed Description

template<typename Key, typename Allocator> struct __gnu_pbds::detail::value_type_base< Key, null_mapped_type, Allocator, true >

Specialization of value_type_base for the case where the hash value is stored alongside each value.

Definition at line 164 of file basic_types.hpp.

The documentation for this struct was generated from the following file:

- basic_types.hpp

5.199 __gnu_pbds::gp_hash_table< Key, Mapped, Hash_Fn, Eq_Fn, Comb_Probe_Fn, Probe_Fn, Resize_Policy, Store_Hash, Allocator > Class Template Reference

A concrete general-probing hash-based associative container. Inheritance diagram for __gnu_pbds::gp_hash_table< Key, Mapped, Hash_Fn, Eq_Fn, Comb_Probe_Fn, Probe_Fn, Resize_Policy, Store_Hash, Allocator >:

Public Types

- typedef Allocator **allocator_type**
- typedef Comb_Probe_Fn **comb_probe_fn**
- typedef base_type::const_iterator **const_iterator**
- typedef key_rebind::const_pointer **const_key_pointer**
- typedef key_rebind::const_reference **const_key_reference**
- typedef mapped_rebind::const_pointer **const_mapped_pointer**
- typedef mapped_rebind::const_reference **const_mapped_reference**
- typedef base_type::const_point_iterator **const_point_iterator**
- typedef value_rebind::const_pointer **const_pointer**
- typedef value_rebind::const_reference **const_reference**
- typedef gp_hash_tag **container_category**
- typedef allocator_type::difference_type **difference_type**
- typedef Eq_Fn **eq_fn**
- typedef Hash_Fn **hash_fn**
- typedef base_type::iterator **iterator**
- typedef key_rebind::pointer **key_pointer**
- typedef allocator_type::template rebind< key_type >::other **key_rebind**
- typedef key_rebind::reference **key_reference**
- typedef allocator_type::template rebind< Key >::other::value_type **key_type**
- typedef mapped_rebind::pointer **mapped_pointer**
- typedef allocator_type::template rebind< mapped_type >::other **mapped_rebind**
- typedef mapped_rebind::reference **mapped_reference**
- typedef Mapped **mapped_type**
- typedef base_type::point_iterator **point_iterator**
- typedef value_rebind::pointer **pointer**
- typedef Probe_Fn **probe_fn**

- typedef value_rebind::reference **reference**
- typedef Resize_Policy **resize_policy**
- typedef allocator_type::size_type **size_type**
- typedef allocator_type::template rebind< value_type >::other **value_rebind**
- typedef base_type::value_type **value_type**

Public Member Functions

- **gp_hash_table** (const gp_hash_table &other)
- template<typename It >
  gp_hash_table (It first, It last, const hash_fn &h, const eq_fn &e, const comb_probe_fn &cp, const probe_fn &p, const resize_policy &rp)
- template<typename It >
  gp_hash_table (It first, It last, const hash_fn &h, const eq_fn &e, const comb_probe_fn &cp, const probe_fn &p)
- template<typename It >
  gp_hash_table (It first, It last, const hash_fn &h, const eq_fn &e, const comb_probe_fn &cp)
- template<typename It >
  gp_hash_table (It first, It last, const hash_fn &h, const eq_fn &e)
- template<typename It >
  gp_hash_table (It first, It last, const hash_fn &h)
- template<typename It >
  gp_hash_table (It first, It last)
- **gp_hash_table** (const hash_fn &h, const eq_fn &e, const comb_probe_fn &cp, const probe_fn &p, const resize_policy &rp)
- **gp_hash_table** (const hash_fn &h, const eq_fn &e, const comb_probe_fn &cp, const probe_fn &p)
- **gp_hash_table** (const hash_fn &h, const eq_fn &e, const comb_probe_fn &cp)
- **gp_hash_table** (const hash_fn &h, const eq_fn &e)
- **gp_hash_table** (const hash_fn &h)
- gp_hash_table & **operator=** (const gp_hash_table &other)
- void **swap** (gp_hash_table &other)

5.199.1 Detailed Description

template<typename Key, typename Mapped, typename Hash_Fn = typename detail::default_hash_fn<Key>::type, typename Eq_Fn = typename detail::default_eq_fn<Key>::type, typename Comb_Probe_Fn = detail::default_comb_hash_fn::type, typename Probe_Fn = typename detail::default_probe_fn<Comb_Probe_Fn>::type, typename Resize_Policy = typename detail::default_resize_policy<Comb_Probe_Fn>::type, bool Store_Hash = detail::default_store_hash, typename Allocator = std::allocator<char>> class __gnu_pbds::gp_hash_table< Key, Mapped, Hash_Fn, Eq_Fn, Comb_Probe_Fn, Probe_Fn, Resize_Policy, Store_Hash, Allocator >

A concrete general-probing hash-based associative container.

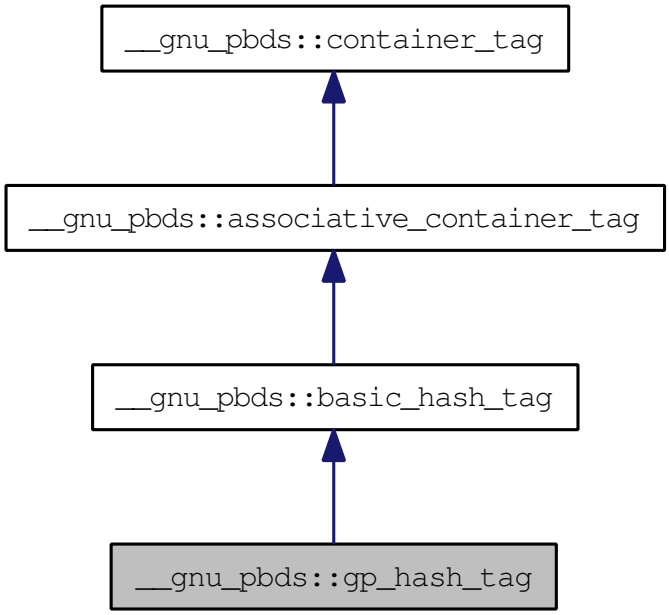
Definition at line 317 of file assoc_container.hpp.

The documentation for this class was generated from the following file:

- assoc_container.hpp

5.200 __gnu_pbds::gp_hash_tag Struct Reference

General-probing hash. Inheritance diagram for __gnu_pbds::gp_hash_tag:



5.200.1 Detailed Description

General-probing hash.

Definition at line 111 of file tag_and_trait.hpp.

The documentation for this struct was generated from the following file:

- tag_and_trait.hpp

5.201 __gnu_pbds::list_update< Key, Mapped, Eq_Fn, Update_Policy, Allocator > Class Template Reference

A list-update based associative container. Inheritance diagram for __gnu_pbds::list_update< Key, Mapped, Eq_Fn, Update_Policy, Allocator >:

Public Types

- typedef Allocator **allocator**
- typedef Allocator **allocator_type**
- typedef base_type::const_iterator **const_iterator**
- typedef key_rebind::const_pointer **const_key_pointer**
- typedef key_rebind::const_reference **const_key_reference**
- typedef mapped_rebind::const_pointer **const_mapped_pointer**
- typedef mapped_rebind::const_reference **const_mapped_reference**
- typedef base_type::const_point_iterator **const_point_iterator**
- typedef value_rebind::const_pointer **const_pointer**
- typedef value_rebind::const_reference **const_reference**
- typedef list_update_tag **container_category**
- typedef allocator_type::difference_type **difference_type**
- typedef Eq_Fn **eq_fn**
- typedef base_type::iterator **iterator**
- typedef key_rebind::pointer **key_pointer**
- typedef allocator_type::template rebind< key_type >::other **key_rebind**
- typedef key_rebind::reference **key_reference**
- typedef allocator_type::template rebind< Key >::other::value_type **key_type**
- typedef mapped_rebind::pointer **mapped_pointer**
- typedef allocator_type::template rebind< mapped_type >::other **mapped_rebind**
- typedef mapped_rebind::reference **mapped_reference**
- typedef Mapped **mapped_type**
- typedef base_type::point_iterator **point_iterator**
- typedef value_rebind::pointer **pointer**
- typedef value_rebind::reference **reference**
- typedef allocator_type::size_type **size_type**
- typedef Update_Policy **update_policy**
- typedef allocator_type::template rebind< value_type >::other **value_rebind**
- typedef base_type::value_type **value_type**

Public Member Functions

- **list_update** (const list_update &other)
- template<typename It >
  list_update (It first, It last)
- list_update & **operator=** (const list_update &other)
- void **swap** (list_update &other)

5.201.1 Detailed Description

template<typename Key, typename Mapped, class Eq_Fn = typename detail::default_eq_fn<Key>::type, class Update_Policy = detail::default_update_policy::type, class Allocator = std::allocator<char>> class __gnu_pbds::list_update< Key, Mapped, Eq_Fn, Update_Policy, Allocator >

A list-update based associative container.

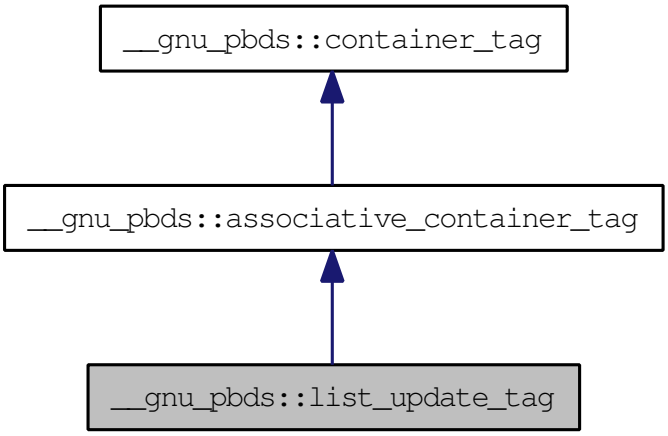
Definition at line 653 of file assoc_container.hpp.

The documentation for this class was generated from the following file:

- assoc_container.hpp

5.202 __gnu_pbds::list_update_tag Struct Reference

List-update. Inheritance diagram for __gnu_pbds::list_update_tag:



5.202.1 Detailed Description

List-update.

Definition at line 135 of file tag_and_trait.hpp.

The documentation for this struct was generated from the following file:

- tag_and_trait.hpp

5.203 __gnu_pbds::null_mapped_type Struct Reference

A mapped-policy indicating that an associative container is a set.

5.203.1 Detailed Description

A mapped-policy indicating that an associative container is a set.

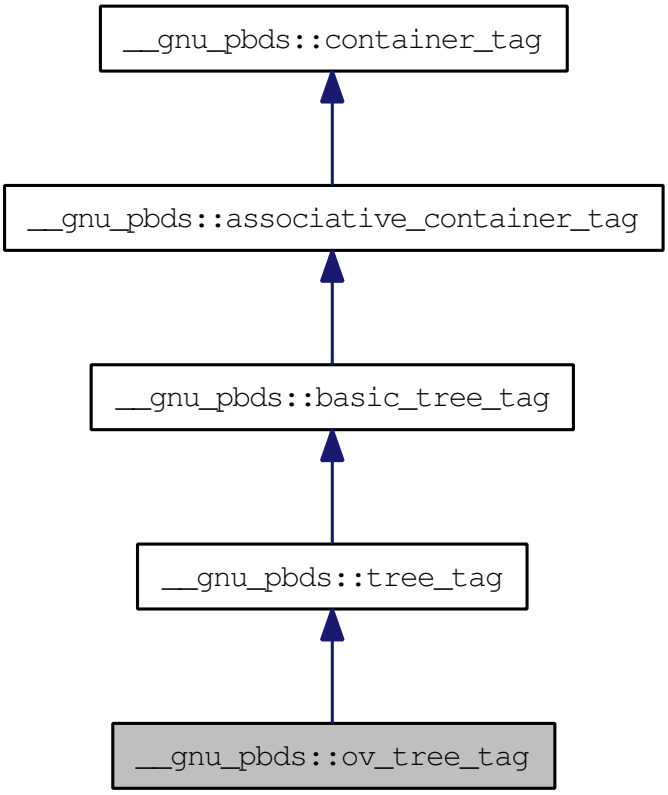
Definition at line 88 of file tag_and_trait.hpp.

The documentation for this struct was generated from the following file:

- tag_and_trait.hpp

5.204 __gnu_pbds::ov_tree_tag Struct Reference

Ordered-vector tree. Inheritance diagram for __gnu_pbds::ov_tree_tag:



5.204.1 Detailed Description

Ordered-vector tree.

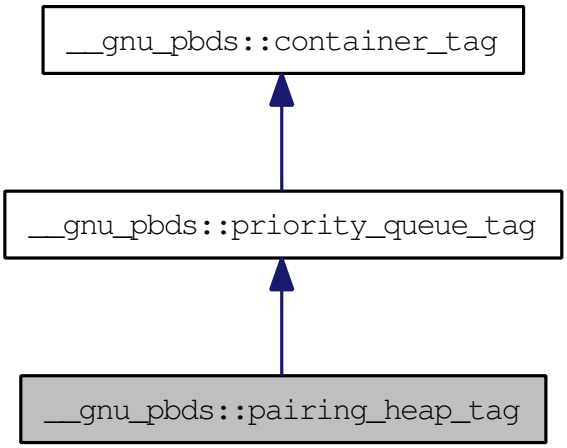
Definition at line 126 of file tag_and_trait.hpp.

The documentation for this struct was generated from the following file:

- tag_and_trait.hpp

5.205 __gnu_pbds::pairing_heap_tag Struct Reference

Pairing-heap. Inheritance diagram for __gnu_pbds::pairing_heap_tag:



5.205.1 Detailed Description

Pairing-heap.

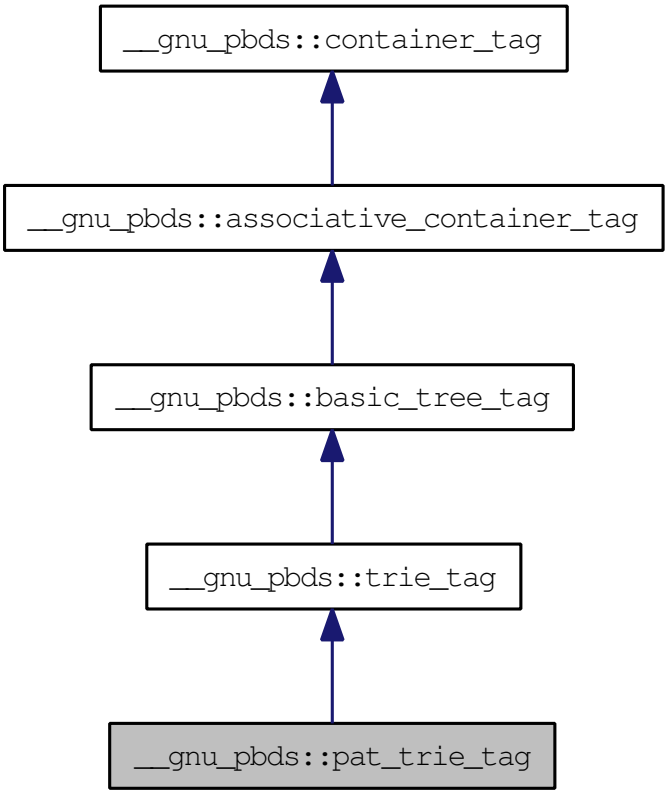
Definition at line 141 of file tag_and_trait.hpp.

The documentation for this struct was generated from the following file:

- tag_and_trait.hpp

5.206 __gnu_pbds::pat_trie_tag Struct Reference

PATRICIA trie. Inheritance diagram for __gnu_pbds::pat_trie_tag:



5.206.1 Detailed Description

PATRICIA trie.

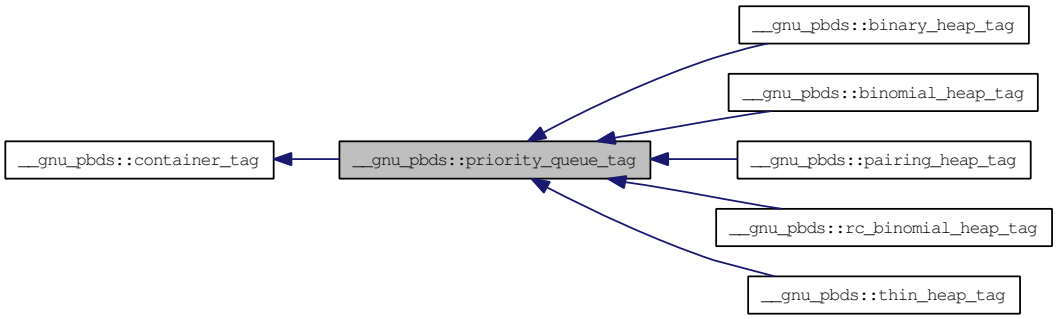
Definition at line 132 of file tag_and_trait.hpp.

The documentation for this struct was generated from the following file:

- tag_and_trait.hpp

5.207 __gnu_pbds::priority_queue_tag Struct Reference

Basic priority-queue. Inheritance diagram for __gnu_pbds::priority_queue_tag:



5.207.1 Detailed Description

Basic priority-queue.

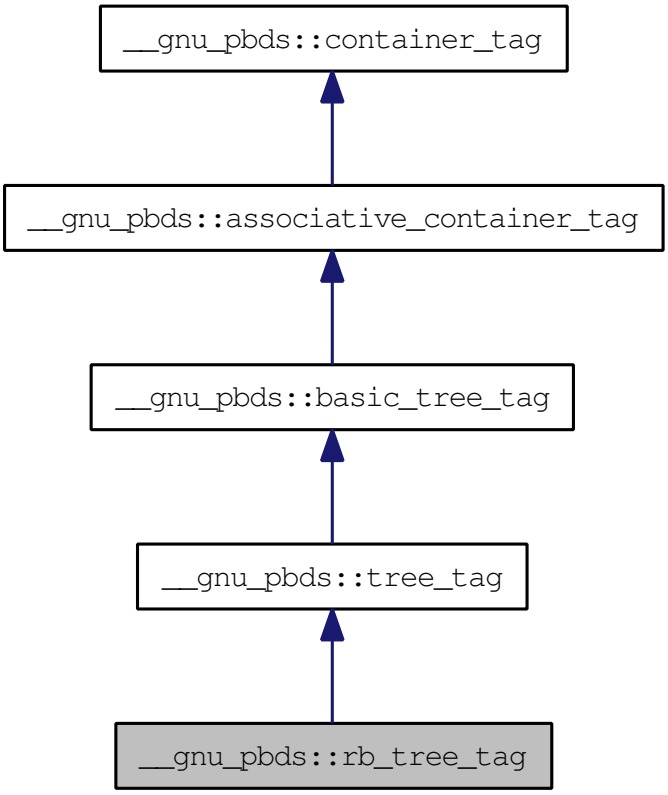
Definition at line 138 of file tag_and_trait.hpp.

The documentation for this struct was generated from the following file:

- tag_and_trait.hpp

5.208 __gnu_pbds::rb_tree_tag Struct Reference

Red-black tree. Inheritance diagram for __gnu_pbds::rb_tree_tag:



5.208.1 Detailed Description

Red-black tree.

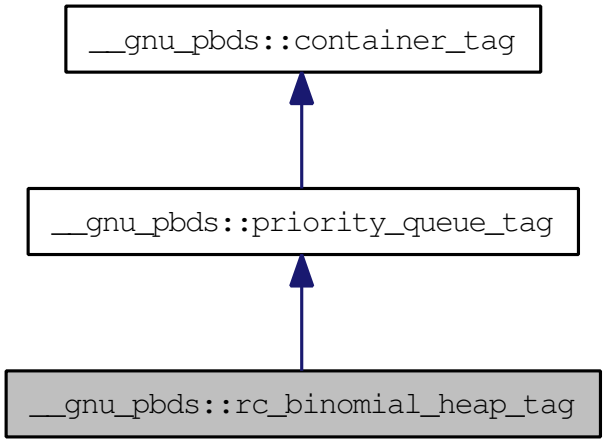
Definition at line 120 of file tag_and_trait.hpp.

The documentation for this struct was generated from the following file:

- tag_and_trait.hpp

5.209 __gnu_pbds::rc_binomial_heap_tag Struct Reference

Redundant-counter binomial-heap. Inheritance diagram for __gnu_pbds::rc_binomial_heap_tag:



5.209.1 Detailed Description

Redundant-counter binomial-heap.

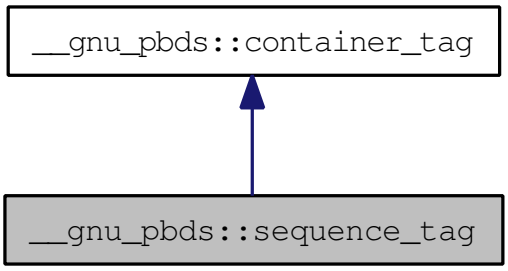
Definition at line 147 of file tag_and_trait.hpp.

The documentation for this struct was generated from the following file:

- tag_and_trait.hpp

5.210 __gnu_pbds::sequence_tag Struct Reference

Basic sequence. Inheritance diagram for __gnu_pbds::sequence_tag:



5.210.1 Detailed Description

Basic sequence.

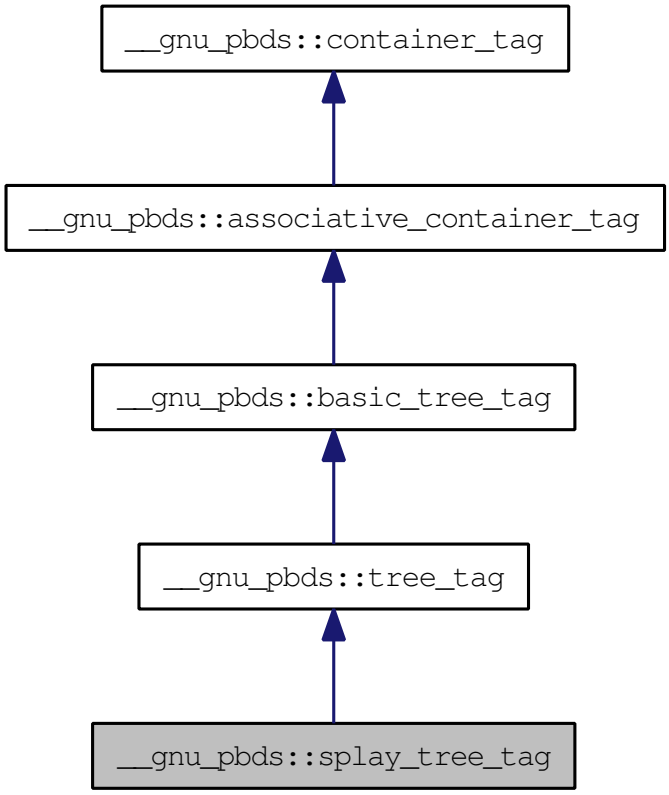
Definition at line 99 of file tag_and_trait.hpp.

The documentation for this struct was generated from the following file:

- tag_and_trait.hpp

5.211 __gnu_pbds::splay_tree_tag Struct Reference

Splay tree. Inheritance diagram for __gnu_pbds::splay_tree_tag:



5.211.1 Detailed Description

Splay tree.

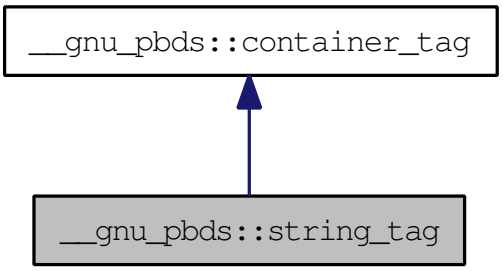
Definition at line 123 of file tag_and_trait.hpp.

The documentation for this struct was generated from the following file:

- tag_and_trait.hpp

5.212 __gnu_pbds::string_tag Struct Reference

Basic string container, inclusive of strings, ropes, etc. Inheritance diagram for __gnu_pbds::string_tag:



5.212.1 Detailed Description

Basic string container, inclusive of strings, ropes, etc.

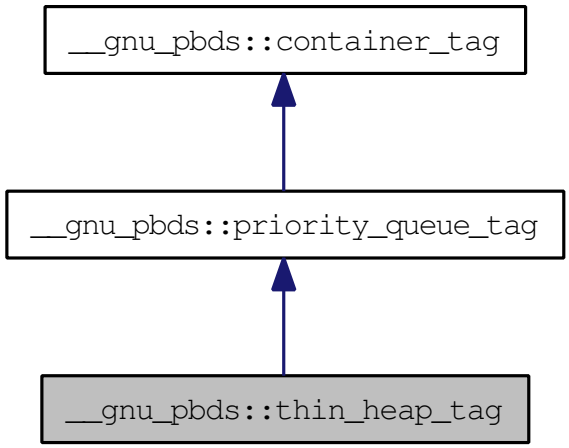
Definition at line 96 of file tag_and_trait.hpp.

The documentation for this struct was generated from the following file:

- tag_and_trait.hpp

5.213 __gnu_pbds::thin_heap_tag Struct Reference

Thin heap. Inheritance diagram for __gnu_pbds::thin_heap_tag:



5.213.1 Detailed Description

Thin heap.

Definition at line 153 of file tag_and_trait.hpp.

The documentation for this struct was generated from the following file:

- tag_and_trait.hpp

5.214 __gnu_pbds::tree< Key, Mapped, Cmp_Fn, Tag, Node_Update, Allocator > Class Template Reference

A concrete basic tree-based associative container. Inheritance diagram for __gnu_pbds::tree< Key, Mapped, Cmp_Fn, Tag, Node_Update, Allocator >:

Public Types

- typedef Allocator **allocator_type**
- typedef Cmp_Fn **cmp_fn**
- typedef base_type::const_iterator **const_iterator**
- typedef key_rebind::const_pointer **const_key_pointer**
- typedef key_rebind::const_reference **const_key_reference**
- typedef mapped_rebind::const_pointer **const_mapped_pointer**
- typedef mapped_rebind::const_reference **const_mapped_reference**
- typedef base_type::const_point_iterator **const_point_iterator**
- typedef value_rebind::const_pointer **const_pointer**
- typedef value_rebind::const_reference **const_reference**
- typedef Tag **container_category**
- typedef allocator_type::difference_type **difference_type**
- typedef base_type::iterator **iterator**
- typedef key_rebind::pointer **key_pointer**
- typedef allocator_type::template rebind< key_type >::other **key_rebind**
- typedef key_rebind::reference **key_reference**
- typedef allocator_type::template rebind< Key >::other::value_type **key_type**
- typedef mapped_rebind::pointer **mapped_pointer**
- typedef allocator_type::template rebind< mapped_type >::other **mapped_rebind**
- typedef mapped_rebind::reference **mapped_reference**
- typedef Mapped **mapped_type**
- typedef detail::tree_traits< Key, Mapped, Cmp_Fn, Node_Update, Tag, Allocator >::node_update **node_update**
- typedef base_type::point_iterator **point_iterator**
- typedef value_rebind::pointer **pointer**
- typedef value_rebind::reference **reference**
- typedef allocator_type::size_type **size_type**
- typedef allocator_type::template rebind< value_type >::other **value_rebind**
- typedef base_type::value_type **value_type**

Public Member Functions

- **tree** (const tree &other)
- template<typename It >
  tree (It first, It last, const cmp_fn &c)
- template<typename It >
  tree (It first, It last)
- **tree** (const cmp_fn &c)
- tree & **operator=** (const tree &other)
- void **swap** (tree &other)

5.214.1 Detailed Description

template<typename Key, typename Mapped, typename Cmp_Fn = std::less<Key>, typename Tag = rb_tree_tag, template< typename Const_Node_Iterator, typename Node_Iterator, typename Cmp_Fn_, typename Allocator_ > class Node_Update = __gnu_pbds::null_tree_node_update, typename Allocator = std::allocator<char>> class __gnu_pbds::tree< Key, Mapped, Cmp_Fn, Tag, Node_Update, Allocator >

A concrete basic tree-based associative container.

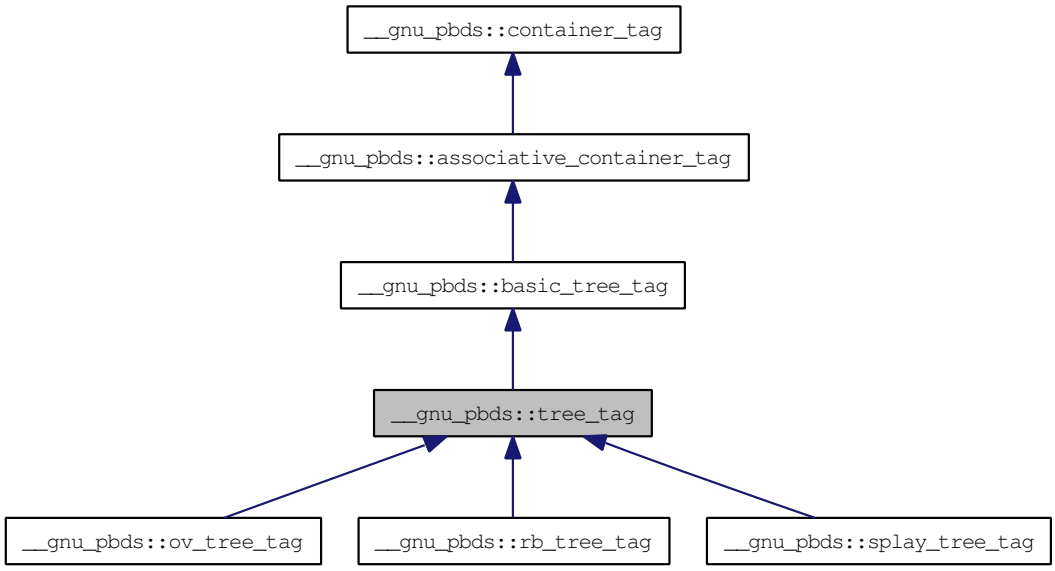
Definition at line 509 of file assoc_container.hpp.

The documentation for this class was generated from the following file:

- assoc_container.hpp

5.215 __gnu_pbds::tree_tag Struct Reference

tree. Inheritance diagram for __gnu_pbds::tree_tag:



5.215.1 Detailed Description

tree.

Definition at line 117 of file tag_and_trait.hpp.

The documentation for this struct was generated from the following file:

- tag_and_trait.hpp

5.216 __gnu_pbds::trie< Key, Mapped, E_Access_Traits, Tag, Node_Update, Allocator > Class Template Reference

A concrete basic trie-based associative container. Inheritance diagram for __gnu_pbds::trie< Key, Mapped, E_Access_Traits, Tag, Node_Update, Allocator >:

Public Types

- typedef Allocator **allocator_type**
- typedef base_type::const_iterator **const_iterator**
- typedef key_rebind::const_pointer **const_key_pointer**
- typedef key_rebind::const_reference **const_key_reference**
- typedef mapped_rebind::const_pointer **const_mapped_pointer**
- typedef mapped_rebind::const_reference **const_mapped_reference**
- typedef base_type::const_point_iterator **const_point_iterator**
- typedef value_rebind::const_pointer **const_pointer**
- typedef value_rebind::const_reference **const_reference**
- typedef Tag **container_category**
- typedef allocator_type::difference_type **difference_type**
- typedef E_Access_Traits **e_access_traits**
- typedef base_type::iterator **iterator**
- typedef key_rebind::pointer **key_pointer**
- typedef allocator_type::template rebind< key_type >::other **key_rebind**
- typedef key_rebind::reference **key_reference**
- typedef allocator_type::template rebind< Key >::other::value_type **key_type**
- typedef mapped_rebind::pointer **mapped_pointer**
- typedef allocator_type::template rebind< mapped_type >::other **mapped_rebind**
- typedef mapped_rebind::reference **mapped_reference**
- typedef Mapped **mapped_type**
- typedef detail::trie_traits< Key, Mapped, E_Access_Traits, Node_Update, Tag, Allocator >::node_update **node_update**
- typedef base_type::point_iterator **point_iterator**
- typedef value_rebind::pointer **pointer**
- typedef value_rebind::reference **reference**
- typedef allocator_type::size_type **size_type**
- typedef allocator_type::template rebind< value_type >::other **value_rebind**
- typedef base_type::value_type **value_type**

Public Member Functions

- **trie** (const trie &other)
- template<typename It >
  trie (It first, It last, const e_access_traits &t)
- template<typename It >
  trie (It first, It last)
- **trie** (const e_access_traits &t)
- trie & **operator=** (const trie &other)
- void **swap** (trie &other)

5.216.1 Detailed Description

template<typename Key, typename Mapped, typename E_Access_Traits = typename detail::default_trie_e_access_traits<Key>::type, typename Tag = pat_trie_tag, template< typename Const_Node_Iterator, typename Node_Iterator, typename E_Access_Traits_, typename Allocator_ > class Node_Update = null_trie_node_update, typename Allocator = std::allocator<char>> class __gnu_pbds::trie< Key, Mapped, E_Access_Traits, Tag, Node_Update, Allocator >

A concrete basic trie-based associative container.

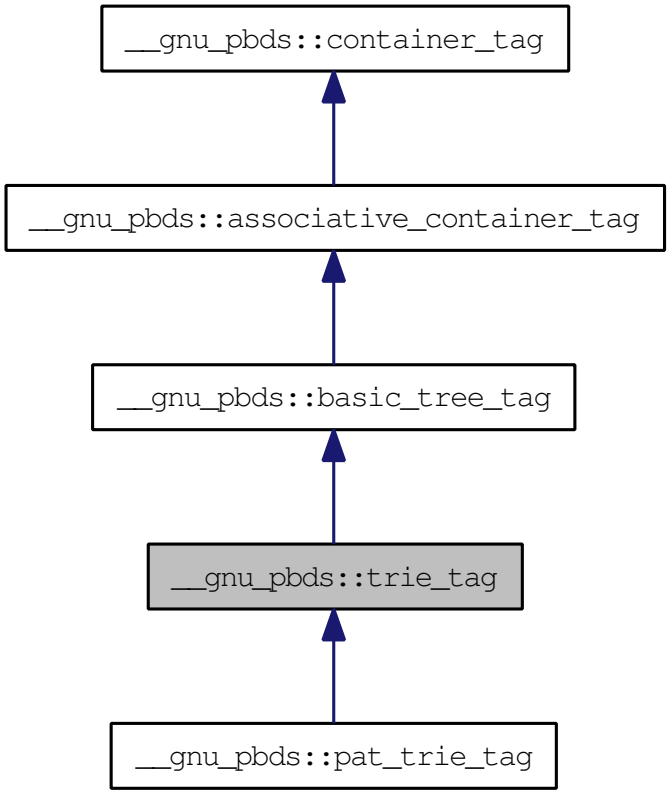
Definition at line 585 of file assoc_container.hpp.

The documentation for this class was generated from the following file:

- assoc_container.hpp

5.217 __gnu_pbds::trie_tag Struct Reference

trie. Inheritance diagram for __gnu_pbds::trie_tag:



5.217.1 Detailed Description

trie.

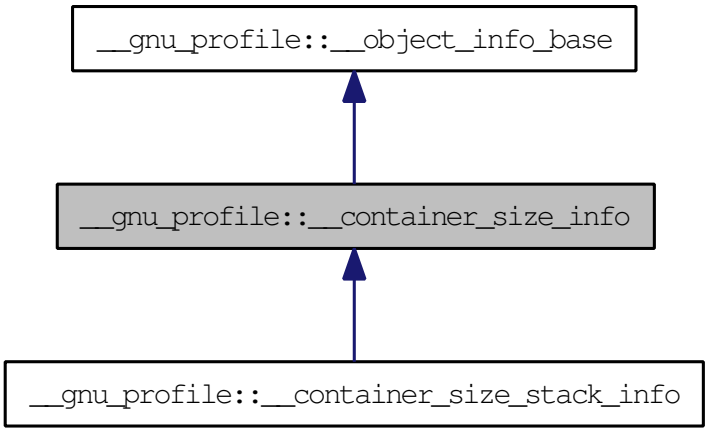
Definition at line 129 of file tag_and_trait.hpp.

The documentation for this struct was generated from the following file:

- tag_and_trait.hpp

5.218 __gnu_profile::__container_size_info Class Reference

A container size instrumentation line in the object table. Inheritance diagram for __gnu_profile::__container_size_info:



Public Member Functions

- **__container_size_info** (__stack_t __stack, size_t __num)
- **__container_size_info** (const __container_size_info &__o)
- const char * **__advice** () const
- void **__destruct** (size_t __num, size_t __inum)
- bool **__is_valid** () const
- float **__magnitude** () const
- void **__merge** (const __container_size_info &__o)
- void **__resize** (size_t __from, size_t __to)
- float **__resize_cost** (size_t __from, size_t __to)
- __stack_t **__stack** () const
- void **__write** (FILE *f) const

Protected Attributes

- __stack_t **_M_stack**
- bool **_M_valid**

5.218.1 Detailed Description

A container size instrumentation line in the object table.

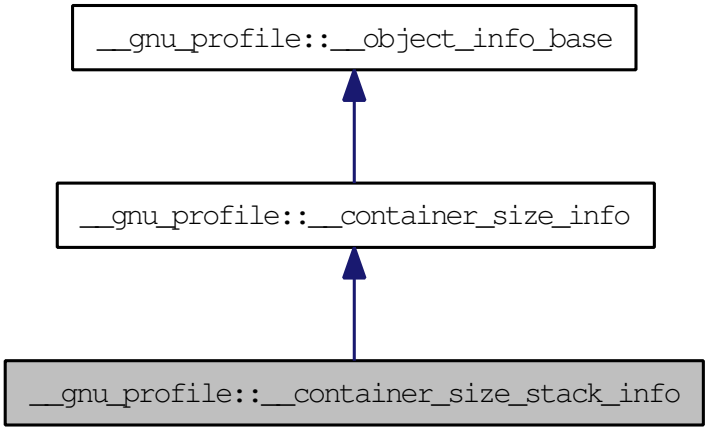
Definition at line 60 of file profiler_container_size.h.

The documentation for this class was generated from the following file:

- profiler_container_size.h

5.219 __gnu_profile::__container_size_stack_info Class Reference

A container size instrumentation line in the stack table. Inheritance diagram for __gnu_profile::__container_size_stack_info:



Public Member Functions

- **__container_size_stack_info** (const __container_size_info &__o)
- const char * **__advice** () const
- void **__destruct** (size_t __num, size_t __inum)
- bool **__is_valid** () const
- float **__magnitude** () const
- void **__merge** (const __container_size_info &__o)
- void **__resize** (size_t __from, size_t __to)
- float **__resize_cost** (size_t __from, size_t __to)
- __stack_t **__stack** () const
- void **__write** (FILE *f) const

Protected Attributes

- __stack_t **_M_stack**
- bool **_M_valid**

5.219.1 Detailed Description

A container size instrumentation line in the stack table.

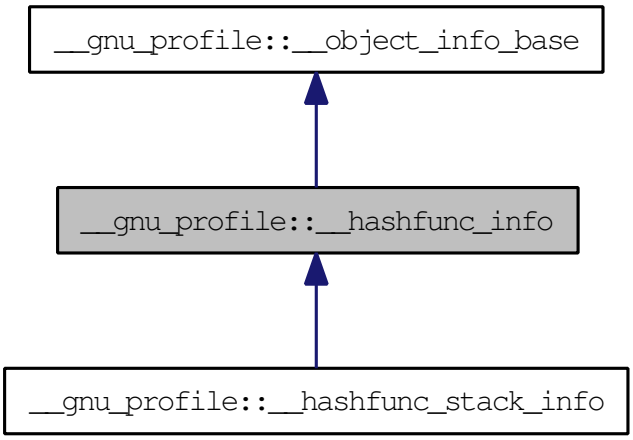
Definition at line 176 of file profiler_container_size.h.

The documentation for this class was generated from the following file:

- profiler_container_size.h

5.220 __gnu_profile::__hashfunc_info Class Reference

A hash performance instrumentation line in the object table. Inheritance diagram for __gnu_profile::__hashfunc_info:



Public Member Functions

- **__hashfunc_info** (__stack_t __stack)
- **__hashfunc_info** (const __hashfunc_info &o)
- const char * **__advice** () const
- void **__destruct** (size_t __chain, size_t __accesses, size_t __hops)
- bool **__is_valid** () const
- float **__magnitude** () const
- void **__merge** (const __hashfunc_info &__o)
- __stack_t **__stack** () const
- void **__write** (FILE *__f) const

Protected Attributes

- __stack_t **_M_stack**
- bool **_M_valid**

5.220.1 Detailed Description

A hash performance instrumentation line in the object table.

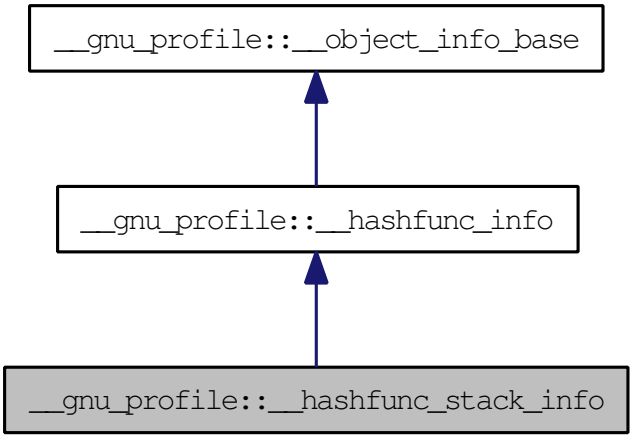
Definition at line 57 of file profiler_hash_func.h.

The documentation for this class was generated from the following file:

- profiler_hash_func.h

5.221 __gnu_profile::__hashfunc_stack_info Class Reference

A hash performance instrumentation line in the stack table. Inheritance diagram for __gnu_profile::__hashfunc_stack_info:



Public Member Functions

- **__hashfunc_stack_info** (const __hashfunc_info &__o)
- const char * **__advice** () const
- void **__destruct** (size_t __chain, size_t __accesses, size_t __hops)
- bool **__is_valid** () const
- float **__magnitude** () const
- void **__merge** (const __hashfunc_info &__o)
- __stack_t **__stack** () const
- void **__write** (FILE *__f) const

Protected Attributes

- __stack_t **_M_stack**
- bool **_M_valid**

5.221.1 Detailed Description

A hash performance instrumentation line in the stack table.

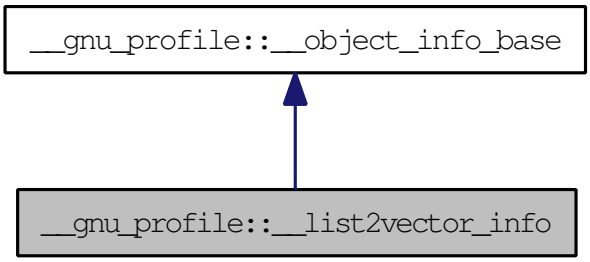
Definition at line 104 of file profiler_hash_func.h.

The documentation for this class was generated from the following file:

- profiler_hash_func.h

5.222 __gnu_profile::__list2vector_info Class Reference

A list-to-vector instrumentation line in the object table. Inheritance diagram for __gnu_profile::__list2vector_info:



Public Member Functions

- **__list2vector_info** (const __list2vector_info &__o)
- **__list2vector_info** (__stack_t __stack)
- const char * **__advice** () const
- bool **__is_valid** () const
- bool **__is_valid** ()
- size_t **__iterate** ()
- float **__list_cost** ()
- float **__magnitude** () const
- void **__merge** (const __list2vector_info &__o)
- void **__opr_insert** (size_t __shift, size_t __size)
- void **__opr_iterate** (size_t __num)
- void **__resize** (size_t __from, size_t __to)
- size_t **__resize** ()
- void **__set_invalid** ()
- void **__set_list_cost** (float __lc)
- void **__set_vector_cost** (float __vc)
- size_t **__shift_count** ()
- __stack_t **__stack** () const
- void **__write** (FILE *__f) const

Protected Attributes

- __stack_t **_M_stack**

5.222.1 Detailed Description

A list-to-vector instrumentation line in the object table.

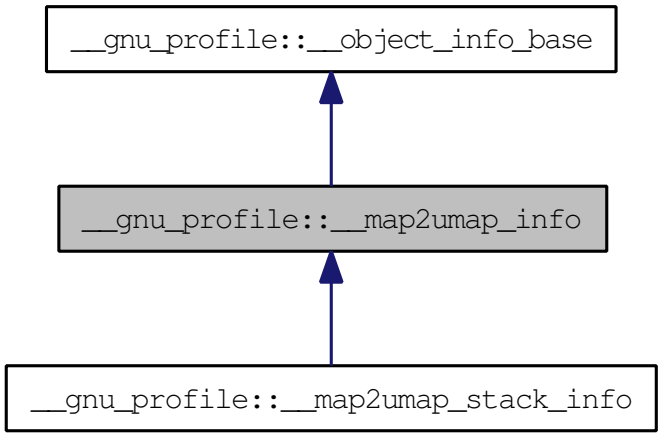
Definition at line 59 of file profiler_list_to_vector.h.

The documentation for this class was generated from the following file:

- profiler_list_to_vector.h

5.223 __gnu_profile::__map2umap_info Class Reference

A map-to-unordered_map instrumentation line in the object table. Inheritance diagram for __gnu_profile::__map2umap_info:



Public Member Functions

- **__map2umap_info** (const __map2umap_info &o)
- **__map2umap_info** (__stack_t __stack)
- const char * **__advice** () const
- bool **__is_valid** () const
- float **__magnitude** () const
- void **__merge** (const __map2umap_info &o)
- void **__record_erase** (size_t __size, size_t __count)
- void **__record_find** (size_t __size)
- void **__record_insert** (size_t __size, size_t __count)
- void **__record_invalidate** ()
- void **__record_iterate** (size_t __count)
- __stack_t **__stack** () const
- void **__write** (FILE *__f) const

Protected Attributes

- __stack_t **_M_stack**

5.223.1 Detailed Description

A map-to-unordered_map instrumentation line in the object table.

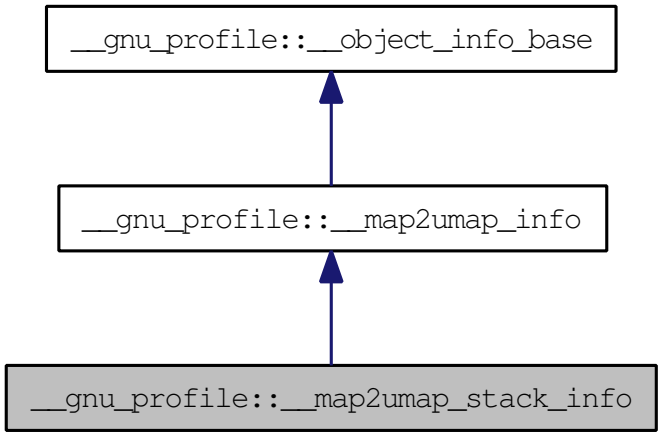
Definition at line 86 of file profiler_map_to_unordered_map.h.

The documentation for this class was generated from the following file:

- profiler_map_to_unordered_map.h

5.224 __gnu_profile::__map2umap_stack_info Class Reference

A map-to-unordered_map instrumentation line in the stack table. Inheritance diagram for __gnu_profile::__map2umap_stack_info:



Public Member Functions

- **__map2umap_stack_info** (const __map2umap_info &o)
- const char * **__advice** () const
- bool **__is_valid** () const
- float **__magnitude** () const
- void **__merge** (const __map2umap_info &o)
- void **__record_erase** (size_t __size, size_t __count)
- void **__record_find** (size_t __size)
- void **__record_insert** (size_t __size, size_t __count)
- void **__record_invalidate** ()
- void **__record_iterate** (size_t __count)
- __stack_t **__stack** () const
- void **__write** (FILE *__f) const

Protected Attributes

- __stack_t **_M_stack**

5.224.1 Detailed Description

A map-to-unordered_map instrumentation line in the stack table.

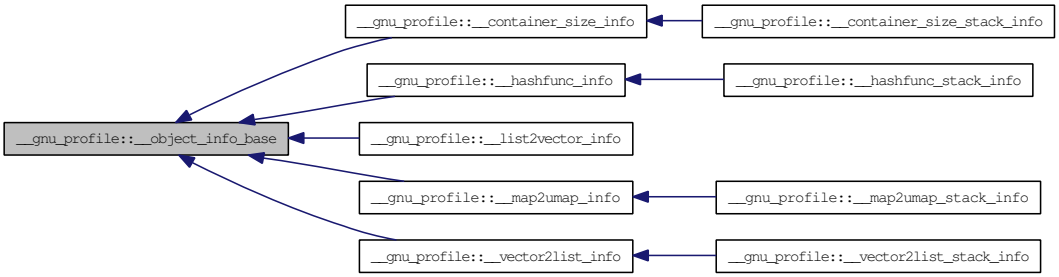
Definition at line 189 of file profiler_map_to_unordered_map.h.

The documentation for this class was generated from the following file:

- profiler_map_to_unordered_map.h

5.225 __gnu_profile::__object_info_base Class Reference

Base class for a line in the object table. Inheritance diagram for __gnu_profile::__object_info_base:



Public Member Functions

- **__object_info_base** (const __object_info_base &o)
- **__object_info_base** (__stack_t __stack)
- bool **__is_valid** () const
- __stack_t **__stack** () const
- virtual void **__write** (FILE *f) const =0

Protected Attributes

- __stack_t **_M_stack**
- bool **_M_valid**

5.225.1 Detailed Description

Base class for a line in the object table.

Definition at line 130 of file profiler_node.h.

The documentation for this class was generated from the following file:

- profiler_node.h

5.226 __gnu_profile::__reentrance_guard Struct Reference

Reentrance guard.

Static Public Member Functions

- static bool **__get_in** ()
- static bool & **__inside** ()

5.226.1 Detailed Description

Reentrance guard. Mechanism to protect all __gnu_profile operations against recursion, multithreaded and exception reentrance.

Definition at line 62 of file profiler.h.

The documentation for this struct was generated from the following file:

- profiler.h

5.227 __gnu_profile::__stack_hash Class Reference

Hash function for summary trace using call stack as index.

Public Member Functions

- bool **operator()** (const __stack_t __stack1, const __stack_t __stack2) const
- size_t **operator()** (const __stack_t __s) const

5.227.1 Detailed Description

Hash function for summary trace using call stack as index.

Definition at line 101 of file profiler_node.h.

The documentation for this class was generated from the following file:

- profiler_node.h

5.228 __gnu_profile::__stack_info_base< __object_info > Class Template Reference

Base class for a line in the stack table.

Public Member Functions

- **__stack_info_base** (const __object_info &__info)=0
- virtual const char * **__get_id** () const =0
- virtual float **__magnitude** () const =0
- void **__merge** (const __object_info &__info)=0

5.228.1 Detailed Description

template<typename __object_info> class __gnu_profile::__stack_info_base< __object_info >

Base class for a line in the stack table.

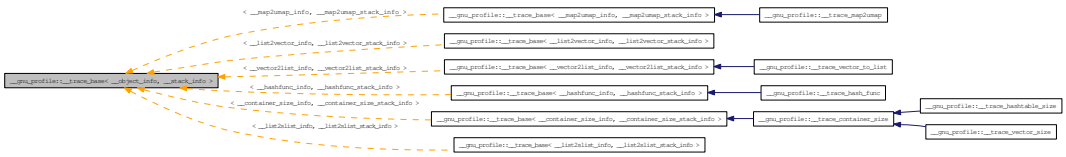
Definition at line 160 of file profiler_node.h.

The documentation for this class was generated from the following file:

- profiler_node.h

5.229 __gnu_profile::__trace_base< __object_info, __stack_info > Class Template Reference

Base class for all trace producers. Inheritance diagram for __gnu_profile::__trace_base< __object_info, __stack_info >:



Public Member Functions

- void **__add_object** (__object_t object, __object_info __info)
- void **__collect_warnings** (__warning_vector_t &__warnings)
- __object_info * **__get_object_info** (__object_t __object)
- void **__lock_object_table** ()
- void **__lock_stack_table** ()
- void **__retire_object** (__object_t __object)
- void **__unlock_object_table** ()
- void **__unlock_stack_table** ()
- void **__write** (FILE *f)

Protected Attributes

- const char * **__id**

5.229.1 Detailed Description

template<typename __object_info, typename __stack_info> class __gnu_profile::__trace_base< __object_info, __stack_info >

Base class for all trace producers.

Definition at line 228 of file profiler_trace.h.

The documentation for this class was generated from the following file:

- profiler_trace.h

5.230 __gnu_profile::__trace_container_size Class Reference

Container size instrumentation trace producer. Inheritance diagram for __gnu_profile::__trace_container_size:

Public Member Functions

- void **__add_object** (__object_t object, __container_size_info__info)
- void **__collect_warnings** (__warning_vector_t &__warnings)
- void **__construct** (const void *__obj, size_t __inum)
- void **__destruct** (const void *__obj, size_t __num, size_t __inum)
- __container_size_info * **__get_object_info** (__object_t __object)
- void **__insert** (const __object_t __obj, __stack_t __stack, size_t __num)
- void **__lock_object_table** ()
- void **__lock_stack_table** ()
- void **__resize** (const void *__obj, int __from, int __to)
- void **__retire_object** (__object_t __object)
- void **__unlock_object_table** ()
- void **__unlock_stack_table** ()
- void **__write** (FILE *f)

Protected Attributes

- const char * **__id**

5.230.1 Detailed Description

Container size instrumentation trace producer.

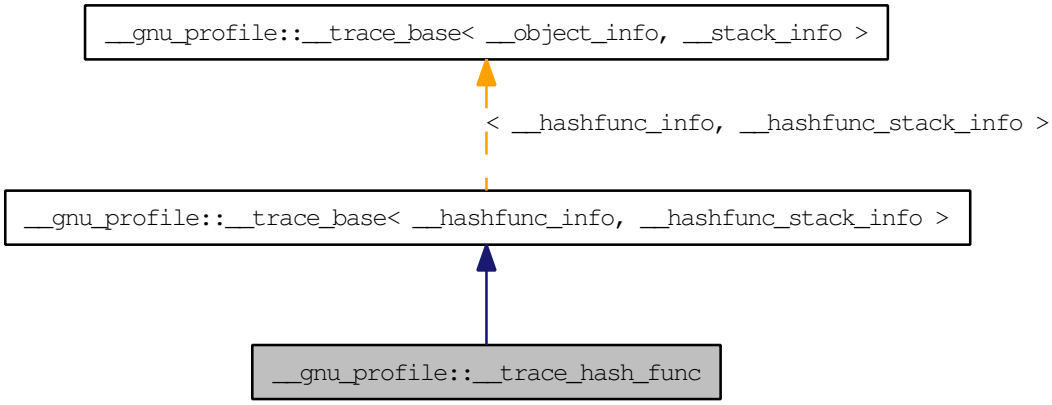
Definition at line 184 of file profiler_container_size.h.

The documentation for this class was generated from the following file:

- profiler_container_size.h

5.231 __gnu_profile::__trace_hash_func Class Reference

Hash performance instrumentation producer. Inheritance diagram for __gnu_profile::__trace_hash_func:



Public Member Functions

- void **__add_object** (__object_t object, __hashfunc_info__info)
- void **__collect_warnings** (__warning_vector_t &__warnings)
- void **__destruct** (const void *__obj, size_t __chain, size_t __accesses, size_t __hops)
- __hashfunc_info * **__get_object_info** (__object_t __object)
- void **__insert** (__object_t __obj, __stack_t __stack)
- void **__lock_object_table** ()
- void **__lock_stack_table** ()
- void **__retire_object** (__object_t __object)
- void **__unlock_object_table** ()
- void **__unlock_stack_table** ()
- void **__write** (FILE *f)

Protected Attributes

- const char * **__id**

5.231.1 Detailed Description

Hash performance instrumentation producer.

Definition at line 110 of file profiler_hash_func.h.

The documentation for this class was generated from the following file:

- profiler_hash_func.h

5.232 __gnu_profile::__trace_hashtable_size Class Reference

Hashtable size instrumentation trace producer. Inheritance diagram for __gnu_profile::__trace_hashtable_size:

Public Member Functions

- void **__add_object** (__object_t object, __container_size_info__info)
- void **__collect_warnings** (__warning_vector_t &__warnings)
- void **__construct** (const void *__obj, size_t __inum)
- void **__destruct** (const void *__obj, size_t __num, size_t __inum)
- __container_size_info * **__get_object_info** (__object_t __object)
- void **__insert** (const __object_t __obj, __stack_t __stack, size_t __num)
- void **__lock_object_table** ()
- void **__lock_stack_table** ()
- void **__resize** (const void *__obj, int __from, int __to)
- void **__retire_object** (__object_t __object)
- void **__unlock_object_table** ()
- void **__unlock_stack_table** ()
- void **__write** (FILE *f)

Protected Attributes

- const char * **__id**

5.232.1 Detailed Description

Hashtable size instrumentation trace producer.

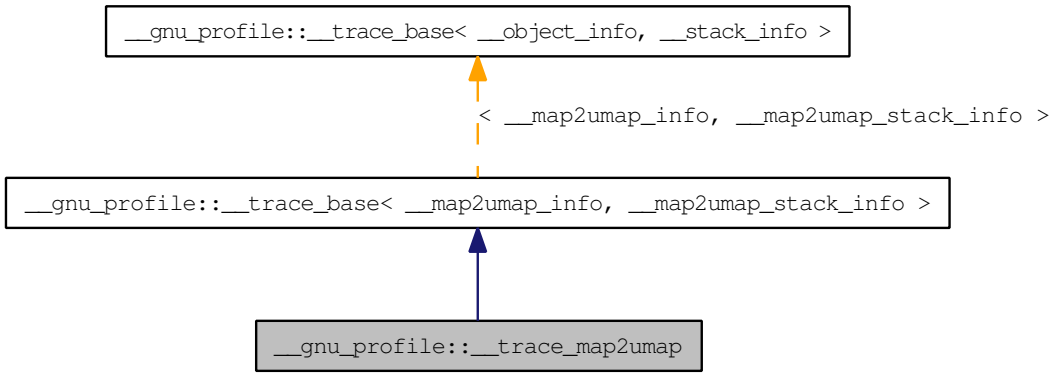
Definition at line 59 of file profiler_hashtable_size.h.

The documentation for this class was generated from the following file:

- profiler_hashtable_size.h

5.233 __gnu_profile::__trace_map2umap Class Reference

Map-to-unordered_map instrumentation producer. Inheritance diagram for __gnu_profile::__trace_map2umap:



Public Member Functions

- void **__add_object** (__object_t object, __map2umap_info__info)
- void **__collect_warnings** (__warning_vector_t &__warnings)
- __map2umap_info * **__get_object_info** (__object_t __object)
- void **__lock_object_table** ()
- void **__lock_stack_table** ()
- void **__retire_object** (__object_t __object)
- void **__unlock_object_table** ()
- void **__unlock_stack_table** ()
- void **__write** (FILE *f)

Protected Attributes

- const char * **__id**

5.233.1 Detailed Description

Map-to-unordered_map instrumentation producer.

Definition at line 196 of file profiler_map_to_unordered_map.h.

The documentation for this class was generated from the following file:

- profiler_map_to_unordered_map.h

5.234 __gnu_profile::__trace_vector_size Class Reference

Hashtable size instrumentation trace producer. Inheritance diagram for __gnu_profile::__trace_vector_size:

Public Member Functions

- void **__add_object** (__object_t object, __container_size_info__info)
- void **__collect_warnings** (__warning_vector_t &__warnings)
- void **__construct** (const void *__obj, size_t __inum)
- void **__destruct** (const void *__obj, size_t __num, size_t __inum)
- __container_size_info * **__get_object_info** (__object_t __object)
- void **__insert** (const __object_t __obj, __stack_t __stack, size_t __num)
- void **__lock_object_table** ()
- void **__lock_stack_table** ()
- void **__resize** (const void *__obj, int __from, int __to)
- void **__retire_object** (__object_t __object)
- void **__unlock_object_table** ()
- void **__unlock_stack_table** ()
- void **__write** (FILE *f)

Protected Attributes

- const char * **__id**

5.234.1 Detailed Description

Hashtable size instrumentation trace producer.

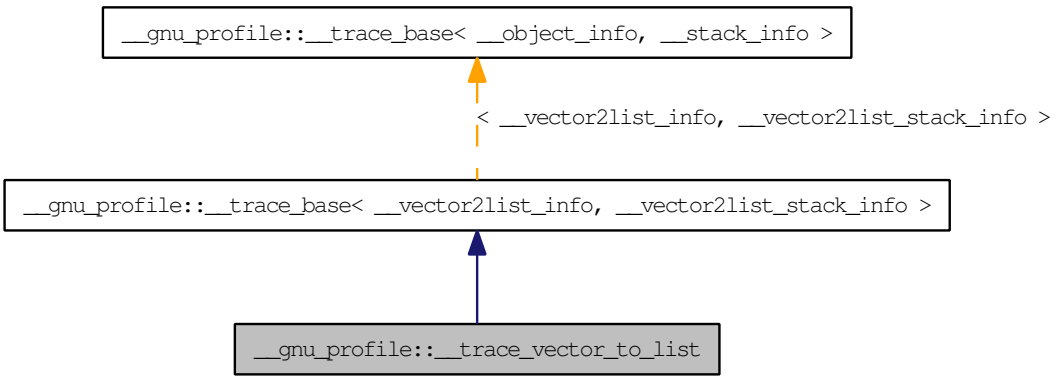
Definition at line 59 of file profiler_vector_size.h.

The documentation for this class was generated from the following file:

- profiler_vector_size.h

5.235 __gnu_profile::__trace_vector_to_list Class Reference

Vector-to-list instrumentation producer. Inheritance diagram for __gnu_profile::__trace_vector_to_list:



Public Member Functions

- void **__add_object** (__object_t object, __vector2list_info__info)
- void **__collect_warnings** (__warning_vector_t &__warnings)
- void **__destruct** (const void *__obj)
- __vector2list_info * **__find** (const void *__obj)
- __vector2list_info * **__get_object_info** (__object_t __object)
- void **__insert** (__object_t __obj, __stack_t __stack)
- void **__invalid_operator** (const void *__obj)
- float **__list_cost** (size_t __shift, size_t __iterate, size_t __resize)
- void **__lock_object_table** ()
- void **__lock_stack_table** ()
- void **__opr_find** (const void *__obj, size_t __size)
- void **__opr_insert** (const void *__obj, size_t __pos, size_t __num)
- void **__opr_iterate** (const void *__obj, size_t __num)
- void **__resize** (const void *__obj, size_t __from, size_t __to)
- void **__retire_object** (__object_t __object)
- void **__unlock_object_table** ()
- void **__unlock_stack_table** ()
- float **__vector_cost** (size_t __shift, size_t __iterate, size_t __resize)
- void **__write** (FILE *f)

Protected Attributes

- const char * **__id**

5.235.1 Detailed Description

Vector-to-list instrumentation producer.

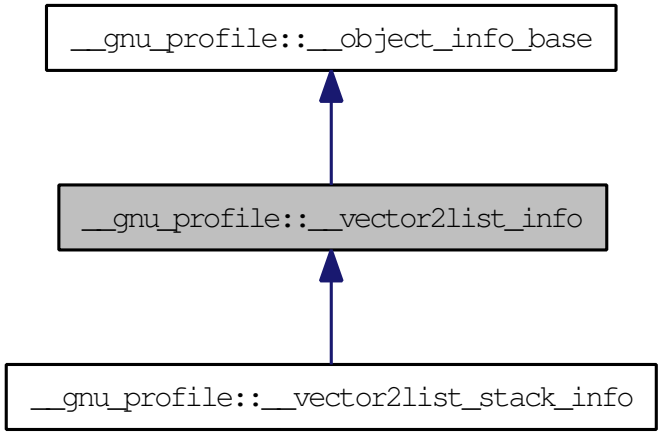
Definition at line 147 of file profiler_vector_to_list.h.

The documentation for this class was generated from the following file:

- profiler_vector_to_list.h

5.236 __gnu_profile::__vector2list_info Class Reference

A vector-to-list instrumentation line in the object table. Inheritance diagram for __gnu_profile::__vector2list_info:



Public Member Functions

- **__vector2list_info** (const __vector2list_info &__o)
- **__vector2list_info** (__stack_t __stack)
- const char * **__advice** () const
- bool **__is_valid** () const
- bool **__is_valid** ()
- size_t **__iterate** ()
- float **__list_cost** ()
- float **__magnitude** () const
- void **__merge** (const __vector2list_info &__o)
- void **__opr_find** (size_t __size)
- void **__opr_insert** (size_t __pos, size_t __num)
- void **__opr_iterate** (size_t __num)
- void **__resize** (size_t __from, size_t __to)
- size_t **__resize** ()
- void **__set_invalid** ()
- void **__set_list_cost** (float __lc)
- void **__set_vector_cost** (float __vc)
- size_t **__shift_count** ()
- __stack_t **__stack** () const
- void **__write** (FILE *__f) const

Protected Attributes

- __stack_t **_M_stack**

5.236.1 Detailed Description

A vector-to-list instrumentation line in the object table.

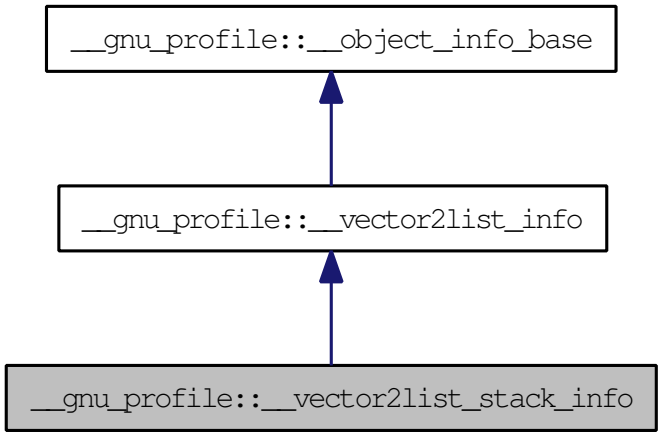
Definition at line 57 of file profiler_vector_to_list.h.

The documentation for this class was generated from the following file:

- profiler_vector_to_list.h

5.237 __gnu_profile::__vector2list_stack_info Class Reference

A vector-to-list instrumentation line in the stack table. Inheritance diagram for __gnu_profile::__vector2list_stack_info:



Public Member Functions

- **__vector2list_stack_info** (const __vector2list_info &__o)
- const char * **__advice** () const
- bool **__is_valid** () const
- bool **__is_valid** ()
- size_t **__iterate** ()
- float **__list_cost** ()
- float **__magnitude** () const
- void **__merge** (const __vector2list_info &__o)
- void **__opr_find** (size_t __size)
- void **__opr_insert** (size_t __pos, size_t __num)
- void **__opr_iterate** (size_t __num)
- void **__resize** (size_t __from, size_t __to)
- size_t **__resize** ()
- void **__set_invalid** ()
- void **__set_list_cost** (float __lc)
- void **__set_vector_cost** (float __vc)
- size_t **__shift_count** ()
- __stack_t **__stack** () const
- void **__write** (FILE *__f) const

Protected Attributes

- __stack_t **_M_stack**

5.237.1 Detailed Description

A vector-to-list instrumentation line in the stack table.

Definition at line 140 of file profiler_vector_to_list.h.

The documentation for this class was generated from the following file:

- profiler_vector_to_list.h

5.238 __gnu_profile::__warning_data Struct Reference

Representation of a warning.

Public Member Functions

- **__warning_data** (float __m, __stack_t __c, const char *__id, const char *__msg)
- bool **operator>** (const struct __warning_data &other) const

Public Attributes

- __stack_t **__context**
- float **__magnitude**
- const char * **__warning_id**
- const char * **__warning_message**

5.238.1 Detailed Description

Representation of a warning.

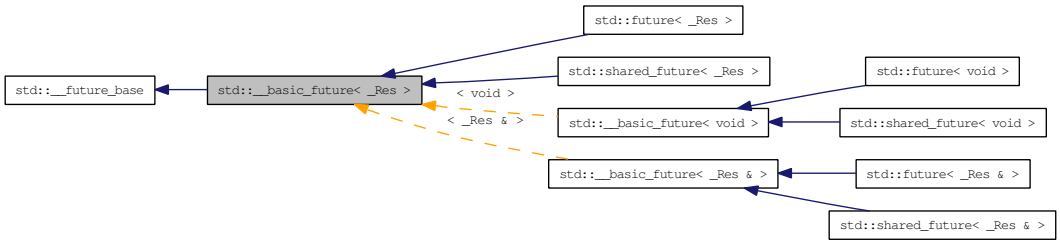
Definition at line 95 of file profiler_trace.h.

The documentation for this struct was generated from the following file:

- profiler_trace.h

5.239 std::__basic_future< _Res > Class Template Reference

Common implementation for future and shared_future. Inheritance diagram for std::__basic_future< _Res >:



Public Member Functions

- **__basic_future** (const __basic_future &)
- __basic_future & **operator=** (const __basic_future &)
- bool **valid** () const
- void **wait** () const
- template<typename _Rep , typename _Period >
  bool **wait_for** (const chrono::duration< _Rep, _Period > &__rel) const
- template<typename _Clock , typename _Duration >
  bool **wait_until** (const chrono::time_point< _Clock, _Duration > &__abs) const

Protected Types

- typedef __future_base::_Result< _Res > & **__result_type**
- typedef shared_ptr< _State > **__state_type**

Protected Member Functions

- **__basic_future** (future< _Res > &&)
- **__basic_future** (shared_future< _Res > &&)
- **__basic_future** (const shared_future< _Res > &)
- **__basic_future** (const __state_type &__state)
- __result_type _M_get_result ()
- void **_M_swap** (__basic_future &__that)

5.239.1 Detailed Description

template<typename _Res> class std::__basic_future< _Res >

Common implementation for future and shared_future.

Definition at line 480 of file future.

5.239.2 Member Function Documentation

5.239.2.1 template<typename _Res> __result_type std::__basic_future< _Res >::_M_get_result () [inline, protected]

Wait for the state to be ready and rethrow any stored exception.

Definition at line 513 of file future.

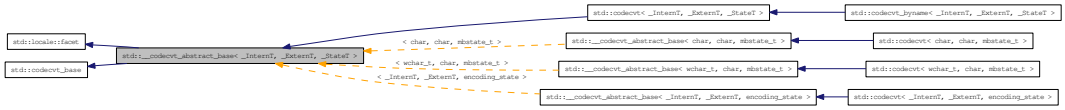
Referenced by std::shared_future< _Res >::get(), std::future< void >::get(), and std::future< _Res >::get().

The documentation for this class was generated from the following file:

- future

5.240 std::__codecvt_abstract_base< _InternT, _ExternT, _StateT > Class Template Reference

Common base for codecvt functions. Inheritance diagram for std::__codecvt_abstract_base< _InternT, _ExternT, _StateT >:



Public Types

- typedef _ExternT **extern_type**
- typedef _InternT **intern_type**
- typedef codecvt_base::result **result**
- typedef _StateT **state_type**

Public Member Functions

- bool **always_noconv** () const throw ()
- int **encoding** () const throw ()
- result in (state_type &__state, const extern_type *__from, const extern_type *__from_end, const extern_type *&__from_next, intern_type *__to, intern_type *__to_end, intern_type *&__to_next) const
- int **length** (state_type &__state, const extern_type *__from, const extern_type *__end, size_t __max) const
- int **max_length** () const throw ()
- result out (state_type &__state, const intern_type *__from, const intern_type *__from_end, const intern_type *&__from_next, extern_type *__to, extern_type *__to_end, extern_type *&__to_next) const
- result unshift (state_type &__state, extern_type *__to, extern_type *__to_end, extern_type *&__to_next) const

Protected Member Functions

- **__codecvt_abstract_base** (size_t __refs=0)
- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()
- virtual bool **do_always_noconv** () const =0 throw ()
- virtual int **do_encoding** () const =0 throw ()

- virtual result **do_in** (state_type &__state, const extern_type *__from, const extern_type *__from_end, const extern_type *&__from_next, intern_type *__to, intern_type *__to_end, intern_type *&__to_next) const =0
- virtual int **do_length** (state_type &, const extern_type *__from, const extern_type *__end, size_t __max) const =0
- virtual int **do_max_length** () const =0 throw ()
- virtual result do_out (state_type &__state, const intern_type *__from, const intern_type *__from_end, const intern_type *&__from_next, extern_type *__to, extern_type *__to_end, extern_type *&__to_next) const =0
- virtual result **do_unshift** (state_type &__state, extern_type *__to, extern_type *__to_end, extern_type *&__to_next) const =0

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_locale __old=0)
- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Friends

- class **locale::_Impl**

5.240.1 Detailed Description

template<typename _InternT, typename _ExternT, typename _StateT> class std::__codecvt_abstract_base< _InternT, _ExternT, _StateT >

Common base for codecvt functions. This template class provides implementations of the public functions that forward to the protected virtual functions.

This template also provides abstract stubs for the protected virtual functions.

Definition at line 67 of file codecvt.h.

5.240.2 Member Function Documentation

5.240.2.1 template<typename _InternT, typename _ExternT, typename _StateT> virtual result std::__codecvt_abstract_base< _InternT, _ExternT, _StateT >::do_out (state_type & *__state*, const intern_type * *__from*, const intern_type * *__from_end*, const intern_type *& *__from_next*, extern_type * *__to*, extern_type * *__to_end*, extern_type *& *__to_next*) const [protected, pure virtual]

Convert from internal to external character set. Converts input string of intern_type to output string of extern_type. This function is a hook for derived classes to change the value returned.

See also:

out for more information.

Implemented in std::codecvt< _InternT, _ExternT, _StateT >, std::codecvt< char, char, mbstate_t >, std::codecvt< wchar_t, char, mbstate_t >, and std::codecvt< _InternT, _ExternT, encoding_state >.

5.240.2.2 template<typename _InternT, typename _ExternT, typename _StateT> result std::__codecvt_abstract_base< _InternT, _ExternT, _StateT >::in (state_type & *__state*, const extern_type * *__from*, const extern_type * *__from_end*, const extern_type *& *__from_next*, intern_type * *__to*, intern_type * *__to_end*, intern_type *& *__to_next*) const [inline]

Convert from external to internal character set. Converts input string of extern_type to output string of intern_type. This is analogous to mbsrtowcs. It does this by calling codecvt::do_in.

The source and destination character sets are determined by the facet's locale, internal and external types.

The characters in [from,from_end) are converted and written to [to,to_end). from_next and to_next are set to point to the character following the last successfully converted character, respectively. If the result needed no conversion, from_next and to_next are not affected.

The *state* argument should be initialized if the input is at the beginning and carried from a previous call if continuing conversion. There are no guarantees about how *state* is used.

The result returned is a member of codecvt_base::result. If all the input is converted, returns codecvt_base::ok. If no conversion is necessary, returns codecvt_base::noconv. If the input ends early or there is insufficient space in the output, returns codecvt_base::partial. Otherwise the conversion failed and codecvt_base::error is returned.

Parameters:

state Persistent conversion state data.

from Start of input.

from_end End of input.

from_next Returns start of unconverted data.

to Start of output buffer.

to_end End of output buffer.

to_next Returns start of unused output area.

Returns:

codecvt_base::result.

Definition at line 195 of file codecvt.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::underflow().

5.240.2.3 template<typename _InternT, typename _ExternT, typename _StateT> result std::__codecvt_abstract_base< _InternT, _ExternT, _StateT >::out (state_type & *__state*, const intern_type * *__from*, const intern_type * *__from_end*, const intern_type *& *__from_next*, extern_type * *__to*, extern_type * *__to_end*, extern_type *& *__to_next*) const [inline]

Convert from internal to external character set. Converts input string of intern_type to output string of extern_type. This is analogous to wcsrtombs. It does this by calling codecvt::do_out.

The source and destination character sets are determined by the facet's locale, internal and external types.

The characters in [from,from_end) are converted and written to [to,to_end). from_next and to_next are set to point to the character following the last successfully converted character, respectively. If the result needed no conversion, from_next and to_next are not affected.

The *state* argument should be initialized if the input is at the beginning and carried from a previous call if continuing conversion. There are no guarantees about how *state* is used.

The result returned is a member of codecvt_base::result. If all the input is converted, returns codecvt_base::ok. If no conversion is necessary, returns codecvt_base::noconv. If the input ends early or there is insufficient space in the output, returns codecvt_base::partial. Otherwise the conversion failed and codecvt_base::error is returned.

Parameters:

state Persistent conversion state data.

from Start of input.

from_end End of input.

from_next Returns start of unconverted data.

to Start of output buffer.

to_end End of output buffer.

to_next Returns start of unused output area.

Returns:

codecvt_base::result.

Definition at line 115 of file codecvt.h.

5.240.2.4 template<typename _InternT, typename _ExternT, typename _StateT> result std::__codecvt_abstract_base< _InternT, _ExternT, _StateT >::unshift (state_type & *__state*, extern_type * *__to*, extern_type * *__to_end*, extern_type *& *__to_next*) const [inline]

Reset conversion state. Writes characters to output that would restore *state* to initial conditions. The idea is that if a partial conversion occurs, then the converting the characters written by this function would leave the state in initial conditions, rather than partial conversion state. It does this by calling codecvt::do_unshift().

For example, if 4 external characters always converted to 1 internal character, and input to in() had 6 external characters with state saved, this function would write two characters to the output and set the state to initialized conditions.

The source and destination character sets are determined by the facet's locale, internal and external types.

The result returned is a member of codecvt_base::result. If the state could be reset and data written, returns codecvt_base::ok. If no conversion is necessary, returns codecvt_base::noconv. If the output has insufficient space, returns codecvt_base::partial. Otherwise the reset failed and codecvt_base::error is returned.

Parameters:

state Persistent conversion state data.

to Start of output buffer.

to_end End of output buffer.

to_next Returns start of unused output area.

Returns:

codecvt_base::result.

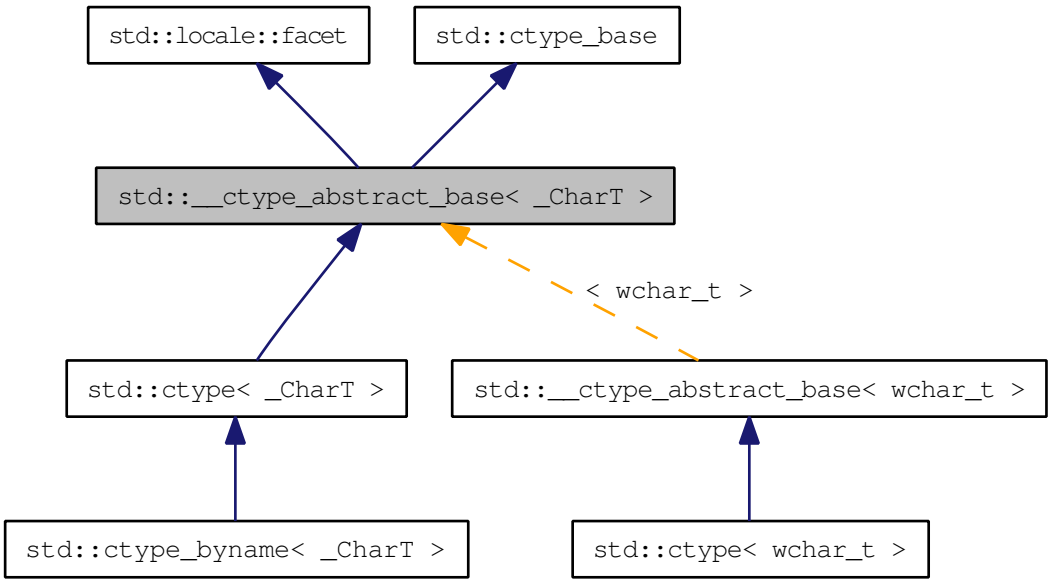
Definition at line 154 of file codecvt.h.

The documentation for this class was generated from the following file:

- codecvt.h

5.241 std::__ctype_abstract_base< _CharT > Class Template Reference

Common base for ctype facet. Inheritance diagram for std::__ctype_abstract_base< _CharT >:



Public Types

- typedef const int * **__to_type**
- typedef _CharT char_type
- typedef unsigned short **mask**

Public Member Functions

- const char_type * is (const char_type *__lo, const char_type *__hi, mask *__vec) const
- bool is (mask __m, char_type __c) const
- const char_type * narrow (const char_type *__lo, const char_type *__hi, char __dfault, char *__to) const
- char narrow (char_type __c, char __dfault) const
- const char_type * scan_is (mask __m, const char_type *__lo, const char_type *__hi) const

- const char_type * scan_not (mask __m, const char_type *__lo, const char_type *__hi) const
- const char_type * tolower (char_type *__lo, const char_type *__hi) const
- char_type tolower (char_type __c) const
- const char_type * toupper (char_type *__lo, const char_type *__hi) const
- char_type toupper (char_type __c) const
- const char * widen (const char *__lo, const char *__hi, char_type *__to) const
- char_type widen (char __c) const

Static Public Attributes

- static const mask **alnum**
- static const mask **alpha**
- static const mask **cntrl**
- static const mask **digit**
- static const mask **graph**
- static const mask **lower**
- static const mask **print**
- static const mask **punct**
- static const mask **space**
- static const mask **upper**
- static const mask **xdigit**

Protected Member Functions

- **__ctype_abstract_base** (size_t __refs=0)
- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()
- virtual const char_type * do_is (const char_type *__lo, const char_type *__hi, mask *__vec) const =0
- virtual bool do_is (mask __m, char_type __c) const =0
- virtual const char_type * do_narrow (const char_type *__lo, const char_type *_-_hi, char __dfault, char *__dest) const =0
- virtual char do_narrow (char_type, char __dfault) const =0
- virtual const char_type * do_scan_is (mask __m, const char_type *__lo, const char_type *__hi) const =0
- virtual const char_type * do_scan_not (mask __m, const char_type *__lo, const char_type *__hi) const =0
- virtual const char_type * do_tolower (char_type *__lo, const char_type *__hi) const =0
- virtual char_type do_tolower (char_type) const =0
- virtual const char_type * do_toupper (char_type *__lo, const char_type *__hi) const =0

- virtual char_type do_toupper (char_type) const =0
- virtual const char * do_widen (const char *__lo, const char *__hi, char_type *__dest) const =0
- virtual char_type do_widen (char) const =0

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_locale __old=0)
- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Friends

- class **locale::_Impl**

5.241.1 Detailed Description

template<typename _CharT> class std::__ctype_abstract_base< _CharT >

Common base for ctype facet. This template class provides implementations of the public functions that forward to the protected virtual functions.

This template also provides abstract stubs for the protected virtual functions.

Definition at line 143 of file locale_facets.h.

5.241.2 Member Typedef Documentation

5.241.2.1 template<typename _CharT> typedef _CharT std::__ctype_abstract_base< _CharT >::char_type

Typedef for the template parameter.

Reimplemented in std::ctype< _CharT >, and std::ctype< wchar_t >.

Definition at line 148 of file locale_facets.h.

5.241.3 Member Function Documentation

5.241.3.1 template<typename _CharT> virtual const char_type* std::__ctype_abstract_base< _CharT >::do_is (const char_type * *__lo*, const char_type * *__hi*, mask * *__vec*) const [protected, pure virtual]

Return a mask array. This function finds the mask for each char_type in the range [lo,hi) and successively writes it to vec. vec must have as many elements as the input.

do_is() is a hook for a derived facet to change the behavior of classifying. do_is() must always return the same result for the same input.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

vec Pointer to an array of mask storage.

Returns:

hi.

Implemented in std::ctype< _CharT >, and std::ctype< wchar_t >.

5.241.3.2 template<typename _CharT> virtual bool std::__ctype_abstract_base< _CharT >::do_is (mask *__m*, char_type *__c*) const [protected, pure virtual]

Test char_type classification. This function finds a mask M for *c* and compares it to mask *m*.

do_is() is a hook for a derived facet to change the behavior of classifying. do_is() must always return the same result for the same input.

Parameters:

c The char_type to find the mask of.

m The mask to compare against.

Returns:

(M & m) != 0.

Implemented in std::ctype< _CharT >, and std::ctype< wchar_t >.

5.241.3.3 template<typename _CharT> virtual const char_type* std::__ctype_abstract_base< _CharT >::do_narrow (const char_type * *__lo*, const char_type * *__hi*, char *__dfault*, char * *__dest*) const [protected, pure virtual]

Narrow char_type array to char. This virtual function converts each char_type in the range [lo,hi) to char using the simplest reasonable transformation and writes the results to the destination array. For any element in the input that cannot be converted, *dfault* is used instead.

do_narrow() is a hook for a derived facet to change the behavior of narrowing. do_narrow() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

dfault Char to use if conversion fails.

to Pointer to the destination array.

Returns:

hi.

Implemented in std::ctype< _CharT >, and std::ctype< wchar_t >.

5.241.3.4 template<typename _CharT> virtual char std::__ctype_abstract_base< _CharT >::do_narrow (char_type, char *__dfault*) const [protected, pure virtual]

Narrow char_type to char. This virtual function converts the argument to char using the simplest reasonable transformation. If the conversion fails, dfault is returned instead.

do_narrow() is a hook for a derived facet to change the behavior of narrowing. do_narrow() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

c The char_type to convert.

dfault Char to return if conversion fails.

Returns:

The converted char.

Implemented in std::ctype< _CharT >, and std::ctype< wchar_t >.

5.241.3.5 template<typename _CharT> virtual const char_type* std::__ctype_abstract_base< _CharT >::do_scan_is (mask __m, const char_type * __lo, const char_type * __hi) const [protected, pure virtual]

Find char_type matching mask. This function searches for and returns the first char_type c in [lo,hi) for which is(m,c) is true.

do_scan_is() is a hook for a derived facet to change the behavior of match searching. do_is() must always return the same result for the same input.

Parameters:

m The mask to compare against.

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

Pointer to a matching char_type if found, else *hi*.

Implemented in std::ctype< _CharT >, and std::ctype< wchar_t >.

5.241.3.6 template<typename _CharT> virtual const char_type* std::__ctype_abstract_base< _CharT >::do_scan_not (mask __m, const char_type * __lo, const char_type * __hi) const [protected, pure virtual]

Find char_type not matching mask. This function searches for and returns a pointer to the first char_type c of [lo,hi) for which is(m,c) is false.

do_scan_is() is a hook for a derived facet to change the behavior of match searching. do_is() must always return the same result for the same input.

Parameters:

m The mask to compare against.

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

Pointer to a non-matching char_type if found, else *hi*.

Implemented in std::ctype< _CharT >, and std::ctype< wchar_t >.

5.241.3.7 template<typename _CharT> virtual const char_type* std::__ctype_abstract_base< _CharT >::do_tolower (char_type * __lo, const char_type * __hi) const [protected, pure virtual]

Convert array to lowercase. This virtual function converts each char_type in the range [lo,hi) to lowercase if possible. Other elements remain untouched.

do_tolower() is a hook for a derived facet to change the behavior of lowercasing. do_tolower() must always return the same result for the same input.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

hi.

Implemented in std::ctype< _CharT >, and std::ctype< wchar_t >.

5.241.3.8 template<typename _CharT> virtual char_type std::__ctype_abstract_base< _CharT >::do_tolower (char_type) const [protected, pure virtual]

Convert to lowercase. This virtual function converts the argument to lowercase if possible. If not possible (for example, '2'), returns the argument.

do_tolower() is a hook for a derived facet to change the behavior of lowercasing. do_tolower() must always return the same result for the same input.

Parameters:

c The char_type to convert.

Returns:

The lowercase char_type if convertible, else *c*.

Implemented in std::ctype< _CharT >, and std::ctype< wchar_t >.

5.241.3.9 template<typename _CharT> virtual const char_type* std::__ctype_abstract_base< _CharT >::do_toupper (char_type * *__lo*, const char_type * *__hi*) const [protected, pure virtual]

Convert array to uppercase. This virtual function converts each char_type in the range [lo,hi) to uppercase if possible. Other elements remain untouched.

do_toupper() is a hook for a derived facet to change the behavior of uppercasing. do_toupper() must always return the same result for the same input.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

hi.

Implemented in std::ctype< _CharT >, and std::ctype< wchar_t >.

5.241.3.10 template<typename _CharT> virtual char_type std::__ctype_abstract_base< _CharT >::do_toupper (char_type) const [protected, pure virtual]

Convert to uppercase. This virtual function converts the char_type argument to uppercase if possible. If not possible (for example, '2'), returns the argument.

do_toupper() is a hook for a derived facet to change the behavior of uppercasing. do_toupper() must always return the same result for the same input.

Parameters:

c The char_type to convert.

Returns:

The uppercase char_type if convertible, else *c*.

Implemented in std::ctype< _CharT >, and std::ctype< wchar_t >.

5.241.3.11 template<typename _CharT> virtual const char* std::__ctype_abstract_base< _CharT >::do_widen (const char * *__lo*, const char * *__hi*, char_type * *__dest*) const [protected, pure virtual]

Widen char array. This function converts each char in the input to char_type using the simplest reasonable transformation.

do_widen() is a hook for a derived facet to change the behavior of widening. do_-widen() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

lo Pointer to start range.

hi Pointer to end of range.

to Pointer to the destination array.

Returns:

hi.

Implemented in std::ctype< _CharT >, and std::ctype< wchar_t >.

5.241.3.12 template<typename _CharT> virtual char_type std::__ctype_abstract_base< _CharT >::do_widen (char) const [protected, pure virtual]

Widen char. This virtual function converts the char to char_type using the simplest reasonable transformation.

do_widen() is a hook for a derived facet to change the behavior of widening. do_-widen() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

c The char to convert.

Returns:

The converted char_type

Implemented in std::ctype< _CharT >, and std::ctype< wchar_t >.

5.241.3.13 template<typename _CharT> const char_type* std::__ctype_abstract_base< _CharT >::is (const char_type * *__lo*, const char_type * *__hi*, mask * *__vec*) const [inline]

Return a mask array. This function finds the mask for each char_type in the range [lo,hi) and successively writes it to vec. vec must have as many elements as the char array. It does so by returning the value of ctype<char_type>::do_is().

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

vec Pointer to an array of mask storage.

Returns:

hi.

Definition at line 178 of file locale_facets.h.

5.241.3.14 template<typename _CharT> bool std::__ctype_abstract_base< _CharT >::is (mask *__m*, char_type *__c*) const [inline]

Test char_type classification. This function finds a mask M for *c* and compares it to mask *m*. It does so by returning the value of ctype<char_type>::do_is().

Parameters:

c The char_type to compare the mask of.

m The mask to compare against.

Returns:

(M & m) != 0.

Definition at line 161 of file locale_facets.h.

Referenced by std::regex_traits< _Ch_type >::isctype(), and std::basic_istream< _CharT, _Traits >::sentry::sentry().

5.241.3.15 template<typename _CharT> const char_type* std::__ctype_abstract_base< _CharT >::narrow (const char_type * *__lo*, const char_type * *__hi*, char *__dfault*, char * *__to*) const [inline]

Narrow array to char array. This function converts each char_type in the input to char using the simplest reasonable transformation and writes the results to the destination

array. For any char_type in the input that cannot be converted, *dfault* is used instead. It does so by returning ctype<char_type>::do_narrow(lo, hi, dfault, to).

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

dfault Char to use if conversion fails.

to Pointer to the destination array.

Returns:

hi.

Definition at line 345 of file locale_facets.h.

5.241.3.16 template<typename _CharT> char std::__ctype_abstract_base< _CharT >::narrow (char_type __c, char __dfault) const [inline]

Narrow char_type to char. This function converts the char_type to char using the simplest reasonable transformation. If the conversion fails, dfault is returned instead. It does so by returning ctype<char_type>::do_narrow(c).

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

c The char_type to convert.

dfault Char to return if conversion fails.

Returns:

The converted char.

Definition at line 323 of file locale_facets.h.

Referenced by std::time_put< _CharT, _OutIter >::put().

5.241.3.17 template<typename _CharT> const char_type* std::__ctype_abstract_base< _CharT >::scan_is (mask __m, const char_type * __lo, const char_type * __hi) const [inline]

Find char_type matching a mask. This function searches for and returns the first char_type c in [lo,hi) for which is(m,c) is true. It does so by returning ctype<char_type>::do_scan_is().

Parameters:

m The mask to compare against.

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

Pointer to matching char_type if found, else *hi*.

Definition at line 194 of file locale_facets.h.

5.241.3.18 template<typename _CharT> const char_type* std::__ctype_abstract_base< _CharT >::scan_not (mask *__m*, const char_type * *__lo*, const char_type * *__hi*) const [inline]

Find char_type not matching a mask. This function searches for and returns the first char_type c in [lo,hi) for which is(m,c) is false. It does so by returning ctype<char_type>::do_scan_not().

Parameters:

m The mask to compare against.

lo Pointer to first char in range.

hi Pointer to end of range.

Returns:

Pointer to non-matching char if found, else *hi*.

Definition at line 210 of file locale_facets.h.

5.241.3.19 template<typename _CharT> const char_type* std::__ctype_abstract_base< _CharT >::tolower (char_type * *__lo*, const char_type * *__hi*) const [inline]

Convert array to lowercase. This function converts each char_type in the range [lo,hi) to lowercase if possible. Other elements remain untouched. It does so by returning ctype<char_type>:: do_tolower(lo, hi).

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

hi.

Definition at line 268 of file locale_facets.h.

5.241.3.20 template<typename _CharT> char_type std::__ctype_abstract_base< _CharT >::tolower (char_type __c) const [inline]

Convert to lowercase. This function converts the argument to lowercase if possible. If not possible (for example, '2'), returns the argument. It does so by returning ctype<char_type>::do_tolower(c).

Parameters:

c The char_type to convert.

Returns:

The lowercase char_type if convertible, else *c*.

Definition at line 253 of file locale_facets.h.

5.241.3.21 template<typename _CharT> const char_type* std::__ctype_abstract_base< _CharT >::toupper (char_type * __lo, const char_type * __hi) const [inline]

Convert array to uppercase. This function converts each char_type in the range [lo,hi) to uppercase if possible. Other elements remain untouched. It does so by returning ctype<char_type>:: do_toupper(lo, hi).

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

hi.

Definition at line 239 of file locale_facets.h.

5.241.3.22 template<typename _CharT> char_type std::__ctype_abstract_base< _CharT >::toupper (char_type __c) const [inline]

Convert to uppercase. This function converts the argument to uppercase if possible. If not possible (for example, '2'), returns the argument. It does so by returning ctype<char_type>::do_toupper().

Parameters:

c The char_type to convert.

Returns:

The uppercase char_type if convertible, else *c*.

Definition at line 224 of file locale_facets.h.

5.241.3.23 template<typename _CharT> const char* std::__ctype_abstract_base< _CharT >::widen (const char * *__lo*, const char * *__hi*, char_type * *__to*) const [inline]

Widen array to char_type. This function converts each char in the input to char_type using the simplest reasonable transformation. It does so by returning ctype<char_type>::do_widen(c).

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

to Pointer to the destination array.

Returns:

hi.

Definition at line 304 of file locale_facets.h.

5.241.3.24 template<typename _CharT> char_type std::__ctype_abstract_base< _CharT >::widen (char __c) const [inline]

Widen char to char_type. This function converts the char argument to char_type using the simplest reasonable transformation. It does so by returning ctype<char_type>::do_widen(c).

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

c The char to convert.

Returns:

The converted char_type.

Definition at line 285 of file locale_facets.h.

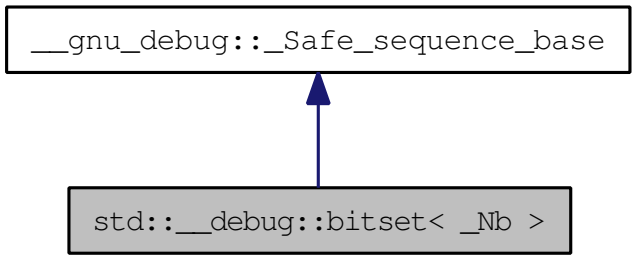
Referenced by std::money_get< _CharT, _InIter >::do_get(), std::time_put< _CharT, _OutIter >::do_put(), std::money_put< _CharT, _OutIter >::do_put(), std::regex_-traits< _Ch_type >::isctype(), and std::operator<<().

The documentation for this class was generated from the following file:

- locale_facets.h

5.242 std::__debug::bitset< _Nb > Class Template Reference

Class std::bitset with additional safety/checking/debug instrumentation. Inheritance diagram for std::__debug::bitset< _Nb >:



Public Member Functions

- **bitset** (const char *__str)
- **bitset** (const _Base &__x)
- template<class _CharT , class _Traits , class _Alloc >
  bitset (const std::basic_string< _CharT, _Traits, _Alloc > &__str, typename std::basic_string< _CharT, _Traits, _Alloc >::size_type __pos, typename std::basic_string< _CharT, _Traits, _Alloc >::size_type __n, _CharT __zero, _CharT __one=_CharT('1'))
- template<typename _CharT , typename _Traits , typename _Alloc >
  bitset (const std::basic_string< _CharT, _Traits, _Alloc > &__str, typename std::basic_string< _CharT, _Traits, _Alloc >::size_type __pos=0, typename std::basic_string< _CharT, _Traits, _Alloc >::size_type __n=(std::basic_string< _CharT, _Traits, _Alloc >::npos))
- **bitset** (unsigned long long __val)
- const _Base & **_M_base** () const
- _Base & **_M_base** ()
- void _M_invalidate_all () const
- bitset< _Nb > & **flip** (size_t __pos)
- bitset< _Nb > & **flip** ()
- bool **operator!=** (const bitset< _Nb > &__rhs) const
- bitset< _Nb > & **operator&=** (const bitset< _Nb > &__rhs)
- bitset< _Nb > **operator**<< (size_t __pos) const
- bitset< _Nb > & **operator**<<= (size_t __pos)
- bool **operator==** (const bitset< _Nb > &__rhs) const
- bitset< _Nb > **operator**>> (size_t __pos) const

- bitset< _Nb > & **operator>>=** (size_t __pos)
- bool **operator[ ]** (size_t __pos) const
- reference **operator[ ]** (size_t __pos)
- bitset< _Nb > & **operator^=** (const bitset< _Nb > &__rhs)
- bitset< _Nb > & **operator|=** (const bitset< _Nb > &__rhs)
- bitset< _Nb > **operator~** () const
- bitset< _Nb > & **reset** (size_t __pos)
- bitset< _Nb > & **reset** ()
- bitset< _Nb > & **set** (size_t __pos, bool __val=true)
- bitset< _Nb > & **set** ()
- std::basic_string< char, std::char_traits< char >, std::allocator< char > > **to_string** (char __zero, char __one= '1') const
- std::basic_string< char, std::char_traits< char >, std::allocator< char > > **to_string** () const
- template<class _CharT >
  std::basic_string< _CharT, std::char_traits< _CharT >, std::allocator< _CharT > > **to_string** (_CharT __zero, _CharT __one=_CharT('1')) const
- template<typename _CharT >
  std::basic_string< _CharT, std::char_traits< _CharT >, std::allocator< _CharT > > **to_string** () const
- template<class _CharT , class _Traits >
  std::basic_string< _CharT, _Traits, std::allocator< _CharT > > **to_string** (_CharT __zero, _CharT __one=_CharT('1')) const
- template<typename _CharT , typename _Traits >
  std::basic_string< _CharT, _Traits, std::allocator< _CharT > > **to_string** () const
- template<class _CharT , class _Traits , class _Alloc >
  std::basic_string< _CharT, _Traits, _Alloc > **to_string** (_CharT __zero, _CharT __one=_CharT('1')) const
- template<typename _CharT , typename _Traits , typename _Alloc >
  std::basic_string< _CharT, _Traits, _Alloc > **to_string** () const

Public Attributes

- _Safe_iterator_base * _M_const_iterators
- _Safe_iterator_base * _M_iterators
- unsigned int _M_version

Protected Member Functions

- void _M_detach_all ()
- void _M_detach_singular ()
- __gnu_cxx::__mutex & _M_get_mutex () throw ()

- void _M_revalidate_singular ()
- void _M_swap (_Safe_sequence_base &__x)

5.242.1 Detailed Description

template<size_t _Nb> class std::__debug::bitset< _Nb >

Class std::bitset with additional safety/checking/debug instrumentation.

Definition at line 43 of file debug/bitset.

5.242.2 Member Function Documentation

5.242.2.1 void __gnu_debug::_Safe_sequence_base::_M_detach_all () [protected, inherited]

Detach all iterators, leaving them singular.

5.242.2.2 void __gnu_debug::_Safe_sequence_base::_M_detach_singular () [protected, inherited]

Detach all singular iterators.

Postcondition:

for all iterators i attached to this sequence, i->_M_version == _M_version.

5.242.2.3 __gnu_cxx::__mutex& __gnu_debug::_Safe_sequence_base::_M_get_mutex () throw () [protected, inherited]

For use in _Safe_sequence.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.242.2.4 void __gnu_debug::_Safe_sequence_base::_M_invalidate_all () const [inline, inherited]

Invalidates all iterators.

Definition at line 215 of file safe_base.h.

Referenced by __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::append(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::assign(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::c_str(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::clear(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::data(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator+=(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator=(), and __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::push_back().

5.242.2.5 void __gnu_debug::_Safe_sequence_base::_M_revalidate_singular () [protected, inherited]

Revalidates all attached singular iterators. This method may be used to validate iterators that were invalidated before (but for some reason, such as an exception, need to become valid again).

5.242.2.6 void __gnu_debug::_Safe_sequence_base::_M_swap (_Safe_sequence_base & __x) [protected, inherited]

Swap this sequence with the given sequence. This operation also swaps ownership of the iterators, so that when the operation is complete all iterators that originally referenced one container now reference the other container.

5.242.3 Member Data Documentation

5.242.3.1 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_const_iterators [inherited]

The list of constant iterators that reference this container.

Definition at line 166 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.242.3.2 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_iterators [inherited]

The list of mutable iterators that reference this container.

Definition at line 163 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), _-_gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and _-_gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.242.3.3 unsigned int __gnu_debug::_Safe_sequence_base::_M_version [mutable, inherited]

The container version number. This number may never be 0.

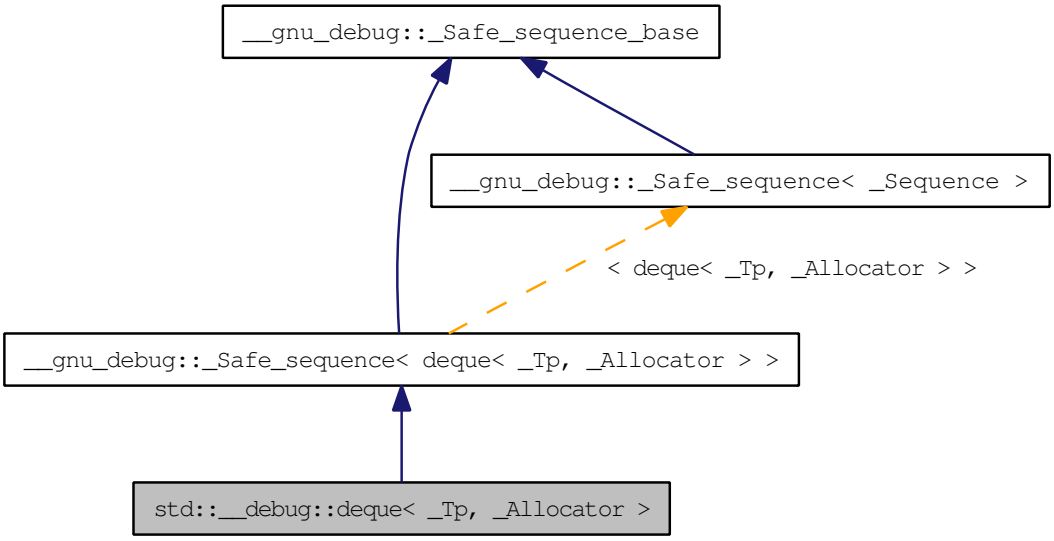
Definition at line 169 of file safe_base.h.

The documentation for this class was generated from the following file:

- debug/bitset

5.243 std::__debug::deque< _Tp, _Allocator > Class Template Reference

Class std::deque with safety/checking/debug instrumentation. Inheritance diagram for std::__debug::deque< _Tp, _Allocator >:



Public Types

- typedef _Allocator **allocator_type**
- typedef __gnu_debug::_Safe_iterator< typename _Base::const_iterator, deque > **const_iterator**
- typedef _Base::const_pointer **const_pointer**
- typedef _Base::const_reference **const_reference**
- typedef std::reverse_iterator< const_iterator > **const_reverse_iterator**
- typedef _Base::difference_type **difference_type**
- typedef __gnu_debug::_Safe_iterator< typename _Base::iterator, deque > **iterator**
- typedef _Base::pointer **pointer**
- typedef _Base::reference **reference**
- typedef std::reverse_iterator< iterator > **reverse_iterator**
- typedef _Base::size_type **size_type**
- typedef _Tp **value_type**

Public Member Functions

- **deque** (initializer_list< value_type > __l, const allocator_type &__a=allocator_type())
- **deque** (deque &&__x)
- **deque** (const _Base &__x)
- **deque** (const deque &__x)
- template<class _InputIterator >
  deque (_InputIterator __first, _InputIterator __last, const _Allocator &__a=_Allocator())
- **deque** (size_type __n, const _Tp &__value=_Tp(), const _Allocator &__a=_Allocator())
- **deque** (const _Allocator &__a=_Allocator())
- const _Base & **_M_base** () const
- _Base & **_M_base** ()
- void _M_invalidate_all () const
- void _M_invalidate_if (_Predicate __pred)
- void _M_transfer_iter (const _Safe_iterator< _Iterator, deque< _Tp, _Allocator > > &__x)
- void **assign** (initializer_list< value_type > __l)
- void **assign** (size_type __n, const _Tp &__t)
- template<class _InputIterator >
  void **assign** (_InputIterator __first, _InputIterator __last)
- const_reference **back** () const
- reference **back** ()
- const_iterator **begin** () const
- iterator **begin** ()
- const_iterator **cbegin** () const
- const_iterator **cend** () const
- void **clear** ()
- const_reverse_iterator **crbegin** () const
- const_reverse_iterator **crend** () const
- template<typename... _Args>
  iterator **emplace** (iterator __position, _Args &&...__args)
- template<typename... _Args>
  void **emplace_back** (_Args &&...__args)
- template<typename... _Args>
  void **emplace_front** (_Args &&...__args)
- const_iterator **end** () const
- iterator **end** ()
- iterator **erase** (iterator __first, iterator __last)
- iterator **erase** (iterator __position)
- const_reference **front** () const

- reference **front** ()
- template<class _InputIterator >
  void **insert** (iterator __position, _InputIterator __first, _InputIterator __last)
- void **insert** (iterator __position, size_type __n, const _Tp &__x)
- void **insert** (iterator __p, initializer_list< value_type > __l)
- iterator **insert** (iterator __position, _Tp &&__x)
- iterator **insert** (iterator __position, const _Tp &__x)
- deque & **operator=** (initializer_list< value_type > __l)
- deque & **operator=** (deque &&__x)
- deque & **operator=** (const deque &__x)
- const_reference **operator[ ]** (size_type __n) const
- reference **operator[ ]** (size_type __n)
- void **pop_back** ()
- void **pop_front** ()
- void **push_back** (_Tp &&__x)
- void **push_back** (const _Tp &__x)
- void **push_front** (_Tp &&__x)
- void **push_front** (const _Tp &__x)
- const_reverse_iterator **rbegin** () const
- reverse_iterator **rbegin** ()
- const_reverse_iterator **rend** () const
- reverse_iterator **rend** ()
- void **resize** (size_type __sz, _Tp __c=_Tp())
- void **swap** (deque &__x)

Public Attributes

- _Safe_iterator_base * _M_const_iterators
- _Safe_iterator_base * _M_iterators
- unsigned int _M_version

Protected Member Functions

- void _M_detach_all ()
- void _M_detach_singular ()
- __gnu_cxx::__mutex & _M_get_mutex () throw ()
- void _M_revalidate_singular ()
- void _M_swap (_Safe_sequence_base &__x)

5.243.1 Detailed Description

template<typename _Tp, typename _Allocator = std::allocator<_Tp>> class std::__debug::deque< _Tp, _Allocator >

Class std::deque with safety/checking/debug instrumentation.

Definition at line 43 of file debug/deque.

5.243.2 Member Function Documentation

5.243.2.1 void __gnu_debug::_Safe_sequence_base::_M_detach_all () [protected, inherited]

Detach all iterators, leaving them singular.

5.243.2.2 void __gnu_debug::_Safe_sequence_base::_M_detach_singular () [protected, inherited]

Detach all singular iterators.

Postcondition:

for all iterators i attached to this sequence, i->_M_version == _M_version.

5.243.2.3 __gnu_cxx::__mutex& __gnu_debug::_Safe_sequence_base::_M_get_mutex () throw () [protected, inherited]

For use in _Safe_sequence.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.243.2.4 void __gnu_debug::_Safe_sequence_base::_M_invalidate_all () const [inline, inherited]

Invalidates all iterators.

Definition at line 215 of file safe_base.h.

Referenced by __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::append(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::assign(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::c_str(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::clear(), __gnu_debug::basic_string< _-

CharT, _Traits, _Allocator >::data(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator+=(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator=(), and __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::push_back().

5.243.2.5 void __gnu_debug::_Safe_sequence< deque< _Tp, _Allocator > >::_M_invalidate_if (_Predicate __pred) [inline, inherited]

Invalidates all iterators `x` that reference this sequence, are not singular, and for which `pred(x)` returns `true`. The user of this routine should be careful not to make copies of the iterators passed to `pred`, as the copies may interfere with the invalidation.

5.243.2.6 void __gnu_debug::_Safe_sequence_base::_M_revalidate_singular () [protected, inherited]

Revalidates all attached singular iterators. This method may be used to validate iterators that were invalidated before (but for some reason, such as an exception, need to become valid again).

5.243.2.7 void __gnu_debug::_Safe_sequence_base::_M_swap (_Safe_sequence_base & __x) [protected, inherited]

Swap this sequence with the given sequence. This operation also swaps ownership of the iterators, so that when the operation is complete all iterators that originally referenced one container now reference the other container.

5.243.2.8 void __gnu_debug::_Safe_sequence< deque< _Tp, _Allocator > >::_M_transfer_iter (const _Safe_iterator< _Iterator, deque< _Tp, _Allocator > > & __x) [inline, inherited]

Transfers all iterators that reference this memory location to this sequence from whatever sequence they are attached to.

5.243.3 Member Data Documentation

5.243.3.1 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_const_iterators [inherited]

The list of constant iterators that reference this container.

Definition at line 166 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), _-_gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and _-_gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.243.3.2 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_-iterators [inherited]

The list of mutable iterators that reference this container.

Definition at line 163 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), _-_gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and _-_gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.243.3.3 unsigned int __gnu_debug::_Safe_sequence_base::_M_version [mutable, inherited]

The container version number. This number may never be 0.

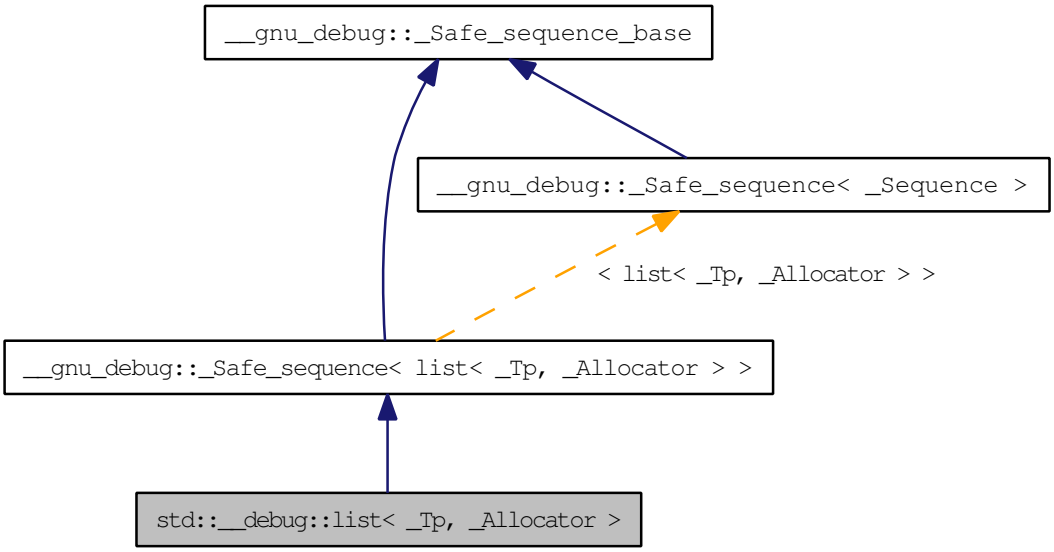
Definition at line 169 of file safe_base.h.

The documentation for this class was generated from the following file:

- debug/deque

5.244 std::__debug::list< _Tp, _Allocator > Class Template Reference

Class std::list with safety/checking/debug instrumentation. Inheritance diagram for std::__debug::list< _Tp, _Allocator >:



Public Types

- typedef _Allocator **allocator_type**
- typedef __gnu_debug::_Safe_iterator< typename _Base::const_iterator, list > **const_iterator**
- typedef _Base::const_pointer **const_pointer**
- typedef _Base::const_reference **const_reference**
- typedef std::reverse_iterator< const_iterator > **const_reverse_iterator**
- typedef _Base::difference_type **difference_type**
- typedef __gnu_debug::_Safe_iterator< typename _Base::iterator, list > **iterator**

- typedef _Base::pointer **pointer**
- typedef _Base::reference **reference**
- typedef std::reverse_iterator< iterator > **reverse_iterator**
- typedef _Base::size_type **size_type**
- typedef _Tp **value_type**

Public Member Functions

- **list** (initializer_list< value_type > __l, const allocator_type &__a=allocator_-type())
- **list** (list &&__x)
- **list** (const _Base &__x)
- **list** (const list &__x)
- template<class _InputIterator >
  list (_InputIterator __first, _InputIterator __last, const _Allocator &__a=_-Allocator())
- **list** (size_type __n, const _Tp &__value=_Tp(), const _Allocator &__a=_-Allocator())
- **list** (const _Allocator &__a=_Allocator())
- const _Base & **_M_base** () const
- _Base & **_M_base** ()
- void _M_invalidate_all () const
- void _M_invalidate_if (_Predicate __pred)
- void _M_transfer_iter (const _Safe_iterator< _Iterator, list< _Tp, _Allocator > > &__x)
- void **assign** (size_type __n, const _Tp &__t)
- template<class _InputIterator >
  void **assign** (_InputIterator __first, _InputIterator __last)
- void **assign** (initializer_list< value_type > __l)
- const_reference **back** () const
- reference **back** ()
- const_iterator **begin** () const
- iterator **begin** ()
- const_iterator **cbegin** () const
- const_iterator **cend** () const
- void **clear** ()
- const_reverse_iterator **crbegin** () const
- const_reverse_iterator **crend** () const
- template<typename... _Args>
  iterator **emplace** (iterator __position, _Args &&...__args)
- const_iterator **end** () const
- iterator **end** ()
- iterator **erase** (iterator __position, iterator __last)
- iterator **erase** (iterator __position)
- const_reference **front** () const
- reference **front** ()
- template<class _InputIterator >
  void **insert** (iterator __position, _InputIterator __first, _InputIterator __last)
- void **insert** (iterator __position, size_type __n, const _Tp &__x)

- void **insert** (iterator __p, initializer_list< value_type > __l)
- iterator **insert** (iterator __position, _Tp &&__x)
- iterator **insert** (iterator __position, const _Tp &__x)
- template<typename _Compare >
  void **merge** (list &__x, _Compare __comp)
- template<class _Compare >
  void **merge** (list &&__x, _Compare __comp)
- void **merge** (list &__x)
- void **merge** (list &&__x)
- list & **operator=** (initializer_list< value_type > __l)
- list & **operator=** (list &&__x)
- list & **operator=** (const list &__x)
- void **pop_back** ()
- void **pop_front** ()
- const_reverse_iterator **rbegin** () const
- reverse_iterator **rbegin** ()
- void **remove** (const _Tp &__value)
- template<class _Predicate >
  void **remove_if** (_Predicate __pred)
- const_reverse_iterator **rend** () const
- reverse_iterator **rend** ()
- void **resize** (size_type __sz, _Tp __c=_Tp())
- template<typename _StrictWeakOrdering >
  void **sort** (_StrictWeakOrdering __pred)
- void **sort** ()
- void **splice** (iterator __position, list &__x, iterator __first, iterator __last)
- void **splice** (iterator __position, list &&__x, iterator __first, iterator __last)
- void **splice** (iterator __position, list &__x, iterator __i)
- void **splice** (iterator __position, list &&__x, iterator __i)
- void **splice** (iterator __position, list &__x)
- void **splice** (iterator __position, list &&__x)
- void **swap** (list &__x)
- template<class _BinaryPredicate >
  void **unique** (_BinaryPredicate __binary_pred)
- void **unique** ()

Public Attributes

- _Safe_iterator_base * _M_const_iterators
- _Safe_iterator_base * _M_iterators
- unsigned int _M_version

Protected Member Functions

- void _M_detach_all ()
- void _M_detach_singular ()
- __gnu_cxx::__mutex & _M_get_mutex () throw ()
- void _M_revalidate_singular ()
- void _M_swap (_Safe_sequence_base &__x)

5.244.1 Detailed Description

template<typename _Tp, typename _Allocator = std::allocator<_Tp>> class std::__debug::list< _Tp, _Allocator >

Class std::list with safety/checking/debug instrumentation.

Definition at line 44 of file debug/list.

5.244.2 Member Function Documentation

5.244.2.1 void __gnu_debug::_Safe_sequence_base::_M_detach_all () [protected, inherited]

Detach all iterators, leaving them singular.

5.244.2.2 void __gnu_debug::_Safe_sequence_base::_M_detach_singular () [protected, inherited]

Detach all singular iterators.

Postcondition:

for all iterators i attached to this sequence, i->_M_version == _M_version.

5.244.2.3 __gnu_cxx::__mutex& __gnu_debug::_Safe_sequence_base::_M_get_mutex () throw () [protected, inherited]

For use in _Safe_sequence.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.244.2.4 void __gnu_debug::_Safe_sequence_base::_M_invalidate_all () const [inline, inherited]

Invalidates all iterators.

Definition at line 215 of file safe_base.h.

Referenced by __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::append(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::assign(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::c_str(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::clear(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::data(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator+=(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator=(), and __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::push_back().

5.244.2.5 void __gnu_debug::_Safe_sequence< list< _Tp, _Allocator > >::_M_invalidate_if (_Predicate *__pred*) [inline, inherited]

Invalidates all iterators `x` that reference this sequence, are not singular, and for which `pred(x)` returns `true`. The user of this routine should be careful not to make copies of the iterators passed to `pred`, as the copies may interfere with the invalidation.

5.244.2.6 void __gnu_debug::_Safe_sequence_base::_M_revalidate_singular () [protected, inherited]

Revalidates all attached singular iterators. This method may be used to validate iterators that were invalidated before (but for some reason, such as an exception, need to become valid again).

5.244.2.7 void __gnu_debug::_Safe_sequence_base::_M_swap (_Safe_sequence_base & *__x*) [protected, inherited]

Swap this sequence with the given sequence. This operation also swaps ownership of the iterators, so that when the operation is complete all iterators that originally referenced one container now reference the other container.

5.244.2.8 void __gnu_debug::_Safe_sequence< list< _Tp, _Allocator > >::_M_transfer_iter (const _Safe_iterator< _Iterator, list< _Tp, _Allocator > > & *__x*) [inline, inherited]

Transfers all iterators that reference this memory location to this sequence from whatever sequence they are attached to.

5.244.3 Member Data Documentation

5.244.3.1 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_const_iterators [inherited]

The list of constant iterators that reference this container.

Definition at line 166 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.244.3.2 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_iterators [inherited]

The list of mutable iterators that reference this container.

Definition at line 163 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.244.3.3 unsigned int __gnu_debug::_Safe_sequence_base::_M_version [mutable, inherited]

The container version number. This number may never be 0.

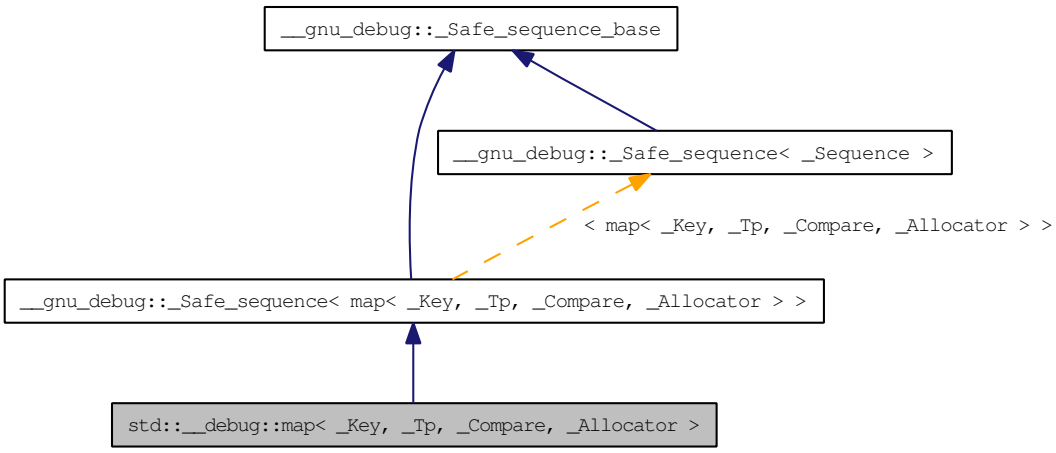
Definition at line 169 of file safe_base.h.

The documentation for this class was generated from the following file:

- debug/list

5.245 std::__debug::map< _Key, _Tp, _Compare, _Allocator > Class Template Reference

Class std::map with safety/checking/debug instrumentation. Inheritance diagram for std::__debug::map< _Key, _Tp, _Compare, _Allocator >:



Public Types

- typedef _Allocator **allocator_type**
- typedef __gnu_debug::_Safe_iterator< typename _Base::const_iterator, map > **const_iterator**
- typedef _Base::const_pointer **const_pointer**
- typedef _Base::const_reference **const_reference**
- typedef std::reverse_iterator< const_iterator > **const_reverse_iterator**
- typedef _Base::difference_type **difference_type**
- typedef __gnu_debug::_Safe_iterator< typename _Base::iterator, map > **iterator**
- typedef _Compare **key_compare**
- typedef _Key **key_type**
- typedef _Tp **mapped_type**
- typedef _Base::pointer **pointer**
- typedef _Base::reference **reference**
- typedef std::reverse_iterator< iterator > **reverse_iterator**
- typedef _Base::size_type **size_type**
- typedef std::pair< const _Key, _Tp > **value_type**

Public Member Functions

- **map** (initializer_list< value_type > __l, const _Compare &__c=_Compare(), const allocator_type &__a=allocator_type())
- **map** (map &&__x)
- **map** (const _Base &__x)
- **map** (const map &__x)
- template<typename _InputIterator >
  map (_InputIterator __first, _InputIterator __last, const _Compare &__comp=_Compare(), const _Allocator &__a=_Allocator())
- **map** (const _Compare &__comp=_Compare(), const _Allocator &__a=_Allocator())
- const _Base & **_M_base** () const
- _Base & **_M_base** ()
- void _M_invalidate_all () const
- void _M_invalidate_if (_Predicate __pred)
- void _M_transfer_iter (const _Safe_iterator< _Iterator, map< _Key, _Tp, _Compare, _Allocator > > &__x)
- const_iterator **begin** () const
- iterator **begin** ()
- const_iterator **cbegin** () const
- const_iterator **cend** () const
- void **clear** ()
- const_reverse_iterator **crbegin** () const
- const_reverse_iterator **crend** () const
- const_iterator **end** () const
- iterator **end** ()
- std::pair< const_iterator, const_iterator > **equal_range** (const key_type &__x) const
- std::pair< iterator, iterator > **equal_range** (const key_type &__x)
- iterator **erase** (iterator __first, iterator __last)
- size_type **erase** (const key_type &__x)
- iterator **erase** (iterator __position)
- const_iterator **find** (const key_type &__x) const
- iterator **find** (const key_type &__x)
- template<typename _InputIterator >
  void **insert** (_InputIterator __first, _InputIterator __last)
- iterator **insert** (iterator __position, const value_type &__x)
- void **insert** (std::initializer_list< value_type > __list)
- std::pair< iterator, bool > **insert** (const value_type &__x)
- const_iterator **lower_bound** (const key_type &__x) const
- iterator **lower_bound** (const key_type &__x)
- map & **operator=** (initializer_list< value_type > __l)

- map & **operator=** (map &&__x)
- map & **operator=** (const map &__x)
- const_reverse_iterator **rbegin** () const
- reverse_iterator **rbegin** ()
- const_reverse_iterator **rend** () const
- reverse_iterator **rend** ()
- void **swap** (map &__x)
- const_iterator **upper_bound** (const key_type &__x) const
- iterator **upper_bound** (const key_type &__x)

Public Attributes

- _Safe_iterator_base * _M_const_iterators
- _Safe_iterator_base * _M_iterators
- unsigned int _M_version

Protected Member Functions

- void _M_detach_all ()
- void _M_detach_singular ()
- __gnu_cxx::__mutex & _M_get_mutex () throw ()
- void _M_revalidate_singular ()
- void _M_swap (_Safe_sequence_base &__x)

5.245.1 Detailed Description

template<typename _Key, typename _Tp, typename _Compare = std::less<_-Key>, typename _Allocator = std::allocator<std::pair<const _Key, _Tp> >> class std::__debug::map< _Key, _Tp, _Compare, _Allocator >

Class std::map with safety/checking/debug instrumentation.

Definition at line 44 of file debug/map.h.

5.245.2 Member Function Documentation

5.245.2.1 void __gnu_debug::_Safe_sequence_base::_M_detach_all () [protected, inherited]

Detach all iterators, leaving them singular.

5.245.2.2 void __gnu_debug::_Safe_sequence_base::_M_detach_singular () [protected, inherited]

Detach all singular iterators.

Postcondition:

for all iterators i attached to this sequence, i->_M_version == _M_version.

5.245.2.3 __gnu_cxx::__mutex& __gnu_debug::_Safe_sequence_base::_M_get_mutex () throw () [protected, inherited]

For use in _Safe_sequence.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.245.2.4 void __gnu_debug::_Safe_sequence_base::_M_invalidate_all () const [inline, inherited]

Invalidates all iterators.

Definition at line 215 of file safe_base.h.

Referenced by __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::append(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::assign(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::c_str(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::clear(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::data(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator+=(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator=(), and __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::push_back().

5.245.2.5 void __gnu_debug::_Safe_sequence< map< _Key, _Tp, _Compare, _Allocator > >::_M_invalidate_if (_Predicate *__pred*) [inline, inherited]

Invalidates all iterators `x` that reference this sequence, are not singular, and for which `pred(x)` returns `true`. The user of this routine should be careful not to make copies of the iterators passed to `pred`, as the copies may interfere with the invalidation.

5.245.2.6 void __gnu_debug::_Safe_sequence_base::_M_revalidate_singular () [protected, inherited]

Revalidates all attached singular iterators. This method may be used to validate iterators that were invalidated before (but for some reason, such as an exception, need to become valid again).

5.245.2.7 void __gnu_debug::_Safe_sequence_base::_M_swap (_Safe_sequence_base & __x) [protected, inherited]

Swap this sequence with the given sequence. This operation also swaps ownership of the iterators, so that when the operation is complete all iterators that originally referenced one container now reference the other container.

5.245.2.8 void __gnu_debug::_Safe_sequence< map< _Key, _Tp, _Compare, _Allocator > >::_M_transfer_iter (const _Safe_iterator< _Iterator, map< _Key, _Tp, _Compare, _Allocator > > & __x) [inline, inherited]

Transfers all iterators that reference this memory location to this sequence from whatever sequence they are attached to.

5.245.3 Member Data Documentation

5.245.3.1 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_const_iterators [inherited]

The list of constant iterators that reference this container.

Definition at line 166 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.245.3.2 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_iterators [inherited]

The list of mutable iterators that reference this container.

Definition at line 163 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.245.3.3 unsigned int __gnu_debug::_Safe_sequence_base::_M_version [mutable, inherited]

The container version number. This number may never be 0.

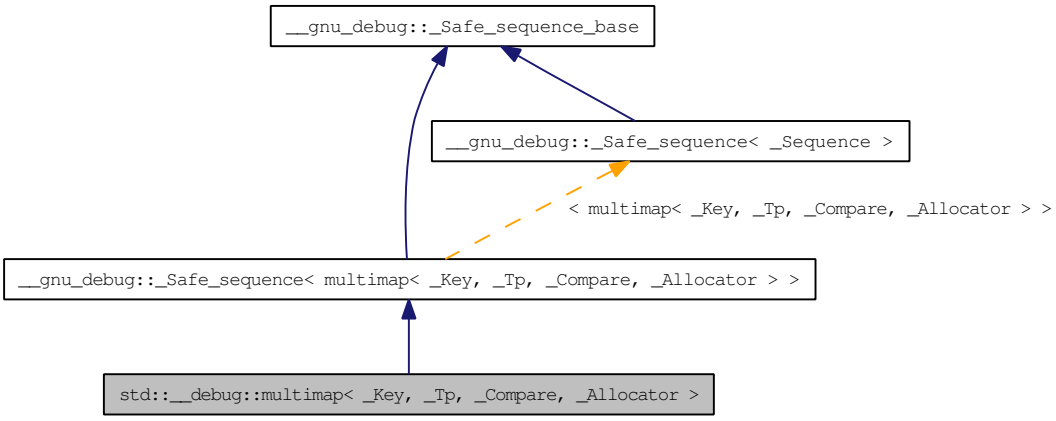
Definition at line 169 of file safe_base.h.

The documentation for this class was generated from the following file:

- debug/map.h

5.246 std::__debug::multimap< _Key, _Tp, _Compare, _Allocator > Class Template Reference

Class std::multimap with safety/checking/debug instrumentation. Inheritance diagram for std::__debug::multimap< _Key, _Tp, _Compare, _Allocator >:



Public Types

- typedef _Allocator **allocator_type**
- typedef __gnu_debug::_Safe_iterator< typename _Base::const_iterator, multimap > **const_iterator**
- typedef _Base::const_pointer **const_pointer**
- typedef _Base::const_reference **const_reference**
- typedef std::reverse_iterator< const_iterator > **const_reverse_iterator**
- typedef _Base::difference_type **difference_type**
- typedef __gnu_debug::_Safe_iterator< typename _Base::iterator, multimap > **iterator**
- typedef _Compare **key_compare**
- typedef _Key **key_type**
- typedef _Tp **mapped_type**
- typedef _Base::pointer **pointer**
- typedef _Base::reference **reference**
- typedef std::reverse_iterator< iterator > **reverse_iterator**
- typedef _Base::size_type **size_type**
- typedef std::pair< const _Key, _Tp > **value_type**

Public Member Functions

- **multimap** (initializer_list< value_type > __l, const _Compare &__c=_Compare(), const allocator_type &__a=allocator_type())
- **multimap** (multimap &&__x)
- **multimap** (const _Base &__x)
- **multimap** (const multimap &__x)
- template<typename _InputIterator >
  multimap (_InputIterator __first, _InputIterator __last, const _Compare &__comp=_Compare(), const _Allocator &__a=_Allocator())
- **multimap** (const _Compare &__comp=_Compare(), const _Allocator &__a=_Allocator())
- const _Base & **_M_base** () const
- _Base & **_M_base** ()
- void _M_invalidate_all () const
- void _M_invalidate_if (_Predicate __pred)
- void _M_transfer_iter (const _Safe_iterator< _Iterator, multimap< _Key, _Tp, _Compare, _Allocator > > &__x)
- const_iterator **begin** () const
- iterator **begin** ()
- const_iterator **cbegin** () const
- const_iterator **cend** () const
- void **clear** ()
- const_reverse_iterator **crbegin** () const
- const_reverse_iterator **crend** () const
- const_iterator **end** () const
- iterator **end** ()
- std::pair< const_iterator, const_iterator > **equal_range** (const key_type &__x) const
- std::pair< iterator, iterator > **equal_range** (const key_type &__x)
- iterator **erase** (iterator __first, iterator __last)
- size_type **erase** (const key_type &__x)
- iterator **erase** (iterator __position)
- const_iterator **find** (const key_type &__x) const
- iterator **find** (const key_type &__x)
- template<typename _InputIterator >
  void **insert** (_InputIterator __first, _InputIterator __last)
- iterator **insert** (iterator __position, const value_type &__x)
- void **insert** (std::initializer_list< value_type > __list)
- iterator **insert** (const value_type &__x)
- const_iterator **lower_bound** (const key_type &__x) const
- iterator **lower_bound** (const key_type &__x)
- multimap & **operator=** (initializer_list< value_type > __l)

- multimap & **operator=** (multimap &&__x)
- multimap & **operator=** (const multimap &__x)
- const_reverse_iterator **rbegin** () const
- reverse_iterator **rbegin** ()
- const_reverse_iterator **rend** () const
- reverse_iterator **rend** ()
- void **swap** (multimap &__x)
- const_iterator **upper_bound** (const key_type &__x) const
- iterator **upper_bound** (const key_type &__x)

Public Attributes

- _Safe_iterator_base * _M_const_iterators
- _Safe_iterator_base * _M_iterators
- unsigned int _M_version

Protected Member Functions

- void _M_detach_all ()
- void _M_detach_singular ()
- __gnu_cxx::__mutex & _M_get_mutex () throw ()
- void _M_revalidate_singular ()
- void _M_swap (_Safe_sequence_base &__x)

5.246.1 Detailed Description

template<typename _Key, typename _Tp, typename _Compare = std::less<_-Key>, typename _Allocator = std::allocator<std::pair<const _Key, _Tp> >> class std::__debug::multimap< _Key, _Tp, _Compare, _Allocator >

Class std::multimap with safety/checking/debug instrumentation.

Definition at line 44 of file debug/multimap.h.

5.246.2 Member Function Documentation

5.246.2.1 void __gnu_debug::_Safe_sequence_base::_M_detach_all () [protected, inherited]

Detach all iterators, leaving them singular.

5.246.2.2 void __gnu_debug::_Safe_sequence_base::_M_detach_singular () [protected, inherited]

Detach all singular iterators.

Postcondition:

for all iterators i attached to this sequence, i->_M_version == _M_version.

5.246.2.3 __gnu_cxx::__mutex& __gnu_debug::_Safe_sequence_base::_M_get_mutex () throw () [protected, inherited]

For use in _Safe_sequence.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.246.2.4 void __gnu_debug::_Safe_sequence_base::_M_invalidate_all () const [inline, inherited]

Invalidates all iterators.

Definition at line 215 of file safe_base.h.

Referenced by __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::append(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::assign(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::c_str(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::clear(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::data(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator+=(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator=(), and __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::push_back().

5.246.2.5 void __gnu_debug::_Safe_sequence< multimap< _Key, _Tp, _Compare, _Allocator > >::_M_invalidate_if (_Predicate *__pred*) [inline, inherited]

Invalidates all iterators `x` that reference this sequence, are not singular, and for which `pred(x)` returns `true`. The user of this routine should be careful not to make copies of the iterators passed to `pred`, as the copies may interfere with the invalidation.

5.246.2.6 void __gnu_debug::_Safe_sequence_base::_M_revalidate_singular () [protected, inherited]

Revalidates all attached singular iterators. This method may be used to validate iterators that were invalidated before (but for some reason, such as an exception, need to become valid again).

5.246.2.7 void __gnu_debug::_Safe_sequence_base::_M_swap (_Safe_sequence_base & __x) [protected, inherited]

Swap this sequence with the given sequence. This operation also swaps ownership of the iterators, so that when the operation is complete all iterators that originally referenced one container now reference the other container.

5.246.2.8 void __gnu_debug::_Safe_sequence< multimap< _Key, _Tp, _Compare, _Allocator > >::_M_transfer_iter (const _Safe_iterator< _Iterator, multimap< _Key, _Tp, _Compare, _Allocator > > & __x) [inline, inherited]

Transfers all iterators that reference this memory location to this sequence from whatever sequence they are attached to.

5.246.3 Member Data Documentation

5.246.3.1 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_const_iterators [inherited]

The list of constant iterators that reference this container.

Definition at line 166 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.246.3.2 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_iterators [inherited]

The list of mutable iterators that reference this container.

Definition at line 163 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.246.3.3 unsigned int __gnu_debug::_Safe_sequence_base::_M_version [mutable, inherited]

The container version number. This number may never be 0.

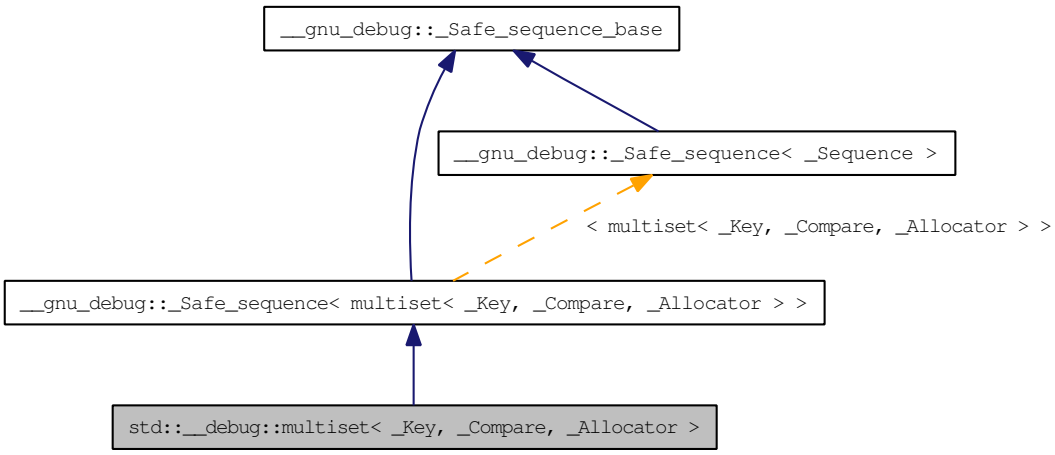
Definition at line 169 of file safe_base.h.

The documentation for this class was generated from the following file:

- debug/multimap.h

5.247 std::__debug::multiset< _Key, _Compare, _Allocator > Class Template Reference

Class std::multiset with safety/checking/debug instrumentation. Inheritance diagram for std::__debug::multiset< _Key, _Compare, _Allocator >:



Public Types

- typedef _Allocator **allocator_type**
- typedef __gnu_debug::_Safe_iterator< typename _Base::const_iterator, multiset > **const_iterator**
- typedef _Base::const_pointer **const_pointer**
- typedef _Base::const_reference **const_reference**
- typedef std::reverse_iterator< const_iterator > **const_reverse_iterator**
- typedef _Base::difference_type **difference_type**
- typedef __gnu_debug::_Safe_iterator< typename _Base::iterator, multiset > **iterator**
- typedef _Compare **key_compare**
- typedef _Key **key_type**
- typedef _Base::pointer **pointer**
- typedef _Base::reference **reference**
- typedef std::reverse_iterator< iterator > **reverse_iterator**
- typedef _Base::size_type **size_type**
- typedef _Compare **value_compare**
- typedef _Key **value_type**

Public Member Functions

- **multiset** (initializer_list< value_type > __l, const _Compare &__comp=_Compare(), const allocator_type &__a=allocator_type())
- **multiset** (multiset &&__x)
- **multiset** (const _Base &__x)
- **multiset** (const multiset &__x)
- template<typename _InputIterator >
  multiset (_InputIterator __first, _InputIterator __last, const _Compare &__comp=_Compare(), const _Allocator &__a=_Allocator())
- **multiset** (const _Compare &__comp=_Compare(), const _Allocator &__a=_Allocator())
- const _Base & **_M_base** () const
- _Base & **_M_base** ()
- void _M_invalidate_all () const
- void _M_invalidate_if (_Predicate __pred)
- void _M_transfer_iter (const _Safe_iterator< _Iterator, multiset< _Key, _Compare, _Allocator > > &__x)
- const_iterator **begin** () const
- iterator **begin** ()
- const_iterator **cbegin** () const
- const_iterator **cend** () const
- void **clear** ()
- const_reverse_iterator **crbegin** () const
- const_reverse_iterator **crend** () const
- const_iterator **end** () const
- iterator **end** ()
- std::pair< const_iterator, const_iterator > **equal_range** (const key_type &__x) const
- std::pair< iterator, iterator > **equal_range** (const key_type &__x)
- iterator **erase** (iterator __first, iterator __last)
- size_type **erase** (const key_type &__x)
- iterator **erase** (iterator __position)
- const_iterator **find** (const key_type &__x) const
- iterator **find** (const key_type &__x)
- void **insert** (initializer_list< value_type > __l)
- template<typename _InputIterator >
  void **insert** (_InputIterator __first, _InputIterator __last)
- iterator **insert** (iterator __position, const value_type &__x)
- iterator **insert** (const value_type &__x)
- const_iterator **lower_bound** (const key_type &__x) const
- iterator **lower_bound** (const key_type &__x)
- multiset & **operator=** (initializer_list< value_type > __l)

- multiset & **operator=** (multiset &&__x)
- multiset & **operator=** (const multiset &__x)
- const_reverse_iterator **rbegin** () const
- reverse_iterator **rbegin** ()
- const_reverse_iterator **rend** () const
- reverse_iterator **rend** ()
- void **swap** (multiset &__x)
- const_iterator **upper_bound** (const key_type &__x) const
- iterator **upper_bound** (const key_type &__x)

Public Attributes

- _Safe_iterator_base * _M_const_iterators
- _Safe_iterator_base * _M_iterators
- unsigned int _M_version

Protected Member Functions

- void _M_detach_all ()
- void _M_detach_singular ()
- __gnu_cxx::__mutex & _M_get_mutex () throw ()
- void _M_revalidate_singular ()
- void _M_swap (_Safe_sequence_base &__x)

5.247.1 Detailed Description

template<typename _Key, typename _Compare = std::less<_Key>, typename _Allocator = std::allocator<_Key>> class std::__debug::multiset< _Key, _Compare, _Allocator >

Class std::multiset with safety/checking/debug instrumentation.

Definition at line 44 of file debug/multiset.h.

5.247.2 Member Function Documentation

5.247.2.1 void __gnu_debug::_Safe_sequence_base::_M_detach_all () [protected, inherited]

Detach all iterators, leaving them singular.

5.247.2.2 void __gnu_debug::_Safe_sequence_base::_M_detach_singular () [protected, inherited]

Detach all singular iterators.

Postcondition:

for all iterators i attached to this sequence, i->_M_version == _M_version.

5.247.2.3 __gnu_cxx::__mutex& __gnu_debug::_Safe_sequence_base::_M_get_mutex () throw () [protected, inherited]

For use in _Safe_sequence.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.247.2.4 void __gnu_debug::_Safe_sequence_base::_M_invalidate_all () const [inline, inherited]

Invalidates all iterators.

Definition at line 215 of file safe_base.h.

Referenced by __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::append(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::assign(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::c_str(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::clear(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::data(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator+=(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator=(), and __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::push_back().

5.247.2.5 void __gnu_debug::_Safe_sequence< multiset< _Key, _Compare, _Allocator > >::_M_invalidate_if (_Predicate *__pred*) [inline, inherited]

Invalidates all iterators `x` that reference this sequence, are not singular, and for which `pred(x)` returns `true`. The user of this routine should be careful not to make copies of the iterators passed to `pred`, as the copies may interfere with the invalidation.

5.247.2.6 void __gnu_debug::_Safe_sequence_base::_M_revalidate_singular () [protected, inherited]

Revalidates all attached singular iterators. This method may be used to validate iterators that were invalidated before (but for some reason, such as an exception, need to become valid again).

5.247.2.7 void __gnu_debug::_Safe_sequence_base::_M_swap (_Safe_sequence_base & __x) [protected, inherited]

Swap this sequence with the given sequence. This operation also swaps ownership of the iterators, so that when the operation is complete all iterators that originally referenced one container now reference the other container.

5.247.2.8 void __gnu_debug::_Safe_sequence< multiset< _Key, _Compare, _Allocator > >::_M_transfer_iter (const _Safe_iterator< _Iterator, multiset< _Key, _Compare, _Allocator > > & __x) [inline, inherited]

Transfers all iterators that reference this memory location to this sequence from whatever sequence they are attached to.

5.247.3 Member Data Documentation

5.247.3.1 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_const_iterators [inherited]

The list of constant iterators that reference this container.

Definition at line 166 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.247.3.2 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_iterators [inherited]

The list of mutable iterators that reference this container.

Definition at line 163 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.247.3.3 unsigned int __gnu_debug::_Safe_sequence_base::_M_version [mutable, inherited]

The container version number. This number may never be 0.

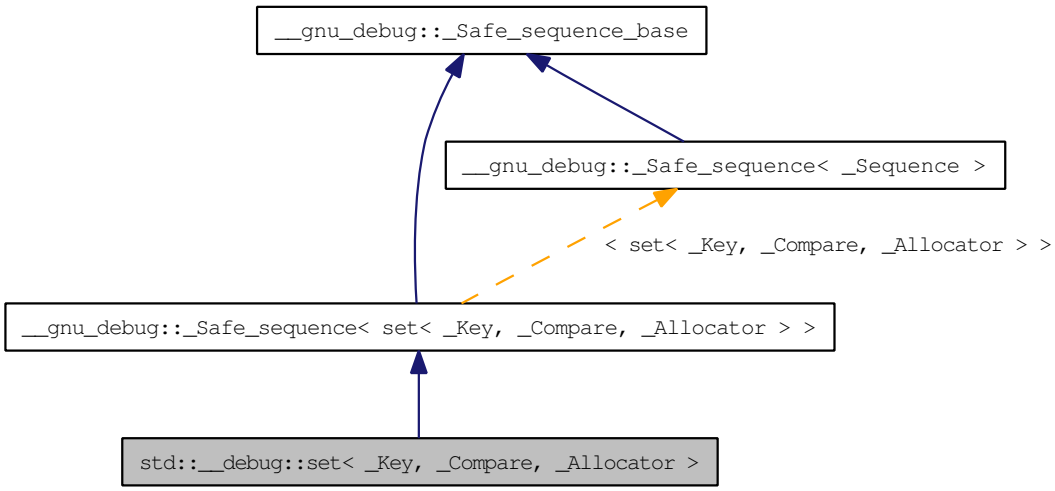
Definition at line 169 of file safe_base.h.

The documentation for this class was generated from the following file:

- debug/multiset.h

5.248 std::__debug::set< _Key, _Compare, _Allocator > Class Template Reference

Class std::set with safety/checking/debug instrumentation. Inheritance diagram for std::__debug::set< _Key, _Compare, _Allocator >:



Public Types

- typedef _Allocator **allocator_type**
- typedef __gnu_debug::_Safe_iterator< typename _Base::const_iterator, set > **const_iterator**
- typedef _Base::const_pointer **const_pointer**
- typedef _Base::const_reference **const_reference**
- typedef std::reverse_iterator< const_iterator > **const_reverse_iterator**
- typedef _Base::difference_type **difference_type**
- typedef __gnu_debug::_Safe_iterator< typename _Base::iterator, set > **iterator**

- typedef _Compare **key_compare**
- typedef _Key **key_type**
- typedef _Base::pointer **pointer**
- typedef _Base::reference **reference**
- typedef std::reverse_iterator< iterator > **reverse_iterator**
- typedef _Base::size_type **size_type**
- typedef _Compare **value_compare**
- typedef _Key **value_type**

Public Member Functions

- **set** (initializer_list< value_type > __l, const _Compare &__comp=_Compare(), const allocator_type &__a=allocator_type())
- **set** (set &&__x)
- **set** (const _Base &__x)
- **set** (const set &__x)
- template<typename _InputIterator >
  set (_InputIterator __first, _InputIterator __last, const _Compare &__comp=_Compare(), const _Allocator &__a=_Allocator())
- **set** (const _Compare &__comp=_Compare(), const _Allocator &__a=_Allocator())
- const _Base & **_M_base** () const
- _Base & **_M_base** ()
- void _M_invalidate_all () const
- void _M_invalidate_if (_Predicate __pred)
- void _M_transfer_iter (const _Safe_iterator< _Iterator, set< _Key, _Compare, _Allocator > > &__x)
- const_iterator **begin** () const
- iterator **begin** ()
- const_iterator **cbegin** () const
- const_iterator **cend** () const
- void **clear** ()
- const_reverse_iterator **crbegin** () const
- const_reverse_iterator **crend** () const
- const_iterator **end** () const
- iterator **end** ()
- std::pair< const_iterator, const_iterator > **equal_range** (const key_type &__x) const
- std::pair< iterator, iterator > **equal_range** (const key_type &__x)
- iterator **erase** (iterator __first, iterator __last)
- size_type **erase** (const key_type &__x)
- iterator **erase** (iterator __position)
- const_iterator **find** (const key_type &__x) const
- iterator **find** (const key_type &__x)
- void **insert** (initializer_list< value_type > __l)
- template<typename _InputIterator >
  void **insert** (_InputIterator __first, _InputIterator __last)
- iterator **insert** (iterator __position, const value_type &__x)
- std::pair< iterator, bool > **insert** (const value_type &__x)
- const_iterator **lower_bound** (const key_type &__x) const
- iterator **lower_bound** (const key_type &__x)
- set & **operator=** (initializer_list< value_type > __l)

- set & **operator=** (set &&__x)
- set & **operator=** (const set &__x)
- const_reverse_iterator **rbegin** () const
- reverse_iterator **rbegin** ()
- const_reverse_iterator **rend** () const
- reverse_iterator **rend** ()
- void **swap** (set &__x)
- const_iterator **upper_bound** (const key_type &__x) const
- iterator **upper_bound** (const key_type &__x)

Public Attributes

- _Safe_iterator_base * _M_const_iterators
- _Safe_iterator_base * _M_iterators
- unsigned int _M_version

Protected Member Functions

- void _M_detach_all ()
- void _M_detach_singular ()
- __gnu_cxx::__mutex & _M_get_mutex () throw ()
- void _M_revalidate_singular ()
- void _M_swap (_Safe_sequence_base &__x)

5.248.1 Detailed Description

template<typename _Key, typename _Compare = std::less<_Key>, typename _Allocator = std::allocator<_Key>> class std::__debug::set< _Key, _Compare, _Allocator >

Class std::set with safety/checking/debug instrumentation.

Definition at line 44 of file debug/set.h.

5.248.2 Member Function Documentation

5.248.2.1 void __gnu_debug::_Safe_sequence_base::_M_detach_all () [protected, inherited]

Detach all iterators, leaving them singular.

5.248.2.2 void __gnu_debug::_Safe_sequence_base::_M_detach_singular () [protected, inherited]

Detach all singular iterators.

Postcondition:

for all iterators i attached to this sequence, i->_M_version == _M_version.

5.248.2.3 __gnu_cxx::__mutex& __gnu_debug::_Safe_sequence_base::_M_get_mutex () throw () [protected, inherited]

For use in _Safe_sequence.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.248.2.4 void __gnu_debug::_Safe_sequence_base::_M_invalidate_all () const [inline, inherited]

Invalidates all iterators.

Definition at line 215 of file safe_base.h.

Referenced by __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::append(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::assign(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::c_str(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::clear(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::data(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator+=(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator=(), and __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::push_back().

5.248.2.5 void __gnu_debug::_Safe_sequence< set< _Key, _Compare, _Allocator > >::_M_invalidate_if (_Predicate *__pred*) [inline, inherited]

Invalidates all iterators `x` that reference this sequence, are not singular, and for which `pred(x)` returns `true`. The user of this routine should be careful not to make copies of the iterators passed to `pred`, as the copies may interfere with the invalidation.

5.248.2.6 void __gnu_debug::_Safe_sequence_base::_M_revalidate_singular () [protected, inherited]

Revalidates all attached singular iterators. This method may be used to validate iterators that were invalidated before (but for some reason, such as an exception, need to become valid again).

5.248.2.7 void __gnu_debug::_Safe_sequence_base::_M_swap (_Safe_sequence_base & __x) [protected, inherited]

Swap this sequence with the given sequence. This operation also swaps ownership of the iterators, so that when the operation is complete all iterators that originally referenced one container now reference the other container.

5.248.2.8 void __gnu_debug::_Safe_sequence< set< _Key, _Compare, _Allocator > >::_M_transfer_iter (const _Safe_iterator< _Iterator, set< _Key, _Compare, _Allocator > > & __x) [inline, inherited]

Transfers all iterators that reference this memory location to this sequence from whatever sequence they are attached to.

5.248.3 Member Data Documentation

5.248.3.1 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_const_iterators [inherited]

The list of constant iterators that reference this container.

Definition at line 166 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.248.3.2 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_iterators [inherited]

The list of mutable iterators that reference this container.

Definition at line 163 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.248.3.3 unsigned int __gnu_debug::_Safe_sequence_base::_M_version [mutable, inherited]

The container version number. This number may never be 0.

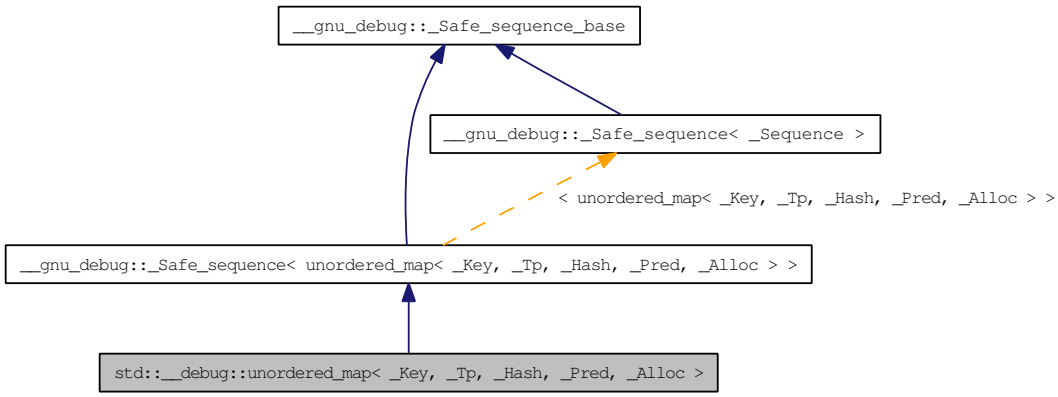
Definition at line 169 of file safe_base.h.

The documentation for this class was generated from the following file:

- debug/set.h

5.249 std::__debug::unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc > Class Template Reference

Class std::unordered_map with safety/checking/debug instrumentation. Inheritance diagram for std::__debug::unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc >:



Public Types

- typedef _Base::allocator_type **allocator_type**
- typedef __gnu_debug::_Safe_iterator< typename _Base::const_iterator, unordered_map > **const_iterator**
- typedef _Base::hasher **hasher**
- typedef __gnu_debug::_Safe_iterator< typename _Base::iterator, unordered_map > **iterator**
- typedef _Base::key_equal **key_equal**
- typedef _Base::key_type **key_type**
- typedef _Base::size_type **size_type**
- typedef _Base::value_type **value_type**

Public Member Functions

- **unordered_map** (initializer_list< value_type > __l, size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- **unordered_map** (unordered_map &&__x)
- **unordered_map** (const _Base &__x)
- **unordered_map** (const unordered_map &__x)

- template<typename _InputIterator >
  unordered_map (_InputIterator __f, _InputIterator __l, size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- **unordered_map** (size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- const _Base & **_M_base** () const
- _Base & **_M_base** ()
- void _M_invalidate_all () const
- void _M_invalidate_if (_Predicate __pred)
- void _M_transfer_iter (const _Safe_iterator< _Iterator, unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc > > &__x)
- const_iterator **begin** () const
- iterator **begin** ()
- const_iterator **cbegin** () const
- const_iterator **cend** () const
- void **clear** ()
- const_iterator **end** () const
- iterator **end** ()
- std::pair< const_iterator, const_iterator > **equal_range** (const key_type &__key) const
- std::pair< iterator, iterator > **equal_range** (const key_type &__key)
- iterator **erase** (const_iterator __first, const_iterator __last)
- iterator **erase** (const_iterator __it)
- size_type **erase** (const key_type &__key)
- const_iterator **find** (const key_type &__key) const
- iterator **find** (const key_type &__key)
- template<typename _InputIterator >
  void **insert** (_InputIterator __first, _InputIterator __last)
- void **insert** (std::initializer_list< value_type > __l)
- iterator **insert** (const_iterator, const value_type &__obj)
- std::pair< iterator, bool > **insert** (const value_type &__obj)
- unordered_map & **operator=** (initializer_list< value_type > __l)
- unordered_map & **operator=** (unordered_map &&__x)
- unordered_map & **operator=** (const unordered_map &__x)
- void **swap** (unordered_map &__x)

Public Attributes

- _Safe_iterator_base * _M_const_iterators
- _Safe_iterator_base * _M_iterators
- unsigned int _M_version

Protected Member Functions

- void _M_detach_all ()
- void _M_detach_singular ()
- __gnu_cxx::__mutex & _M_get_mutex () throw ()
- void _M_revalidate_singular ()
- void _M_swap (_Safe_sequence_base &__x)

5.249.1 Detailed Description

template<typename _Key, typename _Tp, typename _Hash = std::hash<_Key>, typename _Pred = std::equal_to<_Key>, typename _Alloc = std::allocator<_-Key>> class std::__debug::unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc >

Class std::unordered_map with safety/checking/debug instrumentation.

Definition at line 52 of file debug/unordered_map.

5.249.2 Member Function Documentation

5.249.2.1 void __gnu_debug::_Safe_sequence_base::_M_detach_all () [protected, inherited]

Detach all iterators, leaving them singular.

5.249.2.2 void __gnu_debug::_Safe_sequence_base::_M_detach_singular () [protected, inherited]

Detach all singular iterators.

Postcondition:

for all iterators i attached to this sequence, i->_M_version == _M_version.

5.249.2.3 __gnu_cxx::__mutex& __gnu_debug::_Safe_sequence_-base::_M_get_mutex () throw () [protected, inherited]

For use in _Safe_sequence.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.249.2.4 void __gnu_debug::_Safe_sequence_base::_M_invalidate_all () const [inline, inherited]

Invalidates all iterators.

Definition at line 215 of file safe_base.h.

Referenced by __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::append(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::assign(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::c_str(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::clear(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::data(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator+=(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator=(), and __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::push_back().

5.249.2.5 void __gnu_debug::_Safe_sequence< unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc > >::_M_invalidate_if (_Predicate *__pred*) [inline, inherited]

Invalidates all iterators `x` that reference this sequence, are not singular, and for which `pred(x)` returns `true`. The user of this routine should be careful not to make copies of the iterators passed to `pred`, as the copies may interfere with the invalidation.

5.249.2.6 void __gnu_debug::_Safe_sequence_base::_M_revalidate_singular () [protected, inherited]

Revalidates all attached singular iterators. This method may be used to validate iterators that were invalidated before (but for some reason, such as an exception, need to become valid again).

5.249.2.7 void __gnu_debug::_Safe_sequence_base::_M_swap (_Safe_sequence_base & *__x*) [protected, inherited]

Swap this sequence with the given sequence. This operation also swaps ownership of the iterators, so that when the operation is complete all iterators that originally referenced one container now reference the other container.

5.249.2.8 void __gnu_debug::_Safe_sequence< unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc > >::_M_transfer_iter (const _Safe_iterator< _Iterator, unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc > > & __x) [inline, inherited]

Transfers all iterators that reference this memory location to this sequence from whatever sequence they are attached to.

5.249.3 Member Data Documentation

5.249.3.1 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_const_iterators [inherited]

The list of constant iterators that reference this container.

Definition at line 166 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.249.3.2 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_iterators [inherited]

The list of mutable iterators that reference this container.

Definition at line 163 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.249.3.3 unsigned int __gnu_debug::_Safe_sequence_base::_M_version [mutable, inherited]

The container version number. This number may never be 0.

Definition at line 169 of file safe_base.h.

The documentation for this class was generated from the following file:

- debug/unordered_map

5.250 std::__debug::unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc > Class Template Reference

Class std::unordered_multimap with safety/checking/debug instrumentation. Inheritance diagram for std::__debug::unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc >:

Public Types

- typedef _Base::allocator_type **allocator_type**
- typedef __gnu_debug::_Safe_iterator< typename _Base::const_iterator, unordered_multimap > **const_iterator**
- typedef _Base::hasher **hasher**
- typedef __gnu_debug::_Safe_iterator< typename _Base::iterator, unordered_multimap > **iterator**
- typedef _Base::key_equal **key_equal**
- typedef _Base::key_type **key_type**
- typedef _Base::size_type **size_type**
- typedef _Base::value_type **value_type**

Public Member Functions

- **unordered_multimap** (initializer_list< value_type > __l, size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- **unordered_multimap** (unordered_multimap &&__x)
- **unordered_multimap** (const _Base &__x)
- **unordered_multimap** (const unordered_multimap &__x)
- template<typename _InputIterator >
  unordered_multimap (_InputIterator __f, _InputIterator __l, size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- **unordered_multimap** (size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- const _Base & **_M_base** () const
- _Base & **_M_base** ()
- void _M_invalidate_all () const
- void _M_invalidate_if (_Predicate __pred)

- void _M_transfer_iter (const _Safe_iterator< _Iterator, unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc > > &__x)
- const_iterator **begin** () const
- iterator **begin** ()
- const_iterator **cbegin** () const
- const_iterator **cend** () const
- void **clear** ()
- const_iterator **end** () const
- iterator **end** ()
- std::pair< const_iterator, const_iterator > **equal_range** (const key_type &__key) const
- std::pair< iterator, iterator > **equal_range** (const key_type &__key)
- iterator **erase** (const_iterator __first, const_iterator __last)
- iterator **erase** (const_iterator __it)
- size_type **erase** (const key_type &__key)
- const_iterator **find** (const key_type &__key) const
- iterator **find** (const key_type &__key)
- template<typename _InputIterator >
  void **insert** (_InputIterator __first, _InputIterator __last)
- void **insert** (std::initializer_list< value_type > __l)
- iterator **insert** (const_iterator, const value_type &__obj)
- iterator **insert** (const value_type &__obj)
- unordered_multimap & **operator=** (initializer_list< value_type > __l)
- unordered_multimap & **operator=** (unordered_multimap &&__x)
- unordered_multimap & **operator=** (const unordered_multimap &__x)
- void **swap** (unordered_multimap &__x)

Public Attributes

- _Safe_iterator_base * _M_const_iterators
- _Safe_iterator_base * _M_iterators
- unsigned int _M_version

Protected Member Functions

- void _M_detach_all ()
- void _M_detach_singular ()
- __gnu_cxx::__mutex & _M_get_mutex () throw ()
- void _M_revalidate_singular ()
- void _M_swap (_Safe_sequence_base &__x)

5.250.1 Detailed Description

template<typename _Key, typename _Tp, typename _Hash = std::hash<_Key>, typename _Pred = std::equal_to<_Key>, typename _Alloc = std::allocator<_Key>> class std::__debug::unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc >

Class std::unordered_multimap with safety/checking/debug instrumentation.

Definition at line 296 of file debug/unordered_map.

5.250.2 Member Function Documentation

5.250.2.1 void __gnu_debug::_Safe_sequence_base::_M_detach_all () [protected, inherited]

Detach all iterators, leaving them singular.

5.250.2.2 void __gnu_debug::_Safe_sequence_base::_M_detach_singular () [protected, inherited]

Detach all singular iterators.

Postcondition:

for all iterators i attached to this sequence, i->_M_version == _M_version.

5.250.2.3 __gnu_cxx::__mutex& __gnu_debug::_Safe_sequence_base::_M_get_mutex () throw () [protected, inherited]

For use in _Safe_sequence.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.250.2.4 void __gnu_debug::_Safe_sequence_base::_M_invalidate_all () const [inline, inherited]

Invalidates all iterators.

Definition at line 215 of file safe_base.h.

Referenced by __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::append(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::assign(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::c_str(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::clear(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::data(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator+=(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator=(), and __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::push_back().

5.250.2.5 void __gnu_debug::_Safe_sequence< unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc > >::_M_invalidate_if (_Predicate __*pred*) [inline, inherited]

Invalidates all iterators `x` that reference this sequence, are not singular, and for which `pred(x)` returns `true`. The user of this routine should be careful not to make copies of the iterators passed to `pred`, as the copies may interfere with the invalidation.

5.250.2.6 void __gnu_debug::_Safe_sequence_base::_M_revalidate_singular () [protected, inherited]

Revalidates all attached singular iterators. This method may be used to validate iterators that were invalidated before (but for some reason, such as an exception, need to become valid again).

5.250.2.7 void __gnu_debug::_Safe_sequence_base::_M_swap (_Safe_sequence_base & __*x*) [protected, inherited]

Swap this sequence with the given sequence. This operation also swaps ownership of the iterators, so that when the operation is complete all iterators that originally referenced one container now reference the other container.

5.250.2.8 void __gnu_debug::_Safe_sequence< unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc > >::_M_transfer_iter (const _Safe_iterator< _Iterator, unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc > > & __*x*) [inline, inherited]

Transfers all iterators that reference this memory location to this sequence from whatever sequence they are attached to.

5.250.3 Member Data Documentation

5.250.3.1 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_const_iterators [inherited]

The list of constant iterators that reference this container.

Definition at line 166 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.250.3.2 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_iterators [inherited]

The list of mutable iterators that reference this container.

Definition at line 163 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.250.3.3 unsigned int __gnu_debug::_Safe_sequence_base::_M_version [mutable, inherited]

The container version number. This number may never be 0.

Definition at line 169 of file safe_base.h.

The documentation for this class was generated from the following file:

- debug/unordered_map

5.251 std::__debug::unordered_multiset< _Value, _Hash, _Pred, _Alloc > Class Template Reference

Class std::unordered_multiset with safety/checking/debug instrumentation. Inheritance diagram for std::__debug::unordered_multiset< _Value, _Hash, _Pred, _Alloc >:

Public Types

- typedef _Base::allocator_type **allocator_type**
- typedef __gnu_debug::_Safe_iterator< typename _Base::const_iterator, unordered_multiset > **const_iterator**
- typedef _Base::hasher **hasher**
- typedef __gnu_debug::_Safe_iterator< typename _Base::iterator, unordered_multiset > **iterator**
- typedef _Base::key_equal **key_equal**
- typedef _Base::key_type **key_type**
- typedef _Base::size_type **size_type**
- typedef _Base::value_type **value_type**

Public Member Functions

- **unordered_multiset** (initializer_list< value_type > __l, size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- **unordered_multiset** (unordered_multiset &&__x)
- **unordered_multiset** (const _Base &__x)
- **unordered_multiset** (const unordered_multiset &__x)
- template<typename _InputIterator >
  unordered_multiset (_InputIterator __f, _InputIterator __l, size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- **unordered_multiset** (size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- const _Base & **_M_base** () const
- _Base & **_M_base** ()
- void _M_invalidate_all () const
- void _M_invalidate_if (_Predicate __pred)
- void _M_transfer_iter (const _Safe_iterator< _Iterator, unordered_multiset< _Value, _Hash, _Pred, _Alloc > > &__x)

- const_iterator **begin** () const
- iterator **begin** ()
- const_iterator **cbegin** () const
- const_iterator **cend** () const
- void **clear** ()
- const_iterator **end** () const
- iterator **end** ()
- std::pair< const_iterator, const_iterator > **equal_range** (const key_type &__key) const
- std::pair< iterator, iterator > **equal_range** (const key_type &__key)
- iterator **erase** (const_iterator __first, const_iterator __last)
- iterator **erase** (const_iterator __it)
- size_type **erase** (const key_type &__key)
- const_iterator **find** (const key_type &__key) const
- iterator **find** (const key_type &__key)
- template<typename _InputIterator >
  void **insert** (_InputIterator __first, _InputIterator __last)
- void **insert** (std::initializer_list< value_type > __l)
- iterator **insert** (const_iterator, const value_type &__obj)
- iterator **insert** (const value_type &__obj)
- unordered_multiset & **operator=** (initializer_list< value_type > __l)
- unordered_multiset & **operator=** (unordered_multiset &&__x)
- unordered_multiset & **operator=** (const unordered_multiset &__x)
- void **swap** (unordered_multiset &__x)

Public Attributes

- _Safe_iterator_base * _M_const_iterators
- _Safe_iterator_base * _M_iterators
- unsigned int _M_version

Protected Member Functions

- void _M_detach_all ()
- void _M_detach_singular ()
- __gnu_cxx::__mutex & _M_get_mutex () throw ()
- void _M_revalidate_singular ()
- void _M_swap (_Safe_sequence_base &__x)

5.251.1 Detailed Description

template<typename _Value, typename _Hash = std::hash<_Value>, typename _Pred = std::equal_to<_Value>, typename _Alloc = std::allocator<_Value>> class std::__debug::unordered_multiset< _Value, _Hash, _Pred, _Alloc >

Class std::unordered_multiset with safety/checking/debug instrumentation.

Definition at line 295 of file debug/unordered_set.

5.251.2 Member Function Documentation

5.251.2.1 void __gnu_debug::_Safe_sequence_base::_M_detach_all () [protected, inherited]

Detach all iterators, leaving them singular.

5.251.2.2 void __gnu_debug::_Safe_sequence_base::_M_detach_singular () [protected, inherited]

Detach all singular iterators.

Postcondition:

for all iterators i attached to this sequence, i->_M_version == _M_version.

5.251.2.3 __gnu_cxx::__mutex& __gnu_debug::_Safe_sequence_base::_M_get_mutex () throw () [protected, inherited]

For use in _Safe_sequence.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.251.2.4 void __gnu_debug::_Safe_sequence_base::_M_invalidate_all () const [inline, inherited]

Invalidates all iterators.

Definition at line 215 of file safe_base.h.

Referenced by __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::append(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::assign(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::c_str(), __gnu_debug::basic_-

string< _CharT, _Traits, _Allocator >::clear(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::data(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator+=(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator=(), and __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::push_back().

5.251.2.5 void __gnu_debug::_Safe_sequence< unordered_multiset< _Value, _Hash, _Pred, _Alloc > >::_M_invalidate_if (_Predicate __*pred*) [inline, inherited]

Invalidates all iterators `x` that reference this sequence, are not singular, and for which `pred(x)` returns `true`. The user of this routine should be careful not to make copies of the iterators passed to `pred`, as the copies may interfere with the invalidation.

5.251.2.6 void __gnu_debug::_Safe_sequence_base::_M_revalidate_singular () [protected, inherited]

Revalidates all attached singular iterators. This method may be used to validate iterators that were invalidated before (but for some reason, such as an exception, need to become valid again).

5.251.2.7 void __gnu_debug::_Safe_sequence_base::_M_swap (_Safe_sequence_base & __*x*) [protected, inherited]

Swap this sequence with the given sequence. This operation also swaps ownership of the iterators, so that when the operation is complete all iterators that originally referenced one container now reference the other container.

5.251.2.8 void __gnu_debug::_Safe_sequence< unordered_multiset< _Value, _Hash, _Pred, _Alloc > >::_M_transfer_iter (const _Safe_iterator< _Iterator, unordered_multiset< _Value, _Hash, _Pred, _Alloc > > & __*x*) [inline, inherited]

Transfers all iterators that reference this memory location to this sequence from whatever sequence they are attached to.

5.251.3 Member Data Documentation

5.251.3.1 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_const_iterators [inherited]

The list of constant iterators that reference this container.

Definition at line 166 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), _-_gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and _-_gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.251.3.2 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_-iterators [inherited]

The list of mutable iterators that reference this container.

Definition at line 163 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), _-_gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and _-_gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.251.3.3 unsigned int __gnu_debug::_Safe_sequence_base::_M_version [mutable, inherited]

The container version number. This number may never be 0.

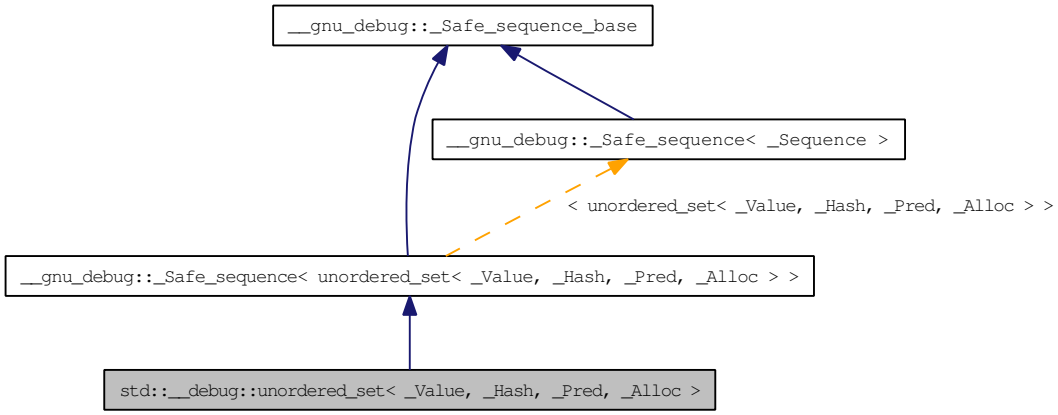
Definition at line 169 of file safe_base.h.

The documentation for this class was generated from the following file:

- debug/unordered_set

5.252 std::__debug::unordered_set< _Value, _Hash, _Pred, _Alloc > Class Template Reference

Class std::unordered_set with safety/checking/debug instrumentation. Inheritance diagram for std::__debug::unordered_set< _Value, _Hash, _Pred, _Alloc >:



Public Types

- typedef _Base::allocator_type **allocator_type**
- typedef __gnu_debug::_Safe_iterator< typename _Base::const_iterator, unordered_set > **const_iterator**
- typedef _Base::hasher **hasher**
- typedef __gnu_debug::_Safe_iterator< typename _Base::iterator, unordered_set > **iterator**
- typedef _Base::key_equal **key_equal**
- typedef _Base::key_type **key_type**
- typedef _Base::size_type **size_type**
- typedef _Base::value_type **value_type**

Public Member Functions

- **unordered_set** (initializer_list< value_type > __l, size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- **unordered_set** (unordered_set &&__x)
- **unordered_set** (const _Base &__x)
- **unordered_set** (const unordered_set &__x)

- template<typename _InputIterator >
  unordered_set (_InputIterator __f, _InputIterator __l, size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- **unordered_set** (size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- const _Base & **_M_base** () const
- _Base & **_M_base** ()
- void _M_invalidate_all () const
- void _M_invalidate_if (_Predicate __pred)
- void _M_transfer_iter (const _Safe_iterator< _Iterator, unordered_set< _Value, _Hash, _Pred, _Alloc > > &__x)
- const_iterator **begin** () const
- iterator **begin** ()
- const_iterator **cbegin** () const
- const_iterator **cend** () const
- void **clear** ()
- const_iterator **end** () const
- iterator **end** ()
- std::pair< const_iterator, const_iterator > **equal_range** (const key_type &__key) const
- std::pair< iterator, iterator > **equal_range** (const key_type &__key)
- iterator **erase** (const_iterator __first, const_iterator __last)
- iterator **erase** (const_iterator __it)
- size_type **erase** (const key_type &__key)
- const_iterator **find** (const key_type &__key) const
- iterator **find** (const key_type &__key)
- template<typename _InputIterator >
  void **insert** (_InputIterator __first, _InputIterator __last)
- void **insert** (std::initializer_list< value_type > __l)
- iterator **insert** (const_iterator, const value_type &__obj)
- std::pair< iterator, bool > **insert** (const value_type &__obj)
- unordered_set & **operator=** (initializer_list< value_type > __l)
- unordered_set & **operator=** (unordered_set &&__x)
- unordered_set & **operator=** (const unordered_set &__x)
- void **swap** (unordered_set &__x)

Public Attributes

- _Safe_iterator_base * _M_const_iterators
- _Safe_iterator_base * _M_iterators
- unsigned int _M_version

Protected Member Functions

- void _M_detach_all ()
- void _M_detach_singular ()
- __gnu_cxx::__mutex & _M_get_mutex () throw ()
- void _M_revalidate_singular ()
- void _M_swap (_Safe_sequence_base &__x)

5.252.1 Detailed Description

template<typename _Value, typename _Hash = std::hash<_Value>, typename _Pred = std::equal_to<_Value>, typename _Alloc = std::allocator<_Value>> class std::__debug::unordered_set< _Value, _Hash, _Pred, _Alloc >

Class std::unordered_set with safety/checking/debug instrumentation.

Definition at line 52 of file debug/unordered_set.

5.252.2 Member Function Documentation

5.252.2.1 void __gnu_debug::_Safe_sequence_base::_M_detach_all () [protected, inherited]

Detach all iterators, leaving them singular.

5.252.2.2 void __gnu_debug::_Safe_sequence_base::_M_detach_singular () [protected, inherited]

Detach all singular iterators.

Postcondition:

for all iterators i attached to this sequence, i->_M_version == _M_version.

5.252.2.3 __gnu_cxx::__mutex& __gnu_debug::_Safe_sequence_base::_M_get_mutex () throw () [protected, inherited]

For use in _Safe_sequence.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.252.2.4 void __gnu_debug::_Safe_sequence_base::_M_invalidate_all () const [inline, inherited]

Invalidates all iterators.

Definition at line 215 of file safe_base.h.

Referenced by __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::append(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::assign(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::c_str(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::clear(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::data(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator+=(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator=(), and __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::push_back().

5.252.2.5 void __gnu_debug::_Safe_sequence< unordered_set< _Value, _Hash, _Pred, _Alloc > >::_M_invalidate_if (_Predicate *__pred*) [inline, inherited]

Invalidates all iterators `x` that reference this sequence, are not singular, and for which `pred(x)` returns `true`. The user of this routine should be careful not to make copies of the iterators passed to `pred`, as the copies may interfere with the invalidation.

5.252.2.6 void __gnu_debug::_Safe_sequence_base::_M_revalidate_singular () [protected, inherited]

Revalidates all attached singular iterators. This method may be used to validate iterators that were invalidated before (but for some reason, such as an exception, need to become valid again).

5.252.2.7 void __gnu_debug::_Safe_sequence_base::_M_swap (_Safe_sequence_base & *__x*) [protected, inherited]

Swap this sequence with the given sequence. This operation also swaps ownership of the iterators, so that when the operation is complete all iterators that originally referenced one container now reference the other container.

5.252.2.8 void __gnu_debug::_Safe_sequence< unordered_set< _Value, _Hash, _Pred, _Alloc > >::_M_transfer_iter (const _Safe_iterator< _Iterator, unordered_set< _Value, _Hash, _Pred, _Alloc > > & __x) [inline, inherited]

Transfers all iterators that reference this memory location to this sequence from whatever sequence they are attached to.

5.252.3 Member Data Documentation

5.252.3.1 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_const_iterators [inherited]

The list of constant iterators that reference this container.

Definition at line 166 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.252.3.2 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_iterators [inherited]

The list of mutable iterators that reference this container.

Definition at line 163 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.252.3.3 unsigned int __gnu_debug::_Safe_sequence_base::_M_version [mutable, inherited]

The container version number. This number may never be 0.

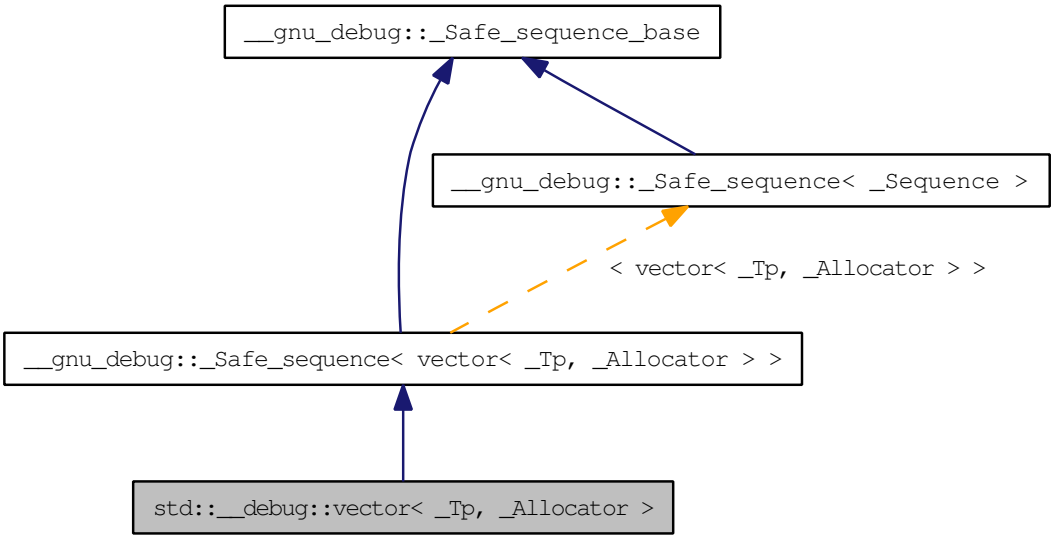
Definition at line 169 of file safe_base.h.

The documentation for this class was generated from the following file:

- debug/unordered_set

5.253 std::__debug::vector< _Tp, _Allocator > Class Template Reference

Class std::vector with safety/checking/debug instrumentation. Inheritance diagram for std::__debug::vector< _Tp, _Allocator >:



Public Types

- typedef _Allocator **allocator_type**
- typedef __gnu_debug::_Safe_iterator< typename _Base::const_iterator, vector > **const_iterator**
- typedef _Base::const_pointer **const_pointer**
- typedef _Base::const_reference **const_reference**
- typedef std::reverse_iterator< const_iterator > **const_reverse_iterator**
- typedef _Base::difference_type **difference_type**
- typedef __gnu_debug::_Safe_iterator< typename _Base::iterator, vector > **iterator**
- typedef _Base::pointer **pointer**
- typedef _Base::reference **reference**
- typedef std::reverse_iterator< iterator > **reverse_iterator**
- typedef _Base::size_type **size_type**
- typedef _Tp **value_type**

Public Member Functions

- **vector** (initializer_list< value_type > __l, const allocator_type &__a=allocator_type())
- **vector** (vector &&__x)
- vector (const _Base &__x)
- **vector** (const vector &__x)
- template<class _InputIterator >
  vector (_InputIterator __first, _InputIterator __last, const _Allocator &__a=_Allocator())
- **vector** (size_type __n, const _Tp &__value=_Tp(), const _Allocator &__a=_Allocator())
- **vector** (const _Allocator &__a=_Allocator())
- const _Base & **_M_base** () const
- _Base & **_M_base** ()
- void _M_invalidate_all () const
- void _M_invalidate_if (_Predicate __pred)
- void _M_transfer_iter (const _Safe_iterator< _Iterator, vector< _Tp, _Allocator > > &__x)
- void **assign** (initializer_list< value_type > __l)
- void **assign** (size_type __n, const _Tp &__u)
- template<typename _InputIterator >
  void **assign** (_InputIterator __first, _InputIterator __last)
- const_reference **back** () const
- reference **back** ()
- const_iterator **begin** () const
- iterator **begin** ()
- size_type **capacity** () const
- const_iterator **cbegin** () const
- const_iterator **cend** () const
- void **clear** ()
- const_reverse_iterator **crbegin** () const
- const_reverse_iterator **crend** () const
- template<typename... _Args>
  iterator **emplace** (iterator __position, _Args &&...__args)
- template<typename... _Args>
  void **emplace_back** (_Args &&...__args)
- const_iterator **end** () const
- iterator **end** ()
- iterator **erase** (iterator __first, iterator __last)
- iterator **erase** (iterator __position)
- const_reference **front** () const
- reference **front** ()

- template<class _InputIterator >
  void **insert** (iterator __position, _InputIterator __first, _InputIterator __last)
- void **insert** (iterator __position, size_type __n, const _Tp &__x)
- void **insert** (iterator __position, initializer_list< value_type > __l)
- template<typename _Up = _Tp>
  __gnu_cxx::__enable_if<!std::__are_same< _Up, bool >::__value, iterator >::__type **insert** (iterator __position, _Tp &&__x)
- iterator **insert** (iterator __position, const _Tp &__x)
- vector & **operator=** (initializer_list< value_type > __l)
- vector & **operator=** (vector &&__x)
- vector & **operator=** (const vector &__x)
- const_reference **operator[ ]** (size_type __n) const
- reference **operator[ ]** (size_type __n)
- void **pop_back** ()
- template<typename _Up = _Tp>
  __gnu_cxx::__enable_if<!std::__are_same< _Up, bool >::__value, void >::_-_type **push_back** (_Tp &&__x)
- void **push_back** (const _Tp &__x)
- const_reverse_iterator **rbegin** () const
- reverse_iterator **rbegin** ()
- const_reverse_iterator **rend** () const
- reverse_iterator **rend** ()
- void **reserve** (size_type __n)
- void **resize** (size_type __sz, _Tp __c=_Tp())
- void **swap** (vector &__x)

Public Attributes

- _Safe_iterator_base * _M_const_iterators
- _Safe_iterator_base * _M_iterators
- unsigned int _M_version

Protected Member Functions

- void _M_detach_all ()
- void _M_detach_singular ()
- __gnu_cxx::__mutex & _M_get_mutex () throw ()
- void _M_revalidate_singular ()
- void _M_swap (_Safe_sequence_base &__x)

5.253.1 Detailed Description

template<typename _Tp, typename _Allocator = std::allocator<_Tp>> class std::__debug::vector< _Tp, _Allocator >

Class std::vector with safety/checking/debug instrumentation.

Definition at line 45 of file debug/vector.

5.253.2 Constructor & Destructor Documentation

5.253.2.1 template<typename _Tp, typename _Allocator = std::allocator<_Tp>> std::__debug::vector< _Tp, _Allocator >::vector (const _Base & *__x*) [inline]

Construction from a release-mode vector.

Definition at line 94 of file debug/vector.

5.253.3 Member Function Documentation

5.253.3.1 void __gnu_debug::_Safe_sequence_base::_M_detach_all () [protected, inherited]

Detach all iterators, leaving them singular.

5.253.3.2 void __gnu_debug::_Safe_sequence_base::_M_detach_singular () [protected, inherited]

Detach all singular iterators.

Postcondition:

for all iterators i attached to this sequence, i->_M_version == _M_version.

5.253.3.3 __gnu_cxx::__mutex& __gnu_debug::_Safe_sequence_base::_M_get_mutex () throw () [protected, inherited]

For use in _Safe_sequence.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.253.3.4 void __gnu_debug::_Safe_sequence_base::_M_invalidate_all () const [inline, inherited]

Invalidates all iterators.

Definition at line 215 of file safe_base.h.

Referenced by __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::append(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::assign(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::c_str(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::clear(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::data(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator+=(), __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::operator=(), and __gnu_debug::basic_string< _CharT, _Traits, _Allocator >::push_back().

5.253.3.5 void __gnu_debug::_Safe_sequence< vector< _Tp, _Allocator > >::_M_invalidate_if (_Predicate __*pred*) [inline, inherited]

Invalidates all iterators `x` that reference this sequence, are not singular, and for which `pred(x)` returns `true`. The user of this routine should be careful not to make copies of the iterators passed to `pred`, as the copies may interfere with the invalidation.

5.253.3.6 void __gnu_debug::_Safe_sequence_base::_M_revalidate_singular () [protected, inherited]

Revalidates all attached singular iterators. This method may be used to validate iterators that were invalidated before (but for some reason, such as an exception, need to become valid again).

5.253.3.7 void __gnu_debug::_Safe_sequence_base::_M_swap (_Safe_sequence_base & __*x*) [protected, inherited]

Swap this sequence with the given sequence. This operation also swaps ownership of the iterators, so that when the operation is complete all iterators that originally referenced one container now reference the other container.

5.253.3.8 void __gnu_debug::_Safe_sequence< vector< _Tp, _Allocator > >::_M_transfer_iter (const _Safe_iterator< _Iterator, vector< _Tp, _Allocator > > & __*x*) [inline, inherited]

Transfers all iterators that reference this memory location to this sequence from whatever sequence they are attached to.

5.253.4 Member Data Documentation

5.253.4.1 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_const_iterators [inherited]

The list of constant iterators that reference this container.

Definition at line 166 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.253.4.2 _Safe_iterator_base* __gnu_debug::_Safe_sequence_base::_M_iterators [inherited]

The list of mutable iterators that reference this container.

Definition at line 163 of file safe_base.h.

Referenced by __gnu_debug::_Safe_sequence< _Sequence >::_M_invalidate_if(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_M_invalidate_single(), and __gnu_debug::_Safe_sequence< _Sequence >::_M_transfer_iter().

5.253.4.3 unsigned int __gnu_debug::_Safe_sequence_base::_M_version [mutable, inherited]

The container version number. This number may never be 0.

Definition at line 169 of file safe_base.h.

The documentation for this class was generated from the following file:

- debug/vector

5.254 std::__declval_protector< _Tp > Struct Template Reference

declval

Static Public Member Functions

- static add_rvalue_reference< _Tp >::type **__delegate** ()

Static Public Attributes

- static const bool **__stop**

5.254.1 Detailed Description

template<typename _Tp> struct std::__declval_protector< _Tp >

declval

Definition at line 616 of file type_traits.

The documentation for this struct was generated from the following file:

- type_traits

5.255 std::__exception_ptr::exception_ptr Class Reference

An opaque pointer to an arbitrary exception.

Public Types

- typedef void(exception_ptr::* **__safe_bool**)()

Public Member Functions

- **exception_ptr** (exception_ptr &&__o) throw ()
- **exception_ptr** (const exception_ptr &) throw ()
- **exception_ptr** (__safe_bool) throw ()
- const type_info * **__cxa_exception_type** () const __attribute__((__pure__)) throw ()
- exception_ptr & **operator=** (exception_ptr &&__o) throw ()
- exception_ptr & **operator=** (const exception_ptr &) throw ()
- void **swap** (exception_ptr &) throw ()

Friends

- bool **operator==** (const exception_ptr &, const exception_ptr &) __attribute__((__pure__)) throw ()
- exception_ptr **std::current_exception** () throw ()
- void **std::rethrow_exception** (exception_ptr)

5.255.1 Detailed Description

An opaque pointer to an arbitrary exception.

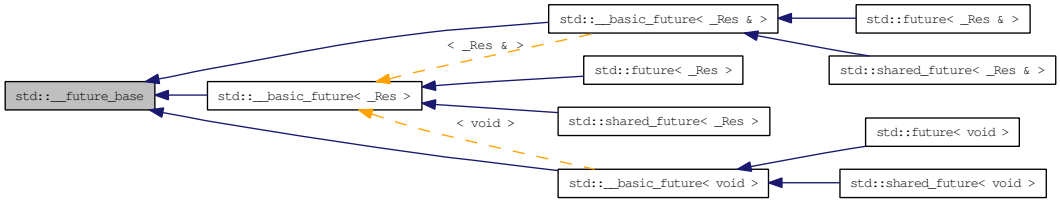
Definition at line 73 of file exception_ptr.h.

The documentation for this class was generated from the following file:

- exception_ptr.h

5.256 std::__future_base Struct Reference

Base class and enclosing scope. Inheritance diagram for std::__future_base:



Classes

- struct _Ptr

  A unique_ptr based on the instantiating type.

- struct _Result

  Result.

- struct _Result< _Res & >

  Partial specialization for reference types.

- struct _Result< void >

  Explicit specialization for void.

- struct _Result_base

  Base class for results.

- class _State

  Shared state between a promise and one or more associated futures.

5.256.1 Detailed Description

Base class and enclosing scope.

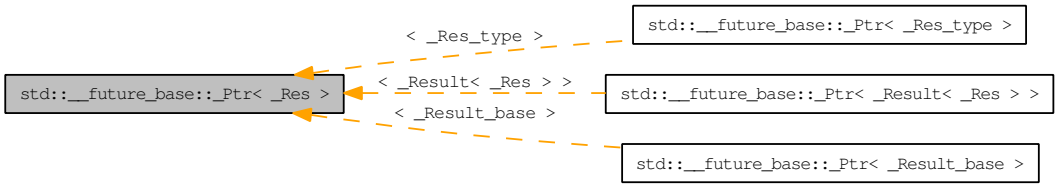
Definition at line 136 of file future.

The documentation for this struct was generated from the following file:

- future

5.257 std::__future_base::_Ptr< _Res > Struct Template Reference

A unique_ptr based on the instantiating type. Inheritance diagram for std::__future_base::_Ptr< _Res >:



Public Types

- typedef unique_ptr< _Res, _Result_base::_Deleter > **type**

5.257.1 Detailed Description

template<typename _Res> struct std::__future_base::_Ptr< _Res >

A unique_ptr based on the instantiating type.

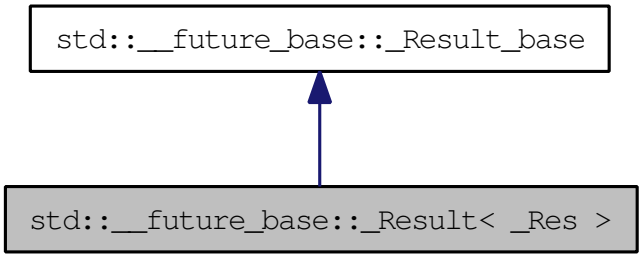
Definition at line 211 of file future.

The documentation for this struct was generated from the following file:

- future

5.258 std::__future_base::_Result< _Res > Struct Template Reference

Result. Inheritance diagram for std::__future_base::_Result< _Res >:



Public Member Functions

- void **_M_set** (_Res &&__res)
- void **_M_set** (const _Res &__res)
- _Res & **_M_value** ()

Public Attributes

- exception_ptr **_M_error**

5.258.1 Detailed Description

template<typename _Res> struct std::__future_base::_Result< _Res >

Result.

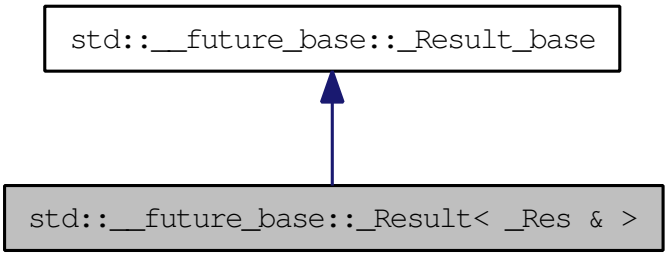
Definition at line 161 of file future.

The documentation for this struct was generated from the following file:

- future

5.259 std::__future_base::_Result< _Res & > Struct Template Reference

Partial specialization for reference types. Inheritance diagram for std::__future_base::_Result< _Res & >:



Public Member Functions

- _Res & **_M_get** ()
- void **_M_set** (_Res &__res)

Public Attributes

- exception_ptr **_M_error**

5.259.1 Detailed Description

template<typename _Res> struct std::__future_base::_Result< _Res & >

Partial specialization for reference types.

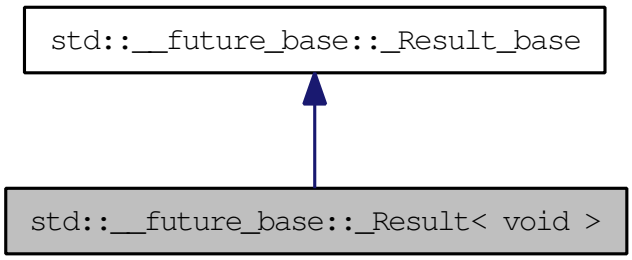
Definition at line 455 of file future.

The documentation for this struct was generated from the following file:

- future

5.260 std::__future_base::_Result< void > Struct Template Reference

Explicit specialization for void. Inheritance diagram for std::__future_base::_Result< void >:



Public Attributes

- exception_ptr **_M_error**

5.260.1 Detailed Description

template<> **struct std::__future_base::_Result**< **void** >

Explicit specialization for void.

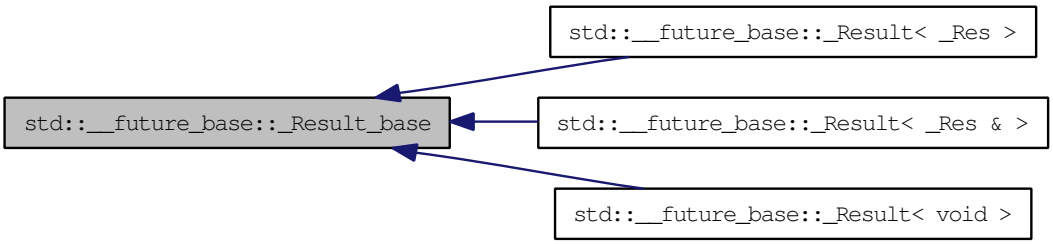
Definition at line 471 of file future.

The documentation for this struct was generated from the following file:

- future

5.261 std::__future_base::_Result_base Struct Reference

Base class for results. Inheritance diagram for std::__future_base::_Result_base:



Public Member Functions

- **_Result_base** (const _Result_base &)
- virtual void **_M_destroy** ()=0
- _Result_base & **operator=** (const _Result_base &)

Public Attributes

- exception_ptr **_M_error**

5.261.1 Detailed Description

Base class for results.

Definition at line 139 of file future.

The documentation for this struct was generated from the following file:

- future

5.262 std::__future_base::_State Class Reference

Shared state between a promise and one or more associated futures.

Inherited by std::__future_base::_Async_state< _Res >, std::__future_base::_Deferred_state< _Res >, and std::__future_base::_Task_state< _Res(_Args...)>.

Public Member Functions

- **_State** (const _State &)
- void **_M_break_promise** (_Ptr_type __res)
- void **_M_set_result** (function< _Ptr_type()> __res, bool __ignore_failure=false)
- void **_M_set_retrieved_flag** ()
- _State & **operator=** (const _State &)
- _Result_base & **wait** ()
- template<typename _Rep , typename _Period >
  bool **wait_for** (const chrono::duration< _Rep, _Period > &__rel)
- template<typename _Clock , typename _Duration >
  bool **wait_until** (const chrono::time_point< _Clock, _Duration > &__abs)

Static Public Member Functions

- static _Setter< void, void > **__setter** (promise< void > *__prom)
- template<typename _Res >
  static _Setter< _Res, __exception_ptr_tag > **__setter** (exception_ptr &__ex, promise< _Res > *__prom)
- template<typename _Res , typename _Arg >
  static _Setter< _Res, _Arg && > **__setter** (promise< _Res > *__prom, _Arg &&__arg)
- template<typename _Tp >
  static bool **_S_check** (const shared_ptr< _Tp > &__p)

5.262.1 Detailed Description

Shared state between a promise and one or more associated futures.

Definition at line 262 of file future.

The documentation for this class was generated from the following file:

- future

5.263 std::__is_location_invariant< _Tp > Struct Template Reference

Inheritance diagram for std::__is_location_invariant< _Tp >:

Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.263.1 Detailed Description

template<typename _Tp> struct std::__is_location_invariant< _Tp >

Trait identifying "location-invariant" types, meaning that the address of the object (or any of its members) will not escape. Also implies a trivial copy constructor and assignment operator.

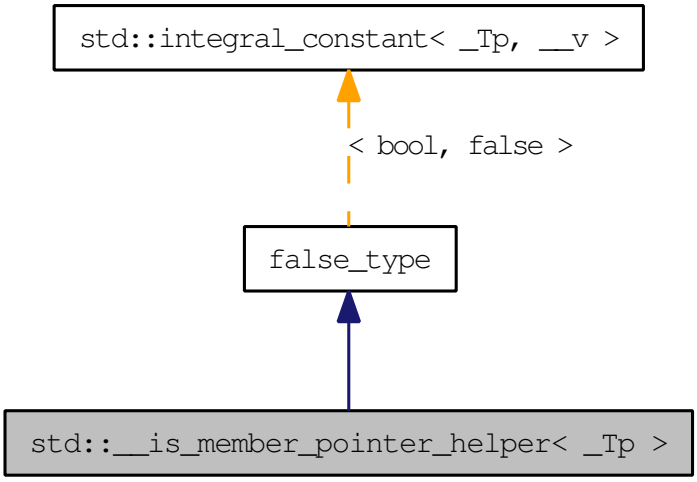
Definition at line 1420 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.264 std::__is_member_pointer_helper< _Tp > Struct Template Reference

is_member_pointer Inheritance diagram for std::__is_member_pointer_helper< _Tp >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.264.1 Detailed Description

template<typename _Tp> struct std::__is_member_pointer_helper< _Tp >

is_member_pointer

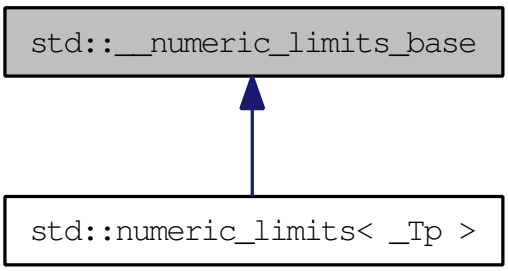
Definition at line 295 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.265 std::__numeric_limits_base Struct Reference

Part of std::numeric_limits. Inheritance diagram for std::__numeric_limits_base:



Static Public Attributes

- static const int digits
- static const int digits10
- static const float_denorm_style has_denorm
- static const bool has_denorm_loss
- static const bool has_infinity
- static const bool has_quiet_NaN
- static const bool has_signaling_NaN
- static const bool is_bounded
- static const bool is_exact
- static const bool is_iec559
- static const bool is_integer
- static const bool is_modulo
- static const bool is_signed
- static const bool is_specialized
- static const int max_digits10
- static const int max_exponent
- static const int max_exponent10
- static const int min_exponent
- static const int min_exponent10
- static const int radix
- static const float_round_style round_style
- static const bool tinyness_before
- static const bool traps

5.265.1 Detailed Description

Part of std::numeric_limits. The `static const` members are usable as integral constant expressions.

Note:

This is a separate class for purposes of efficiency; you should only access these members as part of an instantiation of the std::numeric_limits class.

Definition at line 190 of file limits.

5.265.2 Member Data Documentation

5.265.2.1 const int std::__numeric_limits_base::digits [static]

The number of `radix` digits that be represented without change: for integer types, the number of non-sign bits in the mantissa; for floating types, the number of `radix` digits in the mantissa.

Definition at line 199 of file limits.

5.265.2.2 const int std::__numeric_limits_base::digits10 [static]

The number of base 10 digits that can be represented without change.

Definition at line 201 of file limits.

5.265.2.3 const float_denorm_style std::__numeric_limits_base::has_denorm [static]

See std::float_denorm_style for more information.

Definition at line 244 of file limits.

5.265.2.4 const bool std::__numeric_limits_base::has_denorm_loss [static]

True if loss of accuracy is detected as a denormalization loss, rather than as an inexact result. [18.2.1.2]/42

Definition at line 247 of file limits.

5.265.2.5 const bool std::__numeric_limits_base::has_infinity [static]

True if the type has a representation for positive infinity.

Definition at line 236 of file limits.

5.265.2.6 const bool std::__numeric_limits_base::has_quiet_NaN [static]

True if the type has a representation for a quiet (non-signaling) *Not a Number*.

Definition at line 239 of file limits.

5.265.2.7 const bool std::__numeric_limits_base::has_signaling_NaN [static]

True if the type has a representation for a signaling *Not a Number*.

Definition at line 242 of file limits.

5.265.2.8 const bool std::__numeric_limits_base::is_bounded [static]

True if the set of values representable by the type is finite. All built-in types are bounded, this member would be false for arbitrary precision types. [18.2.1.2]/54

Definition at line 255 of file limits.

5.265.2.9 const bool std::__numeric_limits_base::is_exact [static]

True if the type uses an exact representation. *All integer types are exact, but not all exact types are integer. For example, rational and fixed-exponent representations are exact but not integer.* [18.2.1.2]/15

Definition at line 216 of file limits.

5.265.2.10 const bool std::__numeric_limits_base::is_iec559 [static]

True if-and-only-if the type adheres to the IEC 559 standard, also known as IEEE 754. (Only makes sense for floating point types.)

Definition at line 251 of file limits.

5.265.2.11 const bool std::__numeric_limits_base::is_integer [static]

True if the type is integer. Is this supposed to be *if the type is integral?*

Definition at line 211 of file limits.

5.265.2.12 const bool std::__numeric_limits_base::is_modulo [static]

True if the type is *modulo*, that is, if it is possible to add two positive numbers and have a result that wraps around to a third number that is less. Typically false for floating types, true for unsigned integers, and true for signed integers.

Definition at line 260 of file limits.

5.265.2.13 const bool std::__numeric_limits_base::is_signed [static]

True if the type is signed.

Definition at line 208 of file limits.

5.265.2.14 const bool std::__numeric_limits_base::is_specialized [static]

This will be true for all fundamental types (which have specializations), and false for everything else.

Definition at line 194 of file limits.

5.265.2.15 const int std::__numeric_limits_base::max_digits10 [static]

The number of base 10 digits required to ensure that values which differ are always differentiated.

Definition at line 205 of file limits.

5.265.2.16 const int std::__numeric_limits_base::max_exponent [static]

The maximum positive integer such that `radix` raised to the power of (one less than that integer) is a representable finite floating point number.

Definition at line 230 of file limits.

5.265.2.17 const int std::__numeric_limits_base::max_exponent10 [static]

The maximum positive integer such that 10 raised to that power is in the range of representable finite floating point numbers.

Definition at line 233 of file limits.

5.265.2.18 const int std::__numeric_limits_base::min_exponent [static]

The minimum negative integer such that `radix` raised to the power of (one less than that integer) is a normalized floating point number.

Definition at line 223 of file limits.

5.265.2.19 const int std::__numeric_limits_base::min_exponent10 [static]

The minimum negative integer such that 10 raised to that power is in the range of normalized floating point numbers.

Definition at line 226 of file limits.

5.265.2.20 const int std::__numeric_limits_base::radix [static]

For integer types, specifies the base of the representation. For floating types, specifies the base of the exponent representation.

Definition at line 219 of file limits.

5.265.2.21 const float_round_style std::__numeric_limits_base::round_style [static]

See std::float_round_style for more information. This is only meaningful for floating types; integer types will all be round_toward_zero.

Definition at line 269 of file limits.

5.265.2.22 const bool std::__numeric_limits_base::tinyness_before [static]

True if tininess is detected before rounding. (see IEC 559)

Definition at line 265 of file limits.

5.265.2.23 const bool std::__numeric_limits_base::traps [static]

True if trapping is implemented for this type.

Definition at line 263 of file limits.

The documentation for this struct was generated from the following file:

- limits

5.266 std::__parallel::_CRandNumber< _MustBeInt > Struct Template Reference

Functor wrapper for std::rand().

Public Member Functions

- int **operator()** (int __limit)

5.266.1 Detailed Description

template<typename _MustBeInt = int> struct std::__parallel::_CRandNumber< _MustBeInt >

Functor wrapper for std::rand().

Definition at line 1656 of file algo.h.

The documentation for this struct was generated from the following file:

- algo.h

5.267 std::__profile::bitset< _Nb > Class Template Reference

Class std::bitset wrapper with performance instrumentation.

Inherits bitset< _Nb >.

Public Member Functions

- **bitset** (const char *__str)
- **bitset** (const _Base &__x)
- template<class _CharT , class _Traits , class _Alloc >
  bitset (const std::basic_string< _CharT, _Traits, _Alloc > &__str, typename std::basic_string< _CharT, _Traits, _Alloc >::size_type __pos, typename std::basic_string< _CharT, _Traits, _Alloc >::size_type __n, _CharT __zero, _CharT __one=_CharT('1'))
- template<typename _CharT , typename _Traits , typename _Alloc >
  bitset (const std::basic_string< _CharT, _Traits, _Alloc > &__str, typename std::basic_string< _CharT, _Traits, _Alloc >::size_type __pos=0, typename std::basic_string< _CharT, _Traits, _Alloc >::size_type __n=(std::basic_string< _CharT, _Traits, _Alloc >::npos))
- **bitset** (unsigned long long __val)
- const _Base & **_M_base** () const
- _Base & **_M_base** ()
- bitset< _Nb > & **flip** (size_t __pos)
- bitset< _Nb > & **flip** ()
- bool **operator!=** (const bitset< _Nb > &__rhs) const
- bitset< _Nb > & **operator&=** (const bitset< _Nb > &__rhs)
- bitset< _Nb > **operator**<< (size_t __pos) const
- bitset< _Nb > & **operator**<<= (size_t __pos)
- bool **operator==** (const bitset< _Nb > &__rhs) const
- bitset< _Nb > **operator**>> (size_t __pos) const
- bitset< _Nb > & **operator**>>= (size_t __pos)
- bool **operator[ ]** (size_t __pos) const
- reference **operator[ ]** (size_t __pos)
- bitset< _Nb > & **operator^=** (const bitset< _Nb > &__rhs)
- bitset< _Nb > & **operator|=** (const bitset< _Nb > &__rhs)
- bitset< _Nb > **operator~** () const
- bitset< _Nb > & **reset** (size_t __pos)
- bitset< _Nb > & **reset** ()
- bitset< _Nb > & **set** (size_t __pos, bool __val=true)
- bitset< _Nb > & **set** ()

- std::basic_string< char, std::char_traits< char >, std::allocator< char > > **to_string** (char __zero, char __one= '1') const
- std::basic_string< char, std::char_traits< char >, std::allocator< char > > **to_string** () const
- template<class _CharT >
  std::basic_string< _CharT, std::char_traits< _CharT >, std::allocator< _CharT > > **to_string** (_CharT __zero, _CharT __one=_CharT('1')) const
- template<typename _CharT >
  std::basic_string< _CharT, std::char_traits< _CharT >, std::allocator< _CharT > > **to_string** () const
- template<class _CharT , class _Traits >
  std::basic_string< _CharT, _Traits, std::allocator< _CharT > > **to_string** (_CharT __zero, _CharT __one=_CharT('1')) const
- template<typename _CharT , typename _Traits >
  std::basic_string< _CharT, _Traits, std::allocator< _CharT > > **to_string** () const
- template<class _CharT , class _Traits , class _Alloc >
  std::basic_string< _CharT, _Traits, _Alloc > **to_string** (_CharT __zero, _CharT __one=_CharT('1')) const
- template<typename _CharT , typename _Traits , typename _Alloc >
  std::basic_string< _CharT, _Traits, _Alloc > **to_string** () const

5.267.1 Detailed Description

template<size_t _Nb> class std::__profile::bitset< _Nb >

Class std::bitset wrapper with performance instrumentation.

Definition at line 40 of file profile/bitset.

The documentation for this class was generated from the following file:

- profile/bitset

5.268 std::__profile::deque< _Tp, _Allocator > Class Template Reference

Class std::deque wrapper with performance instrumentation.

Inherits deque< _Tp, _Allocator >.

Public Types

- typedef _Allocator **allocator_type**
- typedef _Base::const_iterator **const_iterator**
- typedef _Base::const_pointer **const_pointer**
- typedef _Base::const_reference **const_reference**
- typedef _Base::const_reverse_iterator **const_reverse_iterator**
- typedef _Base::difference_type **difference_type**
- typedef _Base::iterator **iterator**
- typedef _Base::pointer **pointer**
- typedef _Base::reference **reference**
- typedef _Base::reverse_iterator **reverse_iterator**
- typedef _Base::size_type **size_type**
- typedef _Tp **value_type**

Public Member Functions

- **deque** (initializer_list< value_type > __l, const allocator_type &__a=allocator_type())
- **deque** (deque &&__x)
- **deque** (const _Base &__x)
- **deque** (const deque &__x)
- template<class _InputIterator >
  deque (_InputIterator __first, _InputIterator __last, const _Allocator &__a=_Allocator())
- **deque** (size_type __n, const _Tp &__value=_Tp(), const _Allocator &__a=_Allocator())
- **deque** (const _Allocator &__a=_Allocator())
- const _Base & **_M_base** () const
- _Base & **_M_base** ()
- void **assign** (initializer_list< value_type > __l)
- void **assign** (size_type __n, const _Tp &__t)
- template<class _InputIterator >
  void **assign** (_InputIterator __first, _InputIterator __last)
- const_reference **back** () const

- reference **back** ()
- const_iterator **begin** () const
- iterator **begin** ()
- const_iterator **cbegin** () const
- const_iterator **cend** () const
- void **clear** ()
- const_reverse_iterator **crbegin** () const
- const_reverse_iterator **crend** () const
- template<typename... _Args>
  iterator **emplace** (iterator __position, _Args &&...__args)
- template<typename... _Args>
  void **emplace_back** (_Args &&...__args)
- template<typename... _Args>
  void **emplace_front** (_Args &&...__args)
- const_iterator **end** () const
- iterator **end** ()
- iterator **erase** (iterator __first, iterator __last)
- iterator **erase** (iterator __position)
- const_reference **front** () const
- reference **front** ()
- template<class _InputIterator >
  void **insert** (iterator __position, _InputIterator __first, _InputIterator __last)
- void **insert** (iterator __position, size_type __n, const _Tp &__x)
- void **insert** (iterator __p, initializer_list< value_type > __l)
- iterator **insert** (iterator __position, _Tp &&__x)
- iterator **insert** (iterator __position, const _Tp &__x)
- deque & **operator=** (initializer_list< value_type > __l)
- deque & **operator=** (deque &&__x)
- deque & **operator=** (const deque &__x)
- const_reference **operator[ ]** (size_type __n) const
- reference **operator[ ]** (size_type __n)
- void **pop_back** ()
- void **pop_front** ()
- void **push_back** (_Tp &&__x)
- void **push_back** (const _Tp &__x)
- void **push_front** (_Tp &&__x)
- void **push_front** (const _Tp &__x)
- const_reverse_iterator **rbegin** () const
- reverse_iterator **rbegin** ()
- const_reverse_iterator **rend** () const
- reverse_iterator **rend** ()
- void **resize** (size_type __sz, _Tp __c=_Tp())
- void **swap** (deque &__x)

5.268.1 Detailed Description

template<typename _Tp, typename _Allocator = std::allocator<_Tp>> class std::__profile::deque< _Tp, _Allocator >

Class std::deque wrapper with performance instrumentation.

Definition at line 40 of file profile/deque.

The documentation for this class was generated from the following file:

- profile/deque

5.269 std::__profile::list< _Tp, _Allocator > Class Template Reference

List wrapper with performance instrumentation.

Inherits list< _Tp, _Allocator >.

Public Types

- typedef _Allocator **allocator_type**
- typedef __iterator_tracker< typename _Base::const_iterator, list > **const_iterator**
- typedef _Base::const_pointer **const_pointer**
- typedef _Base::const_reference **const_reference**
- typedef std::reverse_iterator< const_iterator > **const_reverse_iterator**
- typedef _Base::difference_type **difference_type**
- typedef __iterator_tracker< typename _Base::iterator, list > **iterator**
- typedef _Base::pointer **pointer**
- typedef _Base::reference **reference**
- typedef std::reverse_iterator< iterator > **reverse_iterator**
- typedef _Base::size_type **size_type**
- typedef _Tp **value_type**

Public Member Functions

- **list** (initializer_list< value_type > __l, const allocator_type &__a=allocator_type())
- **list** (list &&__x)
- **list** (const _Base &__x)
- **list** (const list &__x)
- template<class _InputIterator >
  list (_InputIterator __first, _InputIterator __last, const _Allocator &__a=_Allocator())
- **list** (size_type __n, const _Tp &__value=_Tp(), const _Allocator &__a=_Allocator())
- **list** (const _Allocator &__a=_Allocator())
- const _Base & **_M_base** () const
- _Base & **_M_base** ()
- void **_M_profile_find** () const
- void **_M_profile_iterate** (int __rewind=0) const
- void **assign** (size_type __n, const _Tp &__t)

- template<class _InputIterator >
  void **assign** (_InputIterator __first, _InputIterator __last)
- void **assign** (initializer_list< value_type > __l)
- const_reference **back** () const
- reference **back** ()
- const_iterator **begin** () const
- iterator **begin** ()
- const_iterator **cbegin** () const
- const_iterator **cend** () const
- void **clear** ()
- const_reverse_iterator **crbegin** () const
- const_reverse_iterator **crend** () const
- template<typename... _Args>
  iterator **emplace** (iterator __position, _Args &&...__args)
- const_iterator **end** () const
- iterator **end** ()
- iterator **erase** (iterator __position, iterator __last)
- iterator **erase** (iterator __position)
- const_reference **front** () const
- reference **front** ()
- template<class _InputIterator >
  void **insert** (iterator __position, _InputIterator __first, _InputIterator __last)
- void **insert** (iterator __position, size_type __n, const _Tp &__x)
- void **insert** (iterator __position, initializer_list< value_type > __l)
- iterator **insert** (iterator __position, _Tp &&__x)
- iterator **insert** (iterator __position, const _Tp &__x)
- template<typename _Compare >
  void **merge** (list &__x, _Compare __comp)
- template<class _Compare >
  void **merge** (list &&__x, _Compare __comp)
- void **merge** (list &__x)
- void **merge** (list &&__x)
- list & **operator=** (initializer_list< value_type > __l)
- list & **operator=** (list &&__x)
- list & **operator=** (const list &__x)
- void **pop_back** ()
- void **pop_front** ()
- void **push_front** (const value_type &__x)
- const_reverse_iterator **rbegin** () const
- reverse_iterator **rbegin** ()
- void **remove** (const _Tp &__value)
- template<class _Predicate >
  void **remove_if** (_Predicate __pred)

- const_reverse_iterator **rend** () const
- reverse_iterator **rend** ()
- void **resize** (size_type __sz, _Tp __c=_Tp())
- template<typename _StrictWeakOrdering >
  void **sort** (_StrictWeakOrdering __pred)
- void **sort** ()
- void **splice** (iterator __position, list &__x, iterator __first, iterator __last)
- void **splice** (iterator __position, list &&__x, iterator __first, iterator __last)
- void **splice** (iterator __position, list &&__x, iterator __i)
- void **splice** (iterator __position, list &__x, iterator __i)
- void **splice** (iterator __position, list &__x)
- void **splice** (iterator __position, list &&__x)
- void **swap** (list &__x)
- template<class _BinaryPredicate >
  void **unique** (_BinaryPredicate __binary_pred)
- void **unique** ()

5.269.1 Detailed Description

template<typename _Tp, typename _Allocator = std::allocator<_Tp>> class std::__profile::list< _Tp, _Allocator >

List wrapper with performance instrumentation.

Definition at line 42 of file profile/list.

The documentation for this class was generated from the following file:

- profile/list

5.270 std::__profile::map< _Key, _Tp, _Compare, _Allocator > Class Template Reference

Class std::map wrapper with performance instrumentation.

Inherits map< _Key, _Tp, _Compare, _Allocator >.

Public Types

- typedef _Allocator **allocator_type**
- typedef _Base::const_iterator **const_iterator**
- typedef _Base::const_pointer **const_pointer**
- typedef _Base::const_reference **const_reference**
- typedef std::reverse_iterator< const_iterator > **const_reverse_iterator**
- typedef _Base::difference_type **difference_type**
- typedef _Base::iterator **iterator**
- typedef _Compare **key_compare**
- typedef _Key **key_type**
- typedef _Tp **mapped_type**
- typedef _Base::pointer **pointer**
- typedef _Base::reference **reference**
- typedef std::reverse_iterator< iterator > **reverse_iterator**
- typedef _Base::size_type **size_type**
- typedef std::pair< const _Key, _Tp > **value_type**

Public Member Functions

- **map** (initializer_list< value_type > __l, const _Compare &__c=_Compare(), const allocator_type &__a=allocator_type())
- **map** (map &&__x)
- **map** (const _Base &__x)
- **map** (const map &__x)
- template<typename _InputIterator >
  map (_InputIterator __first, _InputIterator __last, const _Compare &__comp=_Compare(), const _Allocator &__a=_Allocator())
- **map** (const _Compare &__comp=_Compare(), const _Allocator &__a=_Allocator())
- const _Base & **_M_base** () const
- _Base & **_M_base** ()
- const mapped_type & **at** (const key_type &__k) const
- mapped_type & **at** (const key_type &__k)
- const_iterator **begin** () const

- iterator **begin** ()
- const_iterator **cbegin** () const
- const_iterator **cend** () const
- void **clear** ()
- size_type **count** (const key_type &__x) const
- const_reverse_iterator **crbegin** () const
- const_reverse_iterator **crend** () const
- const_iterator **end** () const
- iterator **end** ()
- std::pair< const_iterator, const_iterator > **equal_range** (const key_type &__x) const
- std::pair< iterator, iterator > **equal_range** (const key_type &__x)
- iterator **erase** (iterator __first, iterator __last)
- size_type **erase** (const key_type &__x)
- iterator **erase** (iterator __position)
- const_iterator **find** (const key_type &__x) const
- iterator **find** (const key_type &__x)
- template<typename _InputIterator >
  void **insert** (_InputIterator __first, _InputIterator __last)
- iterator **insert** (iterator __position, const value_type &__x)
- void **insert** (std::initializer_list< value_type > __list)
- std::pair< iterator, bool > **insert** (const value_type &__x)
- const_iterator **lower_bound** (const key_type &__x) const
- iterator **lower_bound** (const key_type &__x)
- map & **operator=** (initializer_list< value_type > __l)
- map & **operator=** (map &&__x)
- map & **operator=** (const map &__x)
- mapped_type & **operator[ ]** (const key_type &__k)
- const_reverse_iterator **rbegin** () const
- reverse_iterator **rbegin** ()
- const_reverse_iterator **rend** () const
- reverse_iterator **rend** ()
- void **swap** (map &__x)
- const_iterator **upper_bound** (const key_type &__x) const
- iterator **upper_bound** (const key_type &__x)

5.270.1 Detailed Description

template<typename _Key, typename _Tp, typename _Compare = std::less<_-Key>, typename _Allocator = std::allocator<std::pair<const _Key, _Tp> >> class std::__profile::map< _Key, _Tp, _Compare, _Allocator >

Class std::map wrapper with performance instrumentation.

Definition at line 47 of file profile/map.h.

The documentation for this class was generated from the following file:

- profile/map.h

5.271 std::__profile::multimap< _Key, _Tp, _Compare, _Allocator > Class Template Reference

Class std::multimap wrapper with performance instrumentation.

Inherits multimap< _Key, _Tp, _Compare, _Allocator >.

Public Types

- typedef _Allocator **allocator_type**
- typedef _Base::const_iterator **const_iterator**
- typedef _Base::const_pointer **const_pointer**
- typedef _Base::const_reference **const_reference**
- typedef _Base::const_reverse_iterator **const_reverse_iterator**
- typedef _Base::difference_type **difference_type**
- typedef _Base::iterator **iterator**
- typedef _Compare **key_compare**
- typedef _Key **key_type**
- typedef _Tp **mapped_type**
- typedef _Base::pointer **pointer**
- typedef _Base::reference **reference**
- typedef _Base::reverse_iterator **reverse_iterator**
- typedef _Base::size_type **size_type**
- typedef std::pair< const _Key, _Tp > **value_type**

Public Member Functions

- **multimap** (initializer_list< value_type > __l, const _Compare &__c=_Compare(), const allocator_type &__a=allocator_type())
- **multimap** (multimap &&__x)
- **multimap** (const _Base &__x)
- **multimap** (const multimap &__x)
- template<typename _InputIterator >
  multimap (_InputIterator __first, _InputIterator __last, const _Compare &__comp=_Compare(), const _Allocator &__a=_Allocator())
- **multimap** (const _Compare &__comp=_Compare(), const _Allocator &__a=_Allocator())
- const _Base & **_M_base** () const
- _Base & **_M_base** ()
- const_iterator **begin** () const
- iterator **begin** ()

- const_iterator **cbegin** () const
- const_iterator **cend** () const
- void **clear** ()
- const_reverse_iterator **crbegin** () const
- const_reverse_iterator **crend** () const
- const_iterator **end** () const
- iterator **end** ()
- std::pair< const_iterator, const_iterator > **equal_range** (const key_type &__x) const
- std::pair< iterator, iterator > **equal_range** (const key_type &__x)
- iterator **erase** (iterator __first, iterator __last)
- size_type **erase** (const key_type &__x)
- iterator **erase** (iterator __position)
- const_iterator **find** (const key_type &__x) const
- iterator **find** (const key_type &__x)
- template<typename _InputIterator >
  void **insert** (_InputIterator __first, _InputIterator __last)
- iterator **insert** (iterator __position, const value_type &__x)
- void **insert** (std::initializer_list< value_type > __list)
- iterator **insert** (const value_type &__x)
- const_iterator **lower_bound** (const key_type &__x) const
- iterator **lower_bound** (const key_type &__x)
- multimap & **operator=** (initializer_list< value_type > __l)
- multimap & **operator=** (multimap &&__x)
- multimap & **operator=** (const multimap &__x)
- const_reverse_iterator **rbegin** () const
- reverse_iterator **rbegin** ()
- const_reverse_iterator **rend** () const
- reverse_iterator **rend** ()
- void **swap** (multimap &__x)
- const_iterator **upper_bound** (const key_type &__x) const
- iterator **upper_bound** (const key_type &__x)

5.271.1 Detailed Description

template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Allocator = std::allocator<std::pair<const _Key, _Tp> > > class std::__profile::multimap< _Key, _Tp, _Compare, _Allocator >

Class std::multimap wrapper with performance instrumentation.

Definition at line 41 of file profile/multimap.h.

The documentation for this class was generated from the following file:

- profile/multimap.h

5.272 std::__profile::multiset< _Key, _Compare, _Allocator > Class Template Reference

Class std::multiset wrapper with performance instrumentation.

Inherits multiset< _Key, _Compare, _Allocator >.

Public Types

- typedef _Allocator **allocator_type**
- typedef _Base::const_iterator **const_iterator**
- typedef _Base::const_pointer **const_pointer**
- typedef _Base::const_reference **const_reference**
- typedef _Base::const_reverse_iterator **const_reverse_iterator**
- typedef _Base::difference_type **difference_type**
- typedef _Base::iterator **iterator**
- typedef _Compare **key_compare**
- typedef _Key **key_type**
- typedef _Base::pointer **pointer**
- typedef _Base::reference **reference**
- typedef _Base::reverse_iterator **reverse_iterator**
- typedef _Base::size_type **size_type**
- typedef _Compare **value_compare**
- typedef _Key **value_type**

Public Member Functions

- **multiset** (initializer_list< value_type > __l, const _Compare &__comp=_Compare(), const allocator_type &__a=allocator_type())
- **multiset** (multiset &&__x)
- **multiset** (const _Base &__x)
- **multiset** (const multiset &__x)
- template<typename _InputIterator >
  multiset (_InputIterator __first, _InputIterator __last, const _Compare &__comp=_Compare(), const _Allocator &__a=_Allocator())
- **multiset** (const _Compare &__comp=_Compare(), const _Allocator &__a=_Allocator())
- const _Base & **_M_base** () const
- _Base & **_M_base** ()
- const_iterator **begin** () const
- iterator **begin** ()
- const_iterator **cbegin** () const

- const_iterator **cend** () const
- void **clear** ()
- const_reverse_iterator **crbegin** () const
- const_reverse_iterator **crend** () const
- const_iterator **end** () const
- iterator **end** ()
- std::pair< const_iterator, const_iterator > **equal_range** (const key_type &__x) const
- std::pair< iterator, iterator > **equal_range** (const key_type &__x)
- iterator **erase** (iterator __first, iterator __last)
- size_type **erase** (const key_type &__x)
- iterator **erase** (iterator __position)
- const_iterator **find** (const key_type &__x) const
- iterator **find** (const key_type &__x)
- void **insert** (initializer_list< value_type > __l)
- template<typename _InputIterator >
  void **insert** (_InputIterator __first, _InputIterator __last)
- iterator **insert** (iterator __position, const value_type &__x)
- iterator **insert** (const value_type &__x)
- const_iterator **lower_bound** (const key_type &__x) const
- iterator **lower_bound** (const key_type &__x)
- multiset & **operator=** (initializer_list< value_type > __l)
- multiset & **operator=** (multiset &&__x)
- multiset & **operator=** (const multiset &__x)
- const_reverse_iterator **rbegin** () const
- reverse_iterator **rbegin** ()
- const_reverse_iterator **rend** () const
- reverse_iterator **rend** ()
- void **swap** (multiset &__x)
- const_iterator **upper_bound** (const key_type &__x) const
- iterator **upper_bound** (const key_type &__x)

5.272.1 Detailed Description

template<typename _Key, typename _Compare = std::less<_Key>, typename _Allocator = std::allocator<_Key>> class std::__profile::multiset< _Key, _Compare, _Allocator >

Class std::multiset wrapper with performance instrumentation.

Definition at line 41 of file profile/multiset.h.

The documentation for this class was generated from the following file:

- profile/multiset.h

5.273 std::__profile::set< _Key, _Compare, _Allocator > Class Template Reference

Class std::set wrapper with performance instrumentation.

Inherits set< _Key, _Compare, _Allocator >.

Public Types

- typedef _Allocator **allocator_type**
- typedef _Base::const_iterator **const_iterator**
- typedef _Base::const_pointer **const_pointer**
- typedef _Base::const_reference **const_reference**
- typedef _Base::const_reverse_iterator **const_reverse_iterator**
- typedef _Base::difference_type **difference_type**
- typedef _Base::iterator **iterator**
- typedef _Compare **key_compare**
- typedef _Key **key_type**
- typedef _Base::pointer **pointer**
- typedef _Base::reference **reference**
- typedef _Base::reverse_iterator **reverse_iterator**
- typedef _Base::size_type **size_type**
- typedef _Compare **value_compare**
- typedef _Key **value_type**

Public Member Functions

- **set** (initializer_list< value_type > __l, const _Compare &__comp=_Compare(), const allocator_type &__a=allocator_type())
- **set** (set &&__x)
- **set** (const _Base &__x)
- **set** (const set &__x)
- template<typename _InputIterator >
  set (_InputIterator __first, _InputIterator __last, const _Compare &__comp=_Compare(), const _Allocator &__a=_Allocator())
- **set** (const _Compare &__comp=_Compare(), const _Allocator &__a=_Allocator())
- const _Base & **_M_base** () const
- _Base & **_M_base** ()
- const_iterator **begin** () const
- iterator **begin** ()
- const_iterator **cbegin** () const

- const_iterator **cend** () const
- void **clear** ()
- const_reverse_iterator **crbegin** () const
- const_reverse_iterator **crend** () const
- const_iterator **end** () const
- iterator **end** ()
- std::pair< const_iterator, const_iterator > **equal_range** (const key_type &__x) const
- std::pair< iterator, iterator > **equal_range** (const key_type &__x)
- iterator **erase** (iterator __first, iterator __last)
- size_type **erase** (const key_type &__x)
- iterator **erase** (iterator __position)
- const_iterator **find** (const key_type &__x) const
- iterator **find** (const key_type &__x)
- void **insert** (initializer_list< value_type > __l)
- template<typename _InputIterator >
  void **insert** (_InputIterator __first, _InputIterator __last)
- iterator **insert** (iterator __position, const value_type &__x)
- std::pair< iterator, bool > **insert** (const value_type &__x)
- const_iterator **lower_bound** (const key_type &__x) const
- iterator **lower_bound** (const key_type &__x)
- set & **operator=** (initializer_list< value_type > __l)
- set & **operator=** (set &&__x)
- set & **operator=** (const set &__x)
- const_reverse_iterator **rbegin** () const
- reverse_iterator **rbegin** ()
- const_reverse_iterator **rend** () const
- reverse_iterator **rend** ()
- void **swap** (set &__x)
- const_iterator **upper_bound** (const key_type &__x) const
- iterator **upper_bound** (const key_type &__x)

5.273.1 Detailed Description

template<typename _Key, typename _Compare = std::less<_Key>, typename _Allocator = std::allocator<_Key>> class std::__profile::set< _Key, _Compare, _Allocator >

Class std::set wrapper with performance instrumentation.

Definition at line 41 of file profile/set.h.

The documentation for this class was generated from the following file:

- profile/set.h

5.274 std::__profile::unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc > Class Template Reference

Class std::unordered_map wrapper with performance instrumentation.

Inherits _GLIBCXX_STD_PR::unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc >.

Public Types

- typedef _Base::allocator_type **allocator_type**
- typedef _Base::const_iterator **const_iterator**
- typedef _Base::const_reference **const_reference**
- typedef _Base::difference_type **difference_type**
- typedef _Base::hasher **hasher**
- typedef _Base::iterator **iterator**
- typedef _Base::key_equal **key_equal**
- typedef _Base::key_type **key_type**
- typedef _Base::mapped_type **mapped_type**
- typedef _Base::reference **reference**
- typedef _Base::size_type **size_type**
- typedef _Base::value_type **value_type**

Public Member Functions

- **unordered_map** (initializer_list< value_type > __l, size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- **unordered_map** (unordered_map &&__x)
- **unordered_map** (const _Base &__x)
- template<typename _InputIterator >
  unordered_map (_InputIterator __f, _InputIterator __l, size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- **unordered_map** (size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- const _Base & **_M_base** () const
- _Base & **_M_base** ()
- void **clear** ()
- void **insert** (const value_type *__first, const value_type *__last)
- template<typename _InputIter >
  void **insert** (_InputIter __first, _InputIter __last)
- iterator **insert** (const_iterator __iter, const value_type &__v)

- std::pair< iterator, bool > **insert** (const value_type &__obj)
- void **insert** (std::initializer_list< value_type > __l)
- unordered_map & **operator=** (initializer_list< value_type > __l)
- unordered_map & **operator=** (unordered_map &&__x)
- unordered_map & **operator=** (const unordered_map &__x)
- mapped_type & **operator[ ]** (const _Key &_k)
- void **rehash** (size_type __n)
- void **swap** (unordered_map &__x)

5.274.1 Detailed Description

template<typename _Key, typename _Tp, typename _Hash = std::hash<_Key>, typename _Pred = std::equal_to<_Key>, typename _Alloc = std::allocator<_Key>> class std::__profile::unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc >

Class std::unordered_map wrapper with performance instrumentation.

Definition at line 59 of file profile/unordered_map.

The documentation for this class was generated from the following file:

- profile/unordered_map

5.275 std::__profile::unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc > Class Template Reference

Class std::unordered_multimap wrapper with performance instrumentation.

Inherits _GLIBCXX_STD_PR::unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc >.

Public Types

- typedef _Base::allocator_type **allocator_type**
- typedef _Base::const_iterator **const_iterator**
- typedef _Base::const_reference **const_reference**
- typedef _Base::difference_type **difference_type**
- typedef _Base::hasher **hasher**
- typedef _Base::iterator **iterator**
- typedef _Base::key_equal **key_equal**
- typedef _Base::key_type **key_type**
- typedef _Base::reference **reference**
- typedef _Base::size_type **size_type**
- typedef _Base::value_type **value_type**

Public Member Functions

- **unordered_multimap** (initializer_list< value_type > __l, size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- **unordered_multimap** (unordered_multimap &&__x)
- **unordered_multimap** (const _Base &__x)
- template<typename _InputIterator >
  unordered_multimap (_InputIterator __f, _InputIterator __l, size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- **unordered_multimap** (size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- const _Base & **_M_base** () const
- _Base & **_M_base** ()
- void **clear** ()
- void **insert** (const value_type *__first, const value_type *__last)
- template<typename _InputIter >
  void **insert** (_InputIter __first, _InputIter __last)

- iterator **insert** (const_iterator __iter, const value_type &__v)
- iterator **insert** (const value_type &__obj)
- void **insert** (std::initializer_list< value_type > __l)
- unordered_multimap & **operator=** (initializer_list< value_type > __l)
- unordered_multimap & **operator=** (unordered_multimap &&__x)
- unordered_multimap & **operator=** (const unordered_multimap &__x)
- void **rehash** (size_type __n)
- void **swap** (unordered_multimap &__x)

5.275.1 Detailed Description

template<typename _Key, typename _Tp, typename _Hash = std::hash<_Key>, typename _Pred = std::equal_to<_Key>, typename _Alloc = std::allocator<_Key>> class std::__profile::unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc >

Class std::unordered_multimap wrapper with performance instrumentation.

Definition at line 285 of file profile/unordered_map.

The documentation for this class was generated from the following file:

- profile/unordered_map

5.276 std::__profile::unordered_multiset< _Value, _Hash, _Pred, _Alloc > Class Template Reference

Unordered_multiset wrapper with performance instrumentation.

Inherits _GLIBCXX_STD_PR::unordered_multiset< _Value, _Hash, _Pred, _Alloc >.

Public Types

- typedef _Base::allocator_type **allocator_type**
- typedef _Base::const_iterator **const_iterator**
- typedef _Base::const_reference **const_reference**
- typedef _Base::difference_type **difference_type**
- typedef _Base::hasher **hasher**
- typedef _Base::iterator **iterator**
- typedef _Base::key_equal **key_equal**
- typedef _Base::key_type **key_type**
- typedef _Base::reference **reference**
- typedef _Base::size_type **size_type**
- typedef _Base::value_type **value_type**

Public Member Functions

- **unordered_multiset** (initializer_list< value_type > __l, size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- **unordered_multiset** (unordered_multiset &&__x)
- **unordered_multiset** (const _Base &__x)
- template<typename _InputIterator >
  unordered_multiset (_InputIterator __f, _InputIterator __l, size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- **unordered_multiset** (size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- void **clear** ()
- void **insert** (const value_type *__first, const value_type *__last)
- template<typename _InputIter >
  void **insert** (_InputIter __first, _InputIter __last)
- iterator **insert** (const_iterator __iter, const value_type &__v)
- iterator **insert** (const value_type &__obj)
- void **insert** (std::initializer_list< value_type > __l)

- unordered_multiset & **operator=** (initializer_list< value_type > __l)
- unordered_multiset & **operator=** (unordered_multiset &&__x)
- unordered_multiset & **operator=** (const unordered_multiset &__x)
- void **rehash** (size_type __n)
- void **swap** (unordered_multiset &__x)

5.276.1 Detailed Description

template<typename _Value, typename _Hash = std::hash<_Value>, typename _Pred = std::equal_to<_Value>, typename _Alloc = std::allocator<_Value>> class std::__profile::unordered_multiset< _Value, _Hash, _Pred, _Alloc >

Unordered_multiset wrapper with performance instrumentation.

Definition at line 275 of file profile/unordered_set.

The documentation for this class was generated from the following file:

- profile/unordered_set

5.277 std::__profile::unordered_set< _Key, _Hash, _Pred, _Alloc > Class Template Reference

Unordered_set wrapper with performance instrumentation.

Inherits _GLIBCXX_STD_PR::unordered_set< _Key, _Hash, _Pred, _Alloc >.

Public Types

- typedef _Base::allocator_type **allocator_type**
- typedef _Base::const_iterator **const_iterator**
- typedef _Base::const_reference **const_reference**
- typedef _Base::difference_type **difference_type**
- typedef _Base::hasher **hasher**
- typedef _Base::iterator **iterator**
- typedef _Base::key_equal **key_equal**
- typedef _Base::key_type **key_type**
- typedef _Base::reference **reference**
- typedef _Base::size_type **size_type**
- typedef _Base::value_type **value_type**

Public Member Functions

- **unordered_set** (initializer_list< value_type > __l, size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- **unordered_set** (unordered_set &&__x)
- **unordered_set** (const _Base &__x)
- template<typename _InputIterator >
  unordered_set (_InputIterator __f, _InputIterator __l, size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- **unordered_set** (size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- void **clear** ()
- void **insert** (const value_type *__first, const value_type *__last)
- template<typename _InputIter >
  void **insert** (_InputIter __first, _InputIter __last)
- iterator **insert** (const_iterator __iter, const value_type &__v)
- std::pair< iterator, bool > **insert** (const value_type &__obj)
- void **insert** (std::initializer_list< value_type > __l)
- unordered_set & **operator=** (initializer_list< value_type > __l)

- unordered_set & **operator=** (unordered_set &&__x)
- unordered_set & **operator=** (const unordered_set &__x)
- void **rehash** (size_type __n)
- void **swap** (unordered_set &__x)

5.277.1 Detailed Description

template<typename _Key, typename _Hash = std::hash<_Key>, typename _Pred = std::equal_to<_Key>, typename _Alloc = std::allocator<_Key>> class std::__profile::unordered_set< _Key, _Hash, _Pred, _Alloc >

Unordered_set wrapper with performance instrumentation.

Definition at line 59 of file profile/unordered_set.

The documentation for this class was generated from the following file:

- profile/unordered_set

5.278 std::_Base_bitset< _Nw > Struct Template Reference

Inheritance diagram for std::_Base_bitset< _Nw >:

Public Types

- typedef unsigned long **_WordT**

Public Member Functions

- **_Base_bitset** (unsigned long long __val)
- size_t **_M_are_all_aux** () const
- void **_M_do_and** (const _Base_bitset< _Nw > &__x)
- size_t **_M_do_count** () const
- size_t **_M_do_find_first** (size_t __not_found) const
- size_t **_M_do_find_next** (size_t __prev, size_t __not_found) const
- void **_M_do_flip** ()
- void **_M_do_left_shift** (size_t __shift)
- void **_M_do_or** (const _Base_bitset< _Nw > &__x)
- void **_M_do_reset** ()
- void **_M_do_right_shift** (size_t __shift)
- void **_M_do_set** ()
- unsigned long long **_M_do_to_ullong** () const
- unsigned long **_M_do_to_ulong** () const
- void **_M_do_xor** (const _Base_bitset< _Nw > &__x)
- const _WordT * **_M_getdata** () const
- _WordT **_M_getword** (size_t __pos) const
- _WordT & **_M_getword** (size_t __pos)
- _WordT **_M_hiword** () const
- _WordT & **_M_hiword** ()
- bool **_M_is_any** () const
- bool **_M_is_equal** (const _Base_bitset< _Nw > &__x) const

Static Public Member Functions

- static _WordT **_S_maskbit** (size_t __pos)
- static size_t **_S_whichbit** (size_t __pos)
- static size_t **_S_whichbyte** (size_t __pos)
- static size_t **_S_whichword** (size_t __pos)

Public Attributes

- _WordT _M_w [_Nw]

5.278.1 Detailed Description

template<size_t _Nw> struct std::_Base_bitset< _Nw >

Base class, general case. It is a class invariant that _Nw will be nonnegative.

See documentation for bitset.

Definition at line 69 of file bitset.

5.278.2 Member Data Documentation

5.278.2.1 template<size_t _Nw> _WordT std::_Base_bitset< _Nw >::_M_w[_Nw]

0 is the least significant word.

Definition at line 74 of file bitset.

The documentation for this struct was generated from the following file:

- bitset

5.279 std::_Base_bitset< 0 > Struct Template Reference

Public Types

- typedef unsigned long **_WordT**

Public Member Functions

- **_Base_bitset** (unsigned long long)
- size_t **_M_are_all_aux** () const
- void **_M_do_and** (const _Base_bitset< 0 > &)
- size_t **_M_do_count** () const
- size_t **_M_do_find_first** (size_t) const
- size_t **_M_do_find_next** (size_t, size_t) const
- void **_M_do_flip** ()
- void **_M_do_left_shift** (size_t)
- void **_M_do_or** (const _Base_bitset< 0 > &)
- void **_M_do_reset** ()
- void **_M_do_right_shift** (size_t)
- void **_M_do_set** ()
- unsigned long long **_M_do_to_ullong** () const
- unsigned long **_M_do_to_ulong** () const
- void **_M_do_xor** (const _Base_bitset< 0 > &)
- _WordT & **_M_getword** (size_t) const
- _WordT **_M_hiword** () const
- bool **_M_is_any** () const
- bool **_M_is_equal** (const _Base_bitset< 0 > &) const

Static Public Member Functions

- static _WordT **_S_maskbit** (size_t __pos)
- static size_t **_S_whichbit** (size_t __pos)
- static size_t **_S_whichbyte** (size_t __pos)
- static size_t **_S_whichword** (size_t __pos)

5.279.1 Detailed Description

template<> struct std::_Base_bitset< 0 >

Base class, specialization for no storage (zero-length bitset).

See documentation for bitset.

Definition at line 511 of file bitset.

The documentation for this struct was generated from the following file:

- bitset

5.280 std::_Base_bitset< 1 > Struct Template Reference

Public Types

- typedef unsigned long **_WordT**

Public Member Functions

- **_Base_bitset** (unsigned long long __val)
- size_t **_M_are_all_aux** () const
- void **_M_do_and** (const _Base_bitset< 1 > &__x)
- size_t **_M_do_count** () const
- size_t **_M_do_find_first** (size_t __not_found) const
- size_t **_M_do_find_next** (size_t __prev, size_t __not_found) const
- void **_M_do_flip** ()
- void **_M_do_left_shift** (size_t __shift)
- void **_M_do_or** (const _Base_bitset< 1 > &__x)
- void **_M_do_reset** ()
- void **_M_do_right_shift** (size_t __shift)
- void **_M_do_set** ()
- unsigned long long **_M_do_to_ullong** () const
- unsigned long **_M_do_to_ulong** () const
- void **_M_do_xor** (const _Base_bitset< 1 > &__x)
- const _WordT * **_M_getdata** () const
- _WordT **_M_getword** (size_t) const
- _WordT & **_M_getword** (size_t)
- _WordT **_M_hiword** () const
- _WordT & **_M_hiword** ()
- bool **_M_is_any** () const
- bool **_M_is_equal** (const _Base_bitset< 1 > &__x) const

Static Public Member Functions

- static _WordT **_S_maskbit** (size_t __pos)
- static size_t **_S_whichbit** (size_t __pos)
- static size_t **_S_whichbyte** (size_t __pos)
- static size_t **_S_whichword** (size_t __pos)

Public Attributes

- _WordT **_M_w**

5.280.1 Detailed Description

template<> struct std::_Base_bitset< 1 >

Base class, specialization for a single word.

See documentation for bitset.

Definition at line 367 of file bitset.

The documentation for this struct was generated from the following file:

- bitset

5.281 std::_Build_index_tuple< _Num > Struct Template Reference

Builds an _Index_tuple<0, 1, 2, ..., _Num-1>.

Public Types

- typedef _Build_index_tuple< _Num-1 >::__type::__next **__type**

5.281.1 Detailed Description

template<std::size_t _Num> struct std::_Build_index_tuple< _Num >

Builds an _Index_tuple<0, 1, 2, ..., _Num-1>.

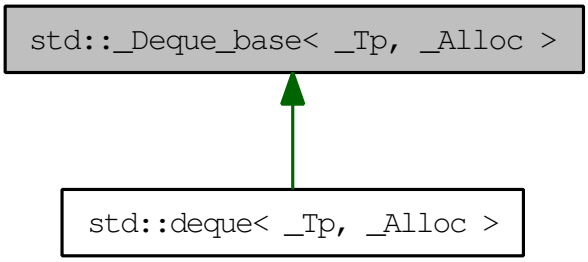
Definition at line 860 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.282 std::_Deque_base< _Tp, _Alloc > Class Template Reference

Inheritance diagram for std::_Deque_base< _Tp, _Alloc >:



Public Types

- typedef _Alloc **allocator_type**
- typedef _Deque_iterator< _Tp, const _Tp &, const _Tp * > **const_iterator**
- typedef _Deque_iterator< _Tp, _Tp &, _Tp * > **iterator**

Public Member Functions

- **_Deque_base** (_Deque_base &&__x)
- **_Deque_base** (const allocator_type &__a)
- **_Deque_base** (const allocator_type &__a, size_t __num_elements)
- allocator_type **get_allocator** () const

Protected Types

- enum { **_S_initial_map_size** }
- typedef _Alloc::template rebind< _Tp * >::other **_Map_alloc_type**
- typedef _Alloc::template rebind< _Tp >::other **_Tp_alloc_type**

Protected Member Functions

- _Tp ** **_M_allocate_map** (size_t __n)
- _Tp * **_M_allocate_node** ()
- void **_M_create_nodes** (_Tp **__nstart, _Tp **__nfinish)
- void **_M_deallocate_map** (_Tp **__p, size_t __n)

- void **_M_deallocate_node** (_Tp *__p)
- void **_M_destroy_nodes** (_Tp **__nstart, _Tp **__nfinish)
- _Map_alloc_type **_M_get_map_allocator** () const
- const _Tp_alloc_type & **_M_get_Tp_allocator** () const
- _Tp_alloc_type & **_M_get_Tp_allocator** ()
- void _M_initialize_map (size_t)

Protected Attributes

- _Deque_impl **_M_impl**

5.282.1 Detailed Description

template<typename _Tp, typename _Alloc> class std::_Deque_base< _Tp, _Alloc >

Deque base class. This class provides the unified face for deque's allocation. This class's constructor and destructor allocate and deallocate (but do not initialize) storage. This makes exception safety easier.

Nothing in this class ever constructs or destroys an actual Tp element. (Deque handles that itself.) Only/All memory management is performed here.

Definition at line 436 of file stl_deque.h.

5.282.2 Member Function Documentation

5.282.2.1 template<typename _Tp , typename _Alloc > void std::_Deque_base< _Tp, _Alloc >::_M_initialize_map (size_t *__num_elements*) [inline, protected]

Layout storage.

Parameters:

num_elements The count of T's for which to allocate space at first.

Returns:

Nothing.

The initial underlying memory layout is a bit complicated...

Definition at line 568 of file stl_deque.h.

References std::max().

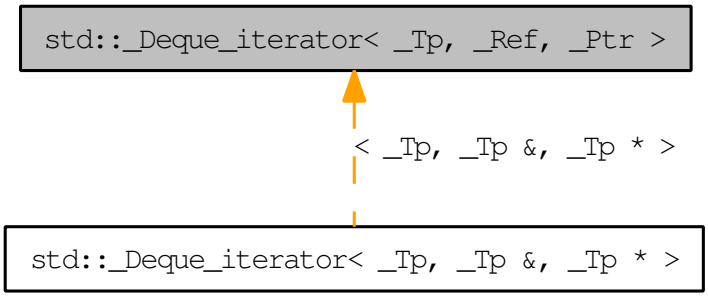
Referenced by std::deque< _Tp, _Alloc >::_M_range_initialize().

The documentation for this class was generated from the following file:

- stl_deque.h

5.283 std::_Deque_iterator< _Tp, _Ref, _Ptr > Struct Template Reference

A deque::iterator. Inheritance diagram for std::_Deque_iterator< _Tp, _Ref, _Ptr >:



Public Types

- typedef _Tp ** **_Map_pointer**
- typedef _Deque_iterator **_Self**
- typedef _Deque_iterator< _Tp, const _Tp &, const _Tp * > **const_iterator**
- typedef ptrdiff_t **difference_type**
- typedef _Deque_iterator< _Tp, _Tp &, _Tp * > **iterator**
- typedef std::random_access_iterator_tag **iterator_category**
- typedef _Ptr **pointer**
- typedef _Ref **reference**
- typedef size_t **size_type**
- typedef _Tp **value_type**

Public Member Functions

- **_Deque_iterator** (const iterator &__x)
- **_Deque_iterator** (_Tp *__x, _Map_pointer __y)
- void _M_set_node (_Map_pointer __new_node)
- reference **operator*** () const
- _Self **operator+** (difference_type __n) const
- _Self **operator++** (int)
- _Self & **operator++** ()
- _Self & **operator+=** (difference_type __n)
- _Self **operator-** (difference_type __n) const
- _Self **operator--** (int)

- _Self & **operator--** ()
- _Self & **operator-=** (difference_type __n)
- pointer **operator->** () const
- reference **operator[ ]** (difference_type __n) const

Static Public Member Functions

- static size_t **_S_buffer_size** ()

Public Attributes

- _Tp * **_M_cur**
- _Tp * **_M_first**
- _Tp * **_M_last**
- _Map_pointer **_M_node**

5.283.1 Detailed Description

template<typename _Tp, typename _Ref, typename _Ptr> struct std::_Deque_iterator< _Tp, _Ref, _Ptr >

A deque::iterator. Quite a bit of intelligence here. Much of the functionality of deque is actually passed off to this class. A deque holds two of these internally, marking its valid range. Access to elements is done as offsets of either of those two, relying on operator overloading in this class.

All the functions are op overloads except for _M_set_node.

Definition at line 103 of file stl_deque.h.

5.283.2 Member Function Documentation

5.283.2.1 template<typename _Tp, typename _Ref, typename _Ptr> void std::_Deque_iterator< _Tp, _Ref, _Ptr >::_M_set_node (_Map_pointer *__new_node*) [inline]

Prepares to traverse new_node. Sets everything except _M_cur, which should therefore be set by the caller immediately afterwards, based on _M_first and _M_last.

Definition at line 231 of file stl_deque.h.

The documentation for this struct was generated from the following file:

- stl_deque.h

5.284 std::_Derives_from_binary_function< _Tp > Struct Template Reference

Determines if the type _Tp derives from binary_function.

Inherits std::__sfinae_types.

Public Types

- typedef char **__one**

Static Public Attributes

- static const bool **value**

5.284.1 Detailed Description

template<typename _Tp> struct std::_Derives_from_binary_function< _Tp >

Determines if the type _Tp derives from binary_function.

Definition at line 201 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.285 std::_Derives_from_unary_function< _Tp > Struct Template Reference

Determines if the type _Tp derives from unary_function.

Inherits std::__sfinae_types.

Public Types

- typedef char **__one**

Static Public Attributes

- static const bool **value**

5.285.1 Detailed Description

template<typename _Tp> struct std::_Derives_from_unary_function< _Tp >

Determines if the type _Tp derives from unary_function.

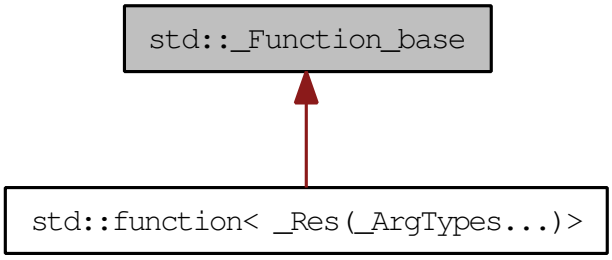
Definition at line 185 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.286 std::_Function_base Class Reference

Base class of all polymorphic function object wrappers. Inheritance diagram for std::_-Function_base:



Public Types

- typedef bool(∗ **_Manager_type**)(_Any_data &, const _Any_data &, _-Manager_operation)

Public Member Functions

- bool **_M_empty** () const

Public Attributes

- _Any_data **_M_functor**
- _Manager_type **_M_manager**

Static Public Attributes

- static const std::size_t **_M_max_align**
- static const std::size_t **_M_max_size**

5.286.1 Detailed Description

Base class of all polymorphic function object wrappers.

Definition at line 1498 of file functional.

The documentation for this class was generated from the following file:

- functional

5.287 std::_Function_to_function_pointer< _Tp, _IsFunctionType > Struct Template Reference

Turns a function type into a function pointer type.

Public Types

- typedef _Tp **type**

5.287.1 Detailed Description

template<typename _Tp, bool _IsFunctionType = is_function<_Tp>::value> struct std::_Function_to_function_pointer< _Tp, _IsFunctionType >

Turns a function type into a function pointer type.

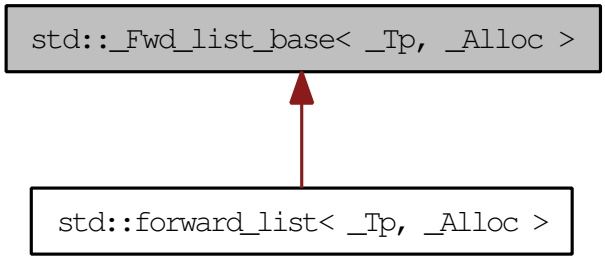
Definition at line 217 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.288 std::_Fwd_list_base< _Tp, _Alloc > Struct Template Reference

Base class for forward_list. Inheritance diagram for std::_Fwd_list_base< _Tp, _Alloc >:



Public Types

- typedef _Fwd_list_node< _Tp, _Tp_alloc_type > **_Node**
- typedef _Fwd_list_node_base< _Tp_alloc_type > **_Node_base**
- typedef _Fwd_list_const_iterator< _Tp, _Tp_alloc_type > **const_iterator**
- typedef _Fwd_list_iterator< _Tp, _Tp_alloc_type > **iterator**

Public Member Functions

- **_Fwd_list_base** (_Fwd_list_base &&__lst)
- **_Fwd_list_base** (_Fwd_list_base &&__lst, const _Alloc &__a)
- **_Fwd_list_base** (const _Fwd_list_base &__lst, const _Alloc &__a)
- **_Fwd_list_base** (const _Alloc &__a)
- const _Node_alloc_type & **_M_get_Node_allocator** () const
- _Node_alloc_type & **_M_get_Node_allocator** ()

Protected Types

- typedef _Alloc::template rebind< _Fwd_list_node< _Tp, _Tp_alloc_type > >::other **_Node_alloc_type**
- typedef _Alloc::template rebind< _Tp >::other **_Tp_alloc_type**

Protected Member Functions

- template<typename... _Args>
  _Node::_Pointer **_M_create_node** (_Args &&...__args)
- void **_M_erase_after** (typename _Node_base::_Pointer __pos, typename _Node_base::_Pointer __last)
- void **_M_erase_after** (typename _Node_base::_Pointer __pos)
- _Node::_Pointer **_M_get_node** ()
- template<typename... _Args>
  _Node_base::_Pointer **_M_insert_after** (const_iterator __pos, _Args &&...__args)
- void **_M_put_node** (typename _Node::_Pointer __p)

Protected Attributes

- _Fwd_list_impl **_M_impl**

5.288.1 Detailed Description

template<typename _Tp, typename _Alloc> struct std::_Fwd_list_base< _Tp, _Alloc >

Base class for forward_list.

Definition at line 254 of file forward_list.h.

The documentation for this struct was generated from the following files:

- forward_list.h
- forward_list.tcc

5.289 std::_Fwd_list_const_iterator< _Tp, _Alloc > Struct Template Reference

A forward_list::const_iterator.

Public Types

- typedef const _Fwd_list_node< _Tp, _Alloc > **_Node**
- typedef const _Fwd_list_node_base< _Alloc > **_Node_base**
- typedef _Fwd_list_const_iterator< _Tp, _Alloc > **_Self**
- typedef _Alloc::difference_type **difference_type**
- typedef _Fwd_list_iterator< _Tp, _Alloc > **iterator**
- typedef std::forward_iterator_tag **iterator_category**
- typedef _Alloc::const_pointer **pointer**
- typedef _Alloc::const_reference **reference**
- typedef _Tp **value_type**

Public Member Functions

- **_Fwd_list_const_iterator** (const iterator &__iter)
- **_Fwd_list_const_iterator** (typename _Node_base::_Const_pointer __n)
- _Self **_M_next** () const
- bool **operator!=** (const _Self &__x) const
- reference **operator*** () const
- _Self **operator++** (int)
- _Self & **operator++** ()
- pointer **operator->** () const
- bool **operator==** (const _Self &__x) const

Public Attributes

- _Node_base::_Const_pointer **_M_node**

5.289.1 Detailed Description

template<typename _Tp, typename _Alloc> struct std::_Fwd_list_const_iterator< _Tp, _Alloc >

A forward_list::const_iterator. All the functions are op overloads.

Definition at line 167 of file forward_list.h.

The documentation for this struct was generated from the following file:

- forward_list.h

5.290 std::_Fwd_list_iterator< _Tp, _Alloc > Struct Template Reference

A forward_list::iterator.

Public Types

- typedef _Fwd_list_node< _Tp, _Alloc > **_Node**
- typedef _Fwd_list_node_base< _Alloc > **_Node_base**
- typedef _Fwd_list_iterator< _Tp, _Alloc > **_Self**
- typedef _Alloc::difference_type **difference_type**
- typedef std::forward_iterator_tag **iterator_category**
- typedef _Alloc::pointer **pointer**
- typedef _Alloc::reference **reference**
- typedef _Tp **value_type**

Public Member Functions

- **_Fwd_list_iterator** (typename _Node_base::_Pointer __n)
- _Self **_M_next** () const
- bool **operator!=** (const _Self &__x) const
- reference **operator*** () const
- _Self **operator++** (int)
- _Self & **operator++** ()
- pointer **operator->** () const
- bool **operator==** (const _Self &__x) const

Public Attributes

- _Node_base::_Pointer **_M_node**

5.290.1 Detailed Description

template<typename _Tp, typename _Alloc> struct std::_Fwd_list_iterator< _Tp, _Alloc >

A forward_list::iterator. All the functions are op overloads.

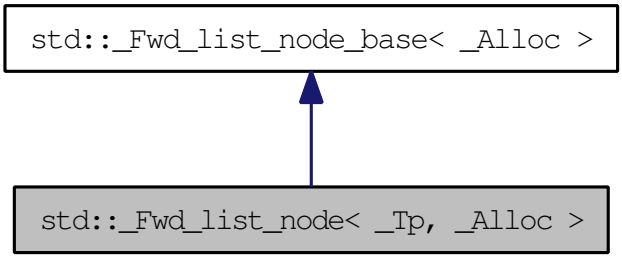
Definition at line 100 of file forward_list.h.

The documentation for this struct was generated from the following file:

- forward_list.h

5.291 std::_Fwd_list_node< _Tp, _Alloc > Struct Template Reference

A helper node class for forward_list. This is just a linked list with a data value in each node. There is a sorting utility method. Inheritance diagram for std::_Fwd_list_node< _Tp, _Alloc >:



Public Types

- typedef _Alloc::template rebind< _Fwd_list_node_base< _Alloc > >::other::const_pointer **_Const_pointer**
- typedef _Alloc::template rebind< _Fwd_list_node< _Tp, _Alloc > >::other::pointer **_Pointer**

Public Member Functions

- template<typename... _Args>
  _Fwd_list_node (_Args &&...__args)
- void **_M_reverse_after** ()
- void **_M_transfer_after** (_Pointer __bbegin, _Pointer __bend)
- void **_M_transfer_after** (_Pointer __bbegin)

Static Public Member Functions

- static void **swap** (_Fwd_list_node_base &__x, _Fwd_list_node_base &__y)

Public Attributes

- _Pointer **_M_next**
- _Tp **_M_value**

5.291.1 Detailed Description

template<typename _Tp, typename _Alloc> struct std::_Fwd_list_node< _Tp, _Alloc >

A helper node class for forward_list. This is just a linked list with a data value in each node. There is a sorting utility method.

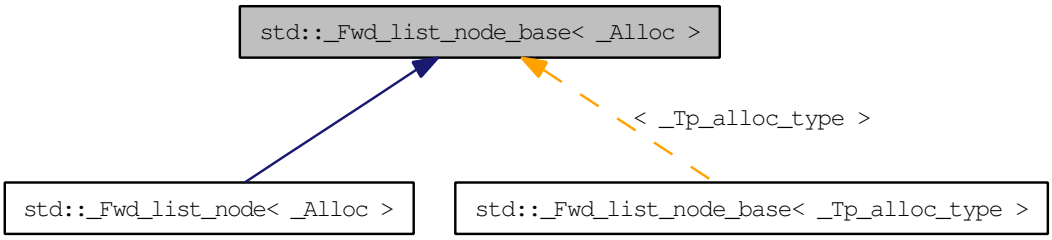
Definition at line 81 of file forward_list.h.

The documentation for this struct was generated from the following file:

- forward_list.h

5.292 std::_Fwd_list_node_base< _Alloc > Struct Template Reference

A helper basic node class for forward_list. This is just a linked list with nothing inside it. There are purely list shuffling utility methods here. Inheritance diagram for std::_Fwd_list_node_base< _Alloc >:



Public Types

- typedef _Alloc::template rebind< _Fwd_list_node_base< _Alloc > >::other::const_pointer **_Const_pointer**
- typedef _Alloc::template rebind< _Fwd_list_node_base< _Alloc > >::other::pointer **_Pointer**

Public Member Functions

- void **_M_reverse_after** ()
- void **_M_transfer_after** (_Pointer __bbegin, _Pointer __bend)
- void **_M_transfer_after** (_Pointer __bbegin)

Static Public Member Functions

- static void **swap** (_Fwd_list_node_base &__x, _Fwd_list_node_base &__y)

Public Attributes

- _Pointer **_M_next**

5.292.1 Detailed Description

template<typename _Alloc> struct std::_Fwd_list_node_base< _Alloc >

A helper basic node class for forward_list. This is just a linked list with nothing inside it. There are purely list shuffling utility methods here.

Definition at line 49 of file forward_list.h.

The documentation for this struct was generated from the following files:

- forward_list.h
- forward_list.tcc

5.293 std::_Has_result_type_helper< _Tp > Class Template Reference

Inherits std::__sfinae_types.

Static Public Attributes

- static const bool **value**

Private Types

- typedef char **__one**

5.293.1 Detailed Description

template<typename _Tp> class std::_Has_result_type_helper< _Tp >

Actual implementation of _Has_result_type, which uses SFINAE to determine if the type _Tp has a publicly-accessible member type result_type.

Definition at line 72 of file functional.

The documentation for this class was generated from the following file:

- functional

5.294 std::_Index_tuple< _Indexes > Struct Template Reference

Public Types

- typedef _Index_tuple< _Indexes..., sizeof...(_Indexes)> **__next**

5.294.1 Detailed Description

template<int... _Indexes> struct std::_Index_tuple< _Indexes >

Stores a tuple of indices. Used by bind() to extract the elements in a tuple.

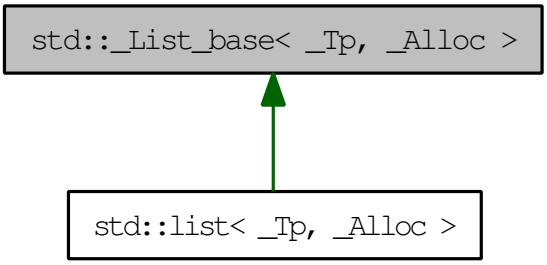
Definition at line 853 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.295 std::_List_base< _Tp, _Alloc > Class Template Reference

See bits/stl_deque.h's _Deque_base for an explanation. Inheritance diagram for std::_List_base< _Tp, _Alloc >:



Public Types

- typedef _Alloc **allocator_type**

Public Member Functions

- **_List_base** (_List_base &&__x)
- **_List_base** (const allocator_type &__a)
- void **_M_clear** ()
- const _Node_alloc_type & **_M_get_Node_allocator** () const
- _Node_alloc_type & **_M_get_Node_allocator** ()
- _Tp_alloc_type **_M_get_Tp_allocator** () const
- void **_M_init** ()
- allocator_type **get_allocator** () const

Protected Types

- typedef _Alloc::template rebind< _List_node< _Tp > >::other **_Node_alloc_type**
- typedef _Alloc::template rebind< _Tp >::other **_Tp_alloc_type**

Protected Member Functions

- _List_node< _Tp > * **_M_get_node** ()
- void **_M_put_node** (_List_node< _Tp > *__p)

Protected Attributes

- _List_impl **_M_impl**

5.295.1 Detailed Description

template<typename _Tp, typename _Alloc> class std::_List_base< _Tp, _Alloc >

See bits/stl_deque.h's _Deque_base for an explanation.

Definition at line 277 of file stl_list.h.

The documentation for this class was generated from the following files:

- stl_list.h
- list.tcc

5.296 std::_List_const_iterator< _Tp > Struct Template Reference

A list::const_iterator.

Public Types

- typedef const _List_node< _Tp > **_Node**
- typedef _List_const_iterator< _Tp > **_Self**
- typedef ptrdiff_t **difference_type**
- typedef _List_iterator< _Tp > **iterator**
- typedef std::bidirectional_iterator_tag **iterator_category**
- typedef const _Tp * **pointer**
- typedef const _Tp & **reference**
- typedef _Tp **value_type**

Public Member Functions

- **_List_const_iterator** (const iterator &__x)
- **_List_const_iterator** (const _List_node_base *__x)
- bool **operator!=** (const _Self &__x) const
- reference **operator*** () const
- _Self **operator++** (int)
- _Self & **operator++** ()
- _Self **operator--** (int)
- _Self & **operator--** ()
- pointer **operator->** () const
- bool **operator==** (const _Self &__x) const

Public Attributes

- const _List_node_base * **_M_node**

5.296.1 Detailed Description

template<typename _Tp> struct std::_List_const_iterator< _Tp >

A list::const_iterator. All the functions are op overloads.

Definition at line 188 of file stl_list.h.

The documentation for this struct was generated from the following file:

- stl_list.h

5.297 std::_List_iterator< _Tp > Struct Template Reference

A list::iterator.

Public Types

- typedef _List_node< _Tp > **_Node**
- typedef _List_iterator< _Tp > **_Self**
- typedef ptrdiff_t **difference_type**
- typedef std::bidirectional_iterator_tag **iterator_category**
- typedef _Tp * **pointer**
- typedef _Tp & **reference**
- typedef _Tp **value_type**

Public Member Functions

- **_List_iterator** (_List_node_base *__x)
- bool **operator!=** (const _Self &__x) const
- reference **operator*** () const
- _Self **operator++** (int)
- _Self & **operator++** ()
- _Self **operator--** (int)
- _Self & **operator--** ()
- pointer **operator->** () const
- bool **operator==** (const _Self &__x) const

Public Attributes

- _List_node_base * **_M_node**

5.297.1 Detailed Description

template<typename _Tp> struct std::_List_iterator< _Tp >

A list::iterator. All the functions are op overloads.

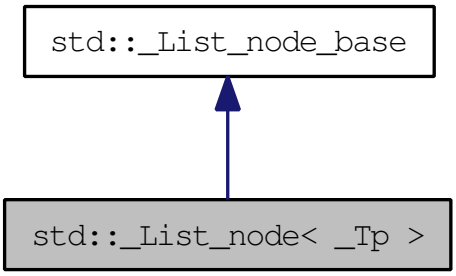
Definition at line 113 of file stl_list.h.

The documentation for this struct was generated from the following file:

- stl_list.h

5.298 std::_List_node< _Tp > Struct Template Reference

An actual node in the list. Inheritance diagram for std::_List_node< _Tp >:



Public Member Functions

- template<typename... _Args>
  _List_node (_Args &&...__args)
- void **_M_hook** (_List_node_base *const __position) throw ()
- void **_M_reverse** () throw ()
- void **_M_transfer** (_List_node_base *const __first, _List_node_base *const __last) throw ()
- void **_M_unhook** () throw ()

Static Public Member Functions

- static void **swap** (_List_node_base &__x, _List_node_base &__y) throw ()

Public Attributes

- _Tp _M_data
- _List_node_base * **_M_next**
- _List_node_base * **_M_prev**

5.298.1 Detailed Description

template<typename _Tp> struct std::_List_node< _Tp >

An actual node in the list.

Definition at line 95 of file stl_list.h.

5.298.2 Member Data Documentation

5.298.2.1 template<typename _Tp> _Tp std::_List_node< _Tp >::_M_data

< User's data.

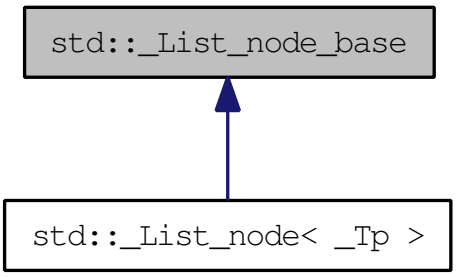
Definition at line 98 of file stl_list.h.

The documentation for this struct was generated from the following file:

- stl_list.h

5.299 std::_List_node_base Struct Reference

Common part of a node in the list. Inheritance diagram for std::_List_node_base:



Public Member Functions

- void **_M_hook** (_List_node_base *const __position) throw ()
- void **_M_reverse** () throw ()
- void **_M_transfer** (_List_node_base *const __first, _List_node_base *const __last) throw ()
- void **_M_unhook** () throw ()

Static Public Member Functions

- static void **swap** (_List_node_base &__x, _List_node_base &__y) throw ()

Public Attributes

- _List_node_base * **_M_next**
- _List_node_base * **_M_prev**

5.299.1 Detailed Description

Common part of a node in the list.

Definition at line 71 of file stl_list.h.

The documentation for this struct was generated from the following file:

- stl_list.h

5.300 std::_Maybe_get_result_type< _Has_result_type, _Functor > Struct Template Reference

If we have found a result_type, extract it. Inheritance diagram for std::_Maybe_get_result_type< _Has_result_type, _Functor >:

5.300.1 Detailed Description

template<bool _Has_result_type, typename _Functor> struct std::_Maybe_get_result_type< _Has_result_type, _Functor >

If we have found a result_type, extract it.

Definition at line 96 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.301 std::_Maybe_unary_or_binary_function< _Res, _ArgTypes > Struct Template Reference

Inheritance diagram for std::_Maybe_unary_or_binary_function< _Res, _ArgTypes >:

5.301.1 Detailed Description

template<typename _Res, typename... _ArgTypes> struct std::_Maybe_unary_or_binary_function< _Res, _ArgTypes >

Derives from `unary_function` or `binary_function`, or perhaps nothing, depending on the number of arguments provided. The primary template is the basis case, which derives nothing.

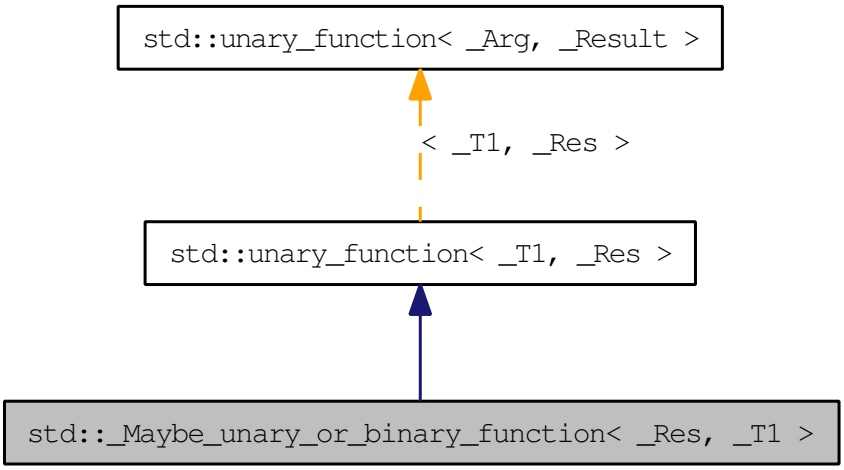
Definition at line 480 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.302 std::_Maybe_unary_or_binary_function< _Res, _T1 > Struct Template Reference

Derives from unary_function, as appropriate. Inheritance diagram for std::_Maybe_unary_or_binary_function< _Res, _T1 >:



Public Types

- typedef _T1 argument_type
- typedef _Res result_type

5.302.1 Detailed Description

template<typename _Res, typename _T1> struct std::_Maybe_unary_or_binary_function< _Res, _T1 >

Derives from unary_function, as appropriate.

Definition at line 484 of file functional.

5.302.2 Member Typedef Documentation

5.302.2.1 typedef _T1 std::unary_function< _T1 , _Res >::argument_type [inherited]

argument_type is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.302.2.2 typedef _Res std::unary_function< _T1 , _Res >::result_type [inherited]

`result_type` is the return type

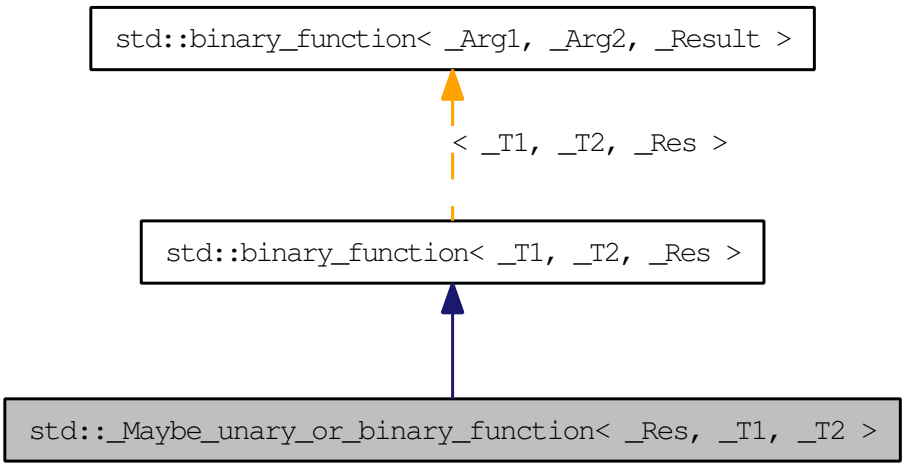
Definition at line 105 of file stl_function.h.

The documentation for this struct was generated from the following file:

- functional

5.303 std::_Maybe_unary_or_binary_function< _Res, _T1, _T2 > Struct Template Reference

Derives from binary_function, as appropriate. Inheritance diagram for std::_Maybe_unary_or_binary_function< _Res, _T1, _T2 >:



Public Types

- typedef _T1 first_argument_type
- typedef _Res result_type
- typedef _T2 second_argument_type

5.303.1 Detailed Description

template<typename _Res, typename _T1, typename _T2> struct std::_Maybe_unary_or_binary_function< _Res, _T1, _T2 >

Derives from binary_function, as appropriate.

Definition at line 489 of file functional.

5.303.2 Member Typedef Documentation

5.303.2.1 typedef _T1 std::binary_function< _T1 , _T2 , _Res >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.303.2.2 typedef _Res std::binary_function< _T1 , _T2 , _Res >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.303.2.3 typedef _T2 std::binary_function< _T1 , _T2 , _Res >::second_argument_type [inherited]

the type of the second argument

Definition at line 117 of file stl_function.h.

The documentation for this struct was generated from the following file:

- functional

5.304 std::_Maybe_wrap_member_pointer< _Tp > Struct Template Reference

Public Types

- typedef _Tp **type**

Static Public Member Functions

- static const _Tp & **__do_wrap** (const _Tp &__x)

5.304.1 Detailed Description

template<typename _Tp> struct std::_Maybe_wrap_member_pointer< _Tp >

Maps member pointers into instances of _Mem_fn but leaves all other function objects untouched. Used by tr1::bind(). The primary template handles the non--member-pointer case.

Definition at line 1048 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.305 std::_Maybe_wrap_member_pointer< _Tp _Class::* > Struct Template Reference

Public Types

- typedef _Mem_fn< _Tp _Class::* > **type**

Static Public Member Functions

- static type **__do_wrap** (_Tp _Class::*__pm)

5.305.1 Detailed Description

template<typename _Tp, typename _Class> struct std::_Maybe_wrap_member_pointer< _Tp _Class::* >

Maps member pointers into instances of _Mem_fn but leaves all other function objects untouched. Used by tr1::bind(). This partial specialization handles the member pointer case.

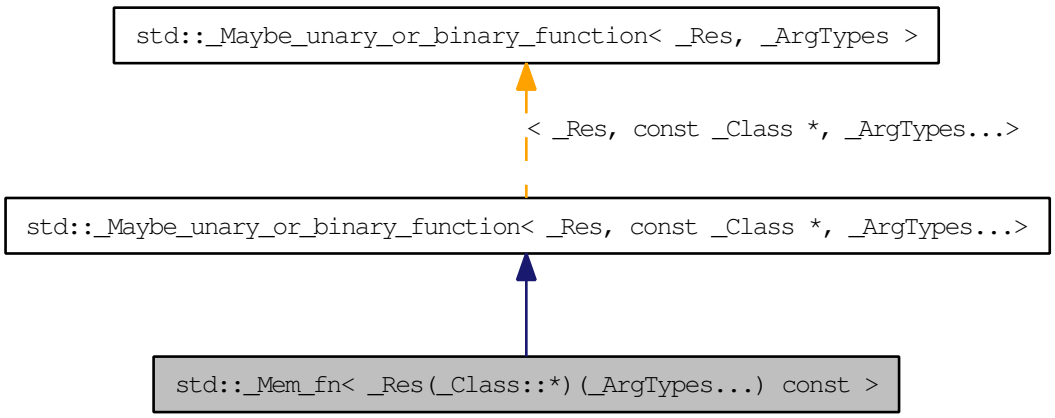
Definition at line 1063 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.306 std::_Mem_fn< _Res(_Class::*)(_ArgTypes...) const > Class Template Reference

Implementation of mem_fn for const member function pointers. Inheritance diagram for std::_Mem_fn< _Res(_Class::*)(_ArgTypes...) const >:



Public Types

- typedef _Res **result_type**

Public Member Functions

- **_Mem_fn** (_Functor __pmf)
- template<typename _Tp >
  _Res **operator()** (_Tp &__object, _ArgTypes...__args) const
- _Res **operator()** (const _Class *__object, _ArgTypes...__args) const
- _Res **operator()** (const _Class &__object, _ArgTypes...__args) const

5.306.1 Detailed Description

template<typename _Res, typename _Class, typename... _ArgTypes> class std::_Mem_fn< _Res(_Class::*)(_ArgTypes...) const >

Implementation of mem_fn for const member function pointers.

Definition at line 537 of file functional.

The documentation for this class was generated from the following file:

- functional

5.307 std::_Mem_fn< _Res(_Class::*)(_ArgTypes...) const volatile > Class Template Reference

Implementation of `mem_fn` for const volatile member function pointers. Inheritance diagram for std::_Mem_fn< _Res(_Class::*)(_ArgTypes...) const volatile >:

Public Types

- typedef _Res **result_type**

Public Member Functions

- **_Mem_fn** (_Functor __pmf)
- template<typename _Tp >
  _Res **operator()** (_Tp &__object, _ArgTypes...__args) const
- _Res **operator()** (const volatile _Class *__object, _ArgTypes...__args) const
- _Res **operator()** (const volatile _Class &__object, _ArgTypes...__args) const

5.307.1 Detailed Description

template<typename _Res, typename _Class, typename... _ArgTypes> class std::_Mem_fn< _Res(_Class::*)(_ArgTypes...) const volatile >

Implementation of `mem_fn` for const volatile member function pointers.

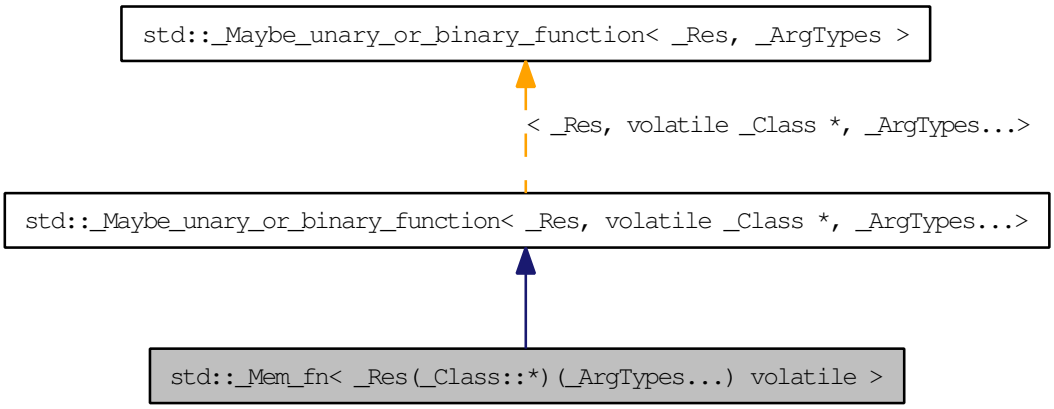
Definition at line 624 of file functional.

The documentation for this class was generated from the following file:

- functional

5.308 std::_Mem_fn< _Res(_Class::*)(_ArgTypes...) volatile > Class Template Reference

Implementation of `mem_fn` for volatile member function pointers. Inheritance diagram for std::_Mem_fn< _Res(_Class::*)(_ArgTypes...) volatile >:



Public Types

- typedef _Res **result_type**

Public Member Functions

- **_Mem_fn** (_Functor __pmf)
- template<typename _Tp >
  _Res **operator()** (_Tp &__object, _ArgTypes...__args) const
- _Res **operator()** (volatile _Class *__object, _ArgTypes...__args) const
- _Res **operator()** (volatile _Class &__object, _ArgTypes...__args) const

5.308.1 Detailed Description

template<typename _Res, typename _Class, typename... _ArgTypes> class std::_Mem_fn< _Res(_Class::*)(_ArgTypes...) volatile >

Implementation of `mem_fn` for volatile member function pointers.

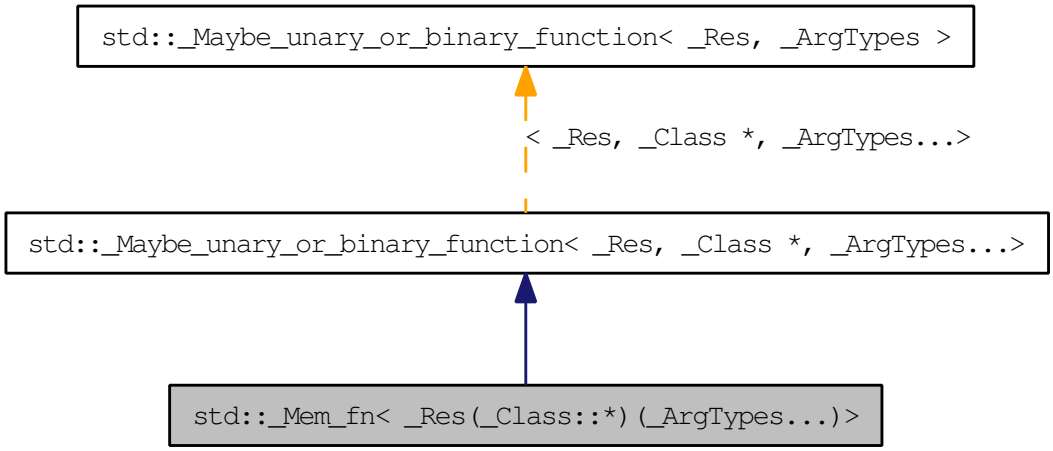
Definition at line 580 of file functional.

The documentation for this class was generated from the following file:

- functional

5.309 std::_Mem_fn< _Res(_Class::*)(_ArgTypes...)> Class Template Reference

Implementation of mem_fn for member function pointers. Inheritance diagram for std::_Mem_fn< _Res(_Class::*)(_ArgTypes...)>:



Public Types

- typedef _Res **result_type**

Public Member Functions

- **_Mem_fn** (_Functor __pmf)
- template<typename _Tp >
  _Res **operator()** (_Tp &__object, _ArgTypes...__args) const
- _Res **operator()** (_Class *__object, _ArgTypes...__args) const
- _Res **operator()** (_Class &__object, _ArgTypes...__args) const

5.309.1 Detailed Description

template<typename _Res, typename _Class, typename... _ArgTypes> class std::_Mem_fn< _Res(_Class::*)(_ArgTypes...)>

Implementation of mem_fn for member function pointers.

Definition at line 494 of file functional.

The documentation for this class was generated from the following file:

- functional

5.310 std::_Mu< _Arg, false, false > Class Template Reference

Public Member Functions

- template<typename _CVArg , typename _Tuple >
  _CVArg && **operator()** (_CVArg &&__arg, _Tuple &&) const volatile

5.310.1 Detailed Description

template<typename _Arg> class std::_Mu< _Arg, false, false >

If the argument is just a value, returns a reference to that value. The cv-qualifiers on the reference are the same as the cv-qualifiers on the _Mu object. [TR1 3.6.3/5 bullet 4]

Definition at line 1024 of file functional.

The documentation for this class was generated from the following file:

- functional

5.311 std::_Mu< _Arg, false, true > Class Template Reference

Public Member Functions

- template<typename _Tuple >
  result< _Mu(_Arg, _Tuple)>::type **operator()** (const volatile _Arg &, _Tuple &&__tuple) const volatile

5.311.1 Detailed Description

template<typename _Arg> class std::_Mu< _Arg, false, true >

If the argument is a placeholder for the Nth argument, returns a reference to the Nth argument to the bind function object. [TR1 3.6.3/5 bullet 3]

Definition at line 990 of file functional.

The documentation for this class was generated from the following file:

- functional

5.312 std::_Mu< _Arg, true, false > Class Template Reference

Public Member Functions

- template<typename _CVArg , typename... _Args>
  result_of< _CVArg(_Args...)>::type **operator()** (_CVArg &__arg, tuple< _-Args...> &&__tuple) const volatile

5.312.1 Detailed Description

template<typename _Arg> class std::_Mu< _Arg, true, false >

If the argument is a bind expression, we invoke the underlying function object with the same cv-qualifiers as we are given and pass along all of our arguments (unwrapped). [TR1 3.6.3/5 bullet 2]

Definition at line 949 of file functional.

The documentation for this class was generated from the following file:

- functional

5.313 std::_Mu< reference_wrapper< _Tp >, false, false > Class Template Reference

Public Types

- typedef _Tp & **result_type**

Public Member Functions

- template<typename _CVRef , typename _Tuple >
  result_type **operator()** (_CVRef &__arg, _Tuple &&) const volatile

5.313.1 Detailed Description

template<typename _Tp> class std::_Mu< reference_wrapper< _Tp >, false, false >

If the argument is reference_wrapper<_Tp>, returns the underlying reference. [TR1 3.6.3/5 bullet 1]

Definition at line 928 of file functional.

The documentation for this class was generated from the following file:

- functional

5.314 std::_Placeholder< _Num > Struct Template Reference

The type of placeholder objects defined by libstdc++.

5.314.1 Detailed Description

template<int _Num> struct std::_Placeholder< _Num >

The type of placeholder objects defined by libstdc++.

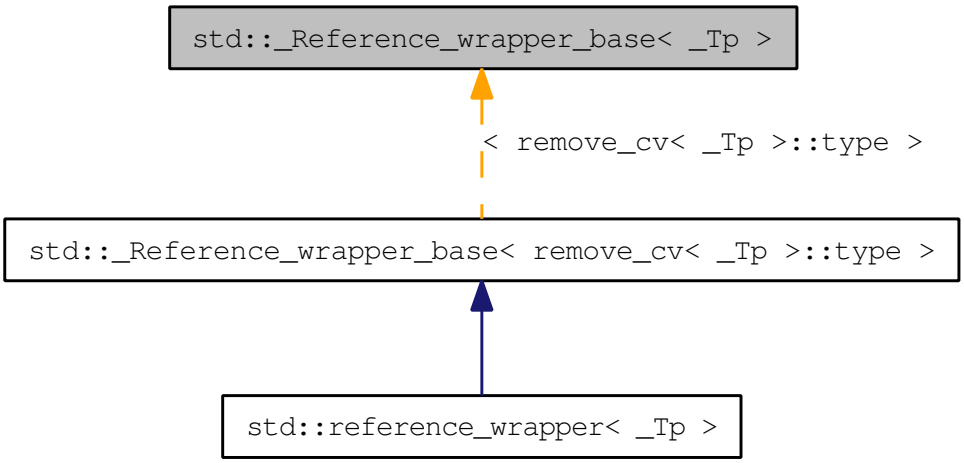
Definition at line 792 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.315 std::_Reference_wrapper_base< _Tp > Struct Template Reference

Inheritance diagram for std::_Reference_wrapper_base< _Tp >:



5.315.1 Detailed Description

template<typename _Tp> struct std::_Reference_wrapper_base< _Tp >

Derives from unary_function or binary_function when it can. Specializations handle all of the easy cases. The primary template determines what to do with a class type, which may derive from both unary_function and binary_function.

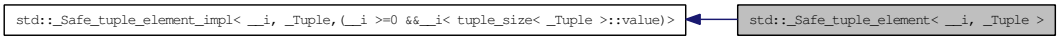
Definition at line 307 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.316 std::_Safe_tuple_element< __i, _Tuple > Struct Template Reference

Inheritance diagram for std::_Safe_tuple_element< __i, _Tuple >:



5.316.1 Detailed Description

template<int __i, typename _Tuple> struct std::_Safe_tuple_element< __i, _Tuple >

Like tuple_element, but returns `_No_tuple_element` when tuple_element would return an error.

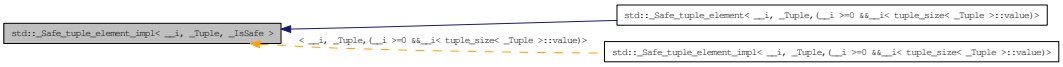
Definition at line 902 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.317 std::_Safe_tuple_element_impl< __i, _Tuple, _IsSafe > Struct Template Reference

Inheritance diagram for std::_Safe_tuple_element_impl< __i, _Tuple, _IsSafe >:



5.317.1 Detailed Description

template<int __i, typename _Tuple, bool _IsSafe> struct std::_Safe_tuple_element_impl< __i, _Tuple, _IsSafe >

Implementation helper for _Safe_tuple_element. This primary template handles the case where it is safe to use `tuple_element`.

Definition at line 883 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.318 std::_Safe_tuple_element_impl< __i, _Tuple, false > Struct Template Reference

Public Types

- typedef _No_tuple_element **type**

5.318.1 Detailed Description

template<int __i, typename _Tuple> struct std::_Safe_tuple_element_impl< __i, _Tuple, false >

Implementation helper for _Safe_tuple_element. This partial specialization handles the case where it is not safe to use `tuple_element`. We just return `_No_tuple_element`.

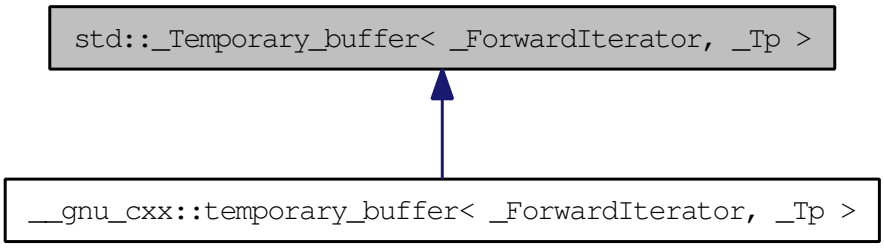
Definition at line 892 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.319 std::_Temporary_buffer< _ForwardIterator, _Tp > Class Template Reference

Inheritance diagram for std::_Temporary_buffer< _ForwardIterator, _Tp >:



Public Types

- typedef pointer **iterator**
- typedef value_type * **pointer**
- typedef ptrdiff_t **size_type**
- typedef _Tp **value_type**

Public Member Functions

- _Temporary_buffer (_ForwardIterator __first, _ForwardIterator __last)
- iterator begin ()
- iterator end ()
- size_type requested_size () const
- size_type size () const

Protected Attributes

- pointer **_M_buffer**
- size_type **_M_len**
- size_type **_M_original_len**

5.319.1 Detailed Description

template<typename _ForwardIterator, typename _Tp> class std::_Temporary_-buffer< _ForwardIterator, _Tp >

This class is used in two places: stl_algo.h and ext/memory, where it is wrapped as the temporary_buffer class. See temporary_buffer docs for more notes.

Definition at line 122 of file stl_tempbuf.h.

5.319.2 Constructor & Destructor Documentation

5.319.2.1 template<typename _ForwardIterator , typename _Tp > std::_Temporary_buffer< _ForwardIterator, _Tp >::_Temporary_buffer (_ForwardIterator *__first*, _ForwardIterator *__last*) [inline]

Constructs a temporary buffer of a size somewhere between zero and the size of the given range.

Definition at line 181 of file stl_tempbuf.h.

References std::pair< _T1, _T2 >::first, std::get_temporary_buffer(), std::return_-temporary_buffer(), and std::pair< _T1, _T2 >::second.

5.319.3 Member Function Documentation

5.319.3.1 template<typename _ForwardIterator, typename _Tp> iterator std::_Temporary_buffer< _ForwardIterator, _Tp >::begin () [inline]

As per Table mumble.

Definition at line 151 of file stl_tempbuf.h.

Referenced by std::inplace_merge(), std::stable_partition(), and std::stable_sort().

5.319.3.2 template<typename _ForwardIterator, typename _Tp> iterator std::_Temporary_buffer< _ForwardIterator, _Tp >::end () [inline]

As per Table mumble.

Definition at line 156 of file stl_tempbuf.h.

5.319.3.3 template<typename _ForwardIterator, typename _Tp> size_type std::_Temporary_buffer< _ForwardIterator, _Tp >::requested_size () const [inline]

Returns the size requested by the constructor; may be >size().

Definition at line 146 of file stl_tempbuf.h.

Referenced by std::stable_partition().

5.319.3.4 template<typename _ForwardIterator, typename _Tp> size_type std::_Temporary_buffer< _ForwardIterator, _Tp >::size () const [inline]

As per Table mumble.

Definition at line 141 of file stl_tempbuf.h.

Referenced by std::inplace_merge(), std::stable_partition(), and std::stable_sort().

The documentation for this class was generated from the following file:

- stl_tempbuf.h

5.320 std::_Tuple_impl< _Idx > Struct Template Reference

Protected Member Functions

- void **_M_swap_impl** (_Tuple_impl &)

5.320.1 Detailed Description

template<std::size_t _Idx> struct std::_Tuple_impl< _Idx >

Zero-element tuple implementation. This is the basis case for the inheritance recursion.

Definition at line 125 of file tuple.

The documentation for this struct was generated from the following file:

- tuple

5.321 std::_Tuple_impl< _Idx, _Head, _Tail...> Struct Template Reference

Inherits _Tuple_impl< _Idx+1, _Tail...>, and _Head_base< _Idx, _Head, std::is_empty< _Head >::value >.

Public Types

- typedef _Head_base< _Idx, _Head, std::is_empty< _Head >::value > **_Base**
- typedef _Tuple_impl< _Idx+1, _Tail...> **_Inherited**

Public Member Functions

- template<typename... _UElements>
  _Tuple_impl (_Tuple_impl< _Idx, _UElements...> &&__in)
- template<typename... _UElements>
  _Tuple_impl (const _Tuple_impl< _Idx, _UElements...> &__in)
- **_Tuple_impl** (_Tuple_impl &&__in)
- **_Tuple_impl** (const _Tuple_impl &__in)
- template<typename _UHead , typename... _UTail>
  _Tuple_impl (_UHead &&__head, _UTail &&...__tail)
- **_Tuple_impl** (const _Head &__head, const _Tail &...__tail)
- const _Head & **_M_head** () const
- _Head & **_M_head** ()
- const _Inherited & **_M_tail** () const
- _Inherited & **_M_tail** ()
- template<typename... _UElements>
  _Tuple_impl & **operator=** (_Tuple_impl< _Idx, _UElements...> &&__in)
- template<typename... _UElements>
  _Tuple_impl & **operator=** (const _Tuple_impl< _Idx, _UElements...> &__in)
- _Tuple_impl & **operator=** (_Tuple_impl &&__in)
- _Tuple_impl & **operator=** (const _Tuple_impl &__in)

Protected Member Functions

- void **_M_swap_impl** (_Tuple_impl &__in)

5.321.1 Detailed Description

template<std::size_t _Idx, typename _Head, typename... _Tail> struct std::_-Tuple_impl< _Idx, _Head, _Tail...>

Recursive tuple implementation. Here we store the `Head` element and derive from a `Tuple_impl` containing the remaining elements (which contains the `Tail`).

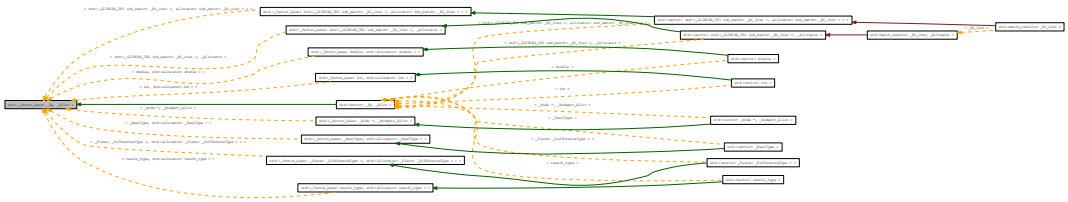
Definition at line 137 of file tuple.

The documentation for this struct was generated from the following file:

- tuple

5.322 std::_Vector_base< _Tp, _Alloc > Struct Template Reference

See bits/stl_deque.h's _Deque_base for an explanation. Inheritance diagram for std::_Vector_base< _Tp, _Alloc >:



Public Types

- typedef _Alloc::template rebind< _Tp >::other **_Tp_alloc_type**
- typedef _Alloc **allocator_type**

Public Member Functions

- **_Vector_base** (_Vector_base &&__x)
- **_Vector_base** (size_t __n, const allocator_type &__a)
- **_Vector_base** (const allocator_type &__a)
- _Tp_alloc_type::pointer **_M_allocate** (size_t __n)
- void **_M_deallocate** (typename _Tp_alloc_type::pointer __p, size_t __n)
- const _Tp_alloc_type & **_M_get_Tp_allocator** () const
- _Tp_alloc_type & **_M_get_Tp_allocator** ()
- allocator_type **get_allocator** () const

Public Attributes

- _Vector_impl **_M_impl**

5.322.1 Detailed Description

template<typename _Tp, typename _Alloc> struct std::_Vector_base< _Tp, _Alloc >

See bits/stl_deque.h's _Deque_base for an explanation.

Definition at line 69 of file stl_vector.h.

The documentation for this struct was generated from the following file:

- stl_vector.h

5.323 std::_Weak_result_type< _Functor > Struct Template Reference

Inheritance diagram for std::_Weak_result_type< _Functor >:

5.323.1 Detailed Description

template<typename _Functor> struct std::_Weak_result_type< _Functor >

Strip top-level cv-qualifiers from the function object and let _Weak_result_type_impl perform the real work.

Definition at line 168 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.324 std::_Weak_result_type_impl< _Functor > Struct Template Reference

Inheritance diagram for std::_Weak_result_type_impl< _Functor >:

5.324.1 Detailed Description

template<typename _Functor> struct std::_Weak_result_type_impl< _Functor >

Base class for any function object that has a weak result type, as defined in 3.3/3 of TR1.

Definition at line 110 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.325 std::_Weak_result_type_impl< _Res(&)(_ArgTypes...)> Struct Template Reference

Retrieve the result type for a function reference.

Public Types

- typedef _Res **result_type**

5.325.1 Detailed Description

template<typename _Res, typename... _ArgTypes> struct std::_Weak_result_type_impl< _Res(&)(_ArgTypes...)>

Retrieve the result type for a function reference.

Definition at line 123 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.326 std::_Weak_result_type_impl< _Res(∗)(_ArgTypes...)> Struct Template Reference

Retrieve the result type for a function pointer.

Public Types

- typedef _Res **result_type**

5.326.1 Detailed Description

template<typename _Res, typename... _ArgTypes> struct std::_Weak_result_type_impl< _Res(∗)(_ArgTypes...)>

Retrieve the result type for a function pointer.

Definition at line 130 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.327 std::_Weak_result_type_impl< _Res(_ArgTypes...)> Struct Template Reference

Retrieve the result type for a function type.

Public Types

- typedef _Res **result_type**

5.327.1 Detailed Description

template<typename _Res, typename... _ArgTypes> struct std::_Weak_result_type_impl< _Res(_ArgTypes...)>

Retrieve the result type for a function type.

Definition at line 116 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.328 std::_Weak_result_type_impl< _Res(_Class::*)(_ArgTypes...) const > Struct Template Reference

Retrieve result type for a const member function pointer.

Public Types

- typedef _Res **result_type**

5.328.1 Detailed Description

template<typename _Res, typename _Class, typename... _ArgTypes> struct std::_Weak_result_type_impl< _Res(_Class::*)(_ArgTypes...) const >

Retrieve result type for a const member function pointer.

Definition at line 144 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.329 std::_Weak_result_type_impl< _Res(_Class::*)(_ArgTypes...) const volatile > Struct Template Reference

Retrieve result type for a const volatile member function pointer.

Public Types

- typedef _Res **result_type**

5.329.1 Detailed Description

template<typename _Res, typename _Class, typename... _ArgTypes> struct std::_Weak_result_type_impl< _Res(_Class::*)(_ArgTypes...) const volatile >

Retrieve result type for a const volatile member function pointer.

Definition at line 158 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.330 std::_Weak_result_type_impl< _Res(_Class::*)(_ArgTypes...) volatile > Struct Template Reference

Retrieve result type for a volatile member function pointer.

Public Types

- typedef _Res **result_type**

5.330.1 Detailed Description

template<typename _Res, typename _Class, typename... _ArgTypes> struct std::_Weak_result_type_impl< _Res(_Class::*)(_ArgTypes...) volatile >

Retrieve result type for a volatile member function pointer.

Definition at line 151 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.331 std::_Weak_result_type_impl< _Res(_Class::*)(_ArgTypes...)> Struct Template Reference

Retrieve result type for a member function pointer.

Public Types

- typedef _Res **result_type**

5.331.1 Detailed Description

template<typename _Res, typename _Class, typename... _ArgTypes> struct std::_Weak_result_type_impl< _Res(_Class::*)(_ArgTypes...)>

Retrieve result type for a member function pointer.

Definition at line 137 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.332 std::add_const< _Tp > Struct Template Reference

add_const

Public Types

- typedef _Tp const **type**

5.332.1 Detailed Description

template<typename _Tp> struct std::add_const< _Tp >

add_const

Definition at line 426 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.333 std::add_cv< _Tp > Struct Template Reference

add_cv

Public Types

- typedef add_const< typename add_volatile< _Tp >::type >::type **type**

5.333.1 Detailed Description

template<typename _Tp> struct std::add_cv< _Tp >

add_cv

Definition at line 436 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.334 std::add_lvalue_reference< _Tp > Struct Template Reference

add_lvalue_reference

Inherits std::__add_lvalue_reference_helper< _Tp >.

Public Types

- typedef _Tp **type**

5.334.1 Detailed Description

template<typename _Tp> struct std::add_lvalue_reference< _Tp >

add_lvalue_reference

Definition at line 125 of file type_traits.

The documentation for this struct was generated from the following file:

- type_traits

5.335 std::add_pointer< _Tp > Struct Template Reference

add_pointer

Public Types

- typedef remove_reference< _Tp >::type * **type**

5.335.1 Detailed Description

template<typename _Tp> struct std::add_pointer< _Tp >

add_pointer

Definition at line 491 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.336 std::add_rvalue_reference< _Tp > Struct Template Reference

add_rvalue_reference

Inherits std::__add_rvalue_reference_helper< _Tp >.

Public Types

- typedef _Tp **type**

5.336.1 Detailed Description

template<typename _Tp> struct std::add_rvalue_reference< _Tp >

add_rvalue_reference

Definition at line 140 of file type_traits.

The documentation for this struct was generated from the following file:

- type_traits

5.337 std::add_volatile< _Tp > Struct Template Reference

add_volatile

Public Types

- typedef _Tp volatile **type**

5.337.1 Detailed Description

template<typename _Tp> struct std::add_volatile< _Tp >

add_volatile

Definition at line 431 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.338 std::adopt_lock_t Struct Reference

Assume the calling thread has already obtained mutex ownership and manage it.

5.338.1 Detailed Description

Assume the calling thread has already obtained mutex ownership and manage it.

Definition at line 383 of file mutex.

The documentation for this struct was generated from the following file:

- mutex

5.339 std::aligned_storage< _Len, _Align > Struct Template Reference

Alignment type.

5.339.1 Detailed Description

template<std::size_t _Len, std::size_t _Align = __alignof__(typename __aligned_storage_msa<_Len>::__type)> struct std::aligned_storage< _Len, _Align >

Alignment type. The value of _Align is a default-alignment which shall be the most stringent alignment requirement for any C++ object type whose size is no greater than _Len (3.9). The member typedef type shall be a POD type suitable for use as uninitialized storage for any object whose size is at most _Len and whose alignment is a divisor of _Align.

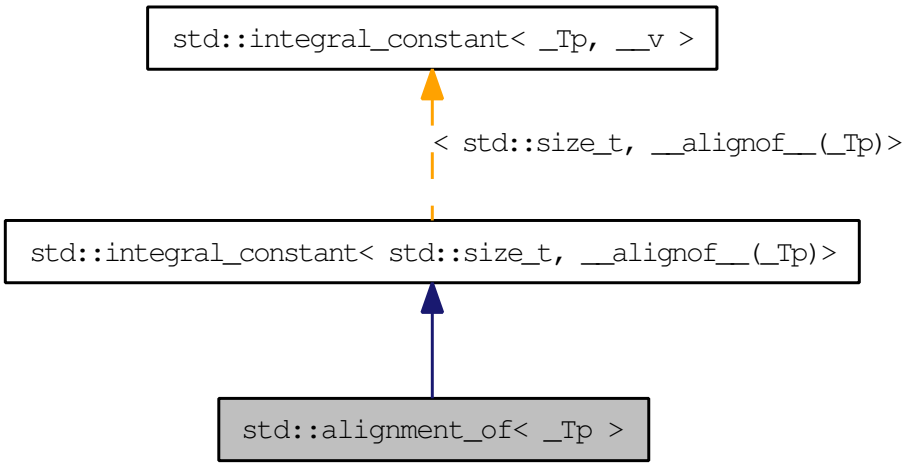
Definition at line 342 of file type_traits.

The documentation for this struct was generated from the following file:

- type_traits

5.340 std::alignment_of< _Tp > Struct Template Reference

alignment_of Inheritance diagram for std::alignment_of< _Tp >:



Public Types

- typedef integral_constant< std::size_t, __v > **type**
- typedef std::size_t **value_type**

Static Public Attributes

- static const std::size_t **value**

5.340.1 Detailed Description

template<typename _Tp> struct std::alignment_of< _Tp >

alignment_of

Definition at line 350 of file tr1_impl/type_traits.

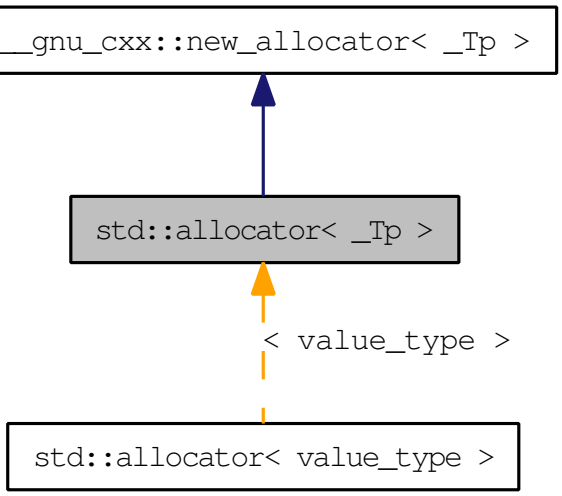
The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.341 std::allocator< _Tp > Class Template Reference

The *standard* allocator, as per [20.4].

Further details: http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt04ch11.html.
Inheritance diagram for std::allocator< _Tp >:



Public Types

- typedef const _Tp * **const_pointer**
- typedef const _Tp & **const_reference**
- typedef ptrdiff_t **difference_type**
- typedef _Tp * **pointer**
- typedef _Tp & **reference**
- typedef size_t **size_type**
- typedef _Tp **value_type**

Public Member Functions

- template<typename _Tp1 >
  allocator (const allocator< _Tp1 > &) throw ()
- **allocator** (const allocator &__a) throw ()
- const_pointer **address** (const_reference __x) const
- pointer **address** (reference __x) const
- pointer **allocate** (size_type __n, const void *=0)

- template<typename... _Args>
  void **construct** (pointer __p, _Args &&...__args)
- void **construct** (pointer __p, const _Tp &__val)
- void **deallocate** (pointer __p, size_type)
- void **destroy** (pointer __p)
- size_type **max_size** () const throw ()

5.341.1 Detailed Description

template<typename _Tp> class std::allocator< _Tp >

The *standard* allocator, as per [20.4].

Further details: http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt04ch11.html.

Definition at line 86 of file allocator.h.

The documentation for this class was generated from the following file:

- allocator.h

5.342 std::allocator< void > Class Template Reference

allocator<void> specialization.

Public Types

- typedef const void * **const_pointer**
- typedef ptrdiff_t **difference_type**
- typedef void * **pointer**
- typedef size_t **size_type**
- typedef void **value_type**

5.342.1 Detailed Description

template<> class std::allocator< void >

allocator<void> specialization.

Definition at line 64 of file allocator.h.

The documentation for this class was generated from the following file:

- allocator.h

5.343 std::array< _Tp, _Nm > Struct Template Reference

A standard container for storing a fixed size sequence of elements.

Public Types

- typedef const value_type * **const_iterator**
- typedef const _Tp * **const_pointer**
- typedef const value_type & **const_reference**
- typedef std::reverse_iterator< const_iterator > **const_reverse_iterator**
- typedef std::ptrdiff_t **difference_type**
- typedef value_type * **iterator**
- typedef _Tp * **pointer**
- typedef value_type & **reference**
- typedef std::reverse_iterator< iterator > **reverse_iterator**
- typedef std::size_t **size_type**
- typedef _Tp **value_type**

Public Member Functions

- const_reference **at** (size_type __n) const
- reference **at** (size_type __n)
- const_reference **back** () const
- reference **back** ()
- const_iterator **begin** () const
- iterator **begin** ()
- const_iterator **cbegin** () const
- const_iterator **cend** () const
- const_reverse_iterator **crbegin** () const
- const_reverse_iterator **crend** () const
- const _Tp * **data** () const
- _Tp * **data** ()
- bool **empty** () const
- const_iterator **end** () const
- iterator **end** ()
- void **fill** (const value_type &__u)
- const_reference **front** () const
- reference **front** ()
- size_type **max_size** () const
- const_reference **operator[ ]** (size_type __n) const

- reference **operator[ ]** (size_type __n)
- const_reverse_iterator **rbegin** () const
- reverse_iterator **rbegin** ()
- const_reverse_iterator **rend** () const
- reverse_iterator **rend** ()
- size_type **size** () const
- void **swap** (array &__other)

Public Attributes

- value_type **_M_instance** [_Nm?_Nm:1]

5.343.1 Detailed Description

template<typename _Tp, std::size_t _Nm> struct std::array< _Tp, _Nm >

A standard container for storing a fixed size sequence of elements. Meets the requirements of a `container`, a `reversible container`, and a `sequence`.

Sets support random access iterators.

Parameters:

Tp Type of element. Required to be a complete type.

N Number of elements.

Definition at line 49 of file tr1_impl/array.

The documentation for this struct was generated from the following file:

- tr1_impl/array

5.344 std::atomic< _Tp > Struct Template Reference

atomic 29.4.3, Generic atomic type, primary class template.

Public Member Functions

- **atomic** (_Tp __i)
- **atomic** (const atomic &)
- bool **compare_exchange_strong** (_Tp &, _Tp, memory_order=memory_order_seq_cst) volatile
- bool **compare_exchange_strong** (_Tp &, _Tp, memory_order, memory_order) volatile
- bool **compare_exchange_weak** (_Tp &, _Tp, memory_order=memory_order_seq_cst) volatile
- bool **compare_exchange_weak** (_Tp &, _Tp, memory_order, memory_order) volatile
- _Tp **exchange** (_Tp __i, memory_order=memory_order_seq_cst) volatile
- bool **is_lock_free** () const volatile
- _Tp **load** (memory_order=memory_order_seq_cst) const volatile
- **operator _Tp** () const
- _Tp **operator=** (_Tp __i)
- atomic & **operator=** (const atomic &) volatile
- void **store** (_Tp, memory_order=memory_order_seq_cst) volatile

5.344.1 Detailed Description

template<typename _Tp> struct std::atomic< _Tp >

atomic 29.4.3, Generic atomic type, primary class template.

Definition at line 86 of file atomic.

The documentation for this struct was generated from the following file:

- atomic

5.345 std::atomic< _Tp * > Struct Template Reference

Partial specialization for pointer types.

Inherits atomic_address.

Public Member Functions

- **atomic** (_Tp *__v)
- **atomic** (const atomic &)
- bool **compare_exchange_strong** (_Tp *&, _Tp *, memory_order=memory_order_seq_cst)
- bool **compare_exchange_strong** (_Tp *&, _Tp *, memory_order, memory_order)
- bool **compare_exchange_weak** (_Tp *&, _Tp *, memory_order=memory_order_seq_cst)
- bool **compare_exchange_weak** (_Tp *&, _Tp *, memory_order, memory_order)
- _Tp * **exchange** (_Tp *, memory_order=memory_order_seq_cst)
- _Tp * **fetch_add** (ptrdiff_t, memory_order=memory_order_seq_cst)
- _Tp * **fetch_sub** (ptrdiff_t, memory_order=memory_order_seq_cst)
- _Tp * **load** (memory_order=memory_order_seq_cst) const
- **operator _Tp *** () const
- _Tp * **operator++** ()
- _Tp * **operator++** (int)
- _Tp * **operator+=** (ptrdiff_t __d)
- _Tp * **operator--** ()
- _Tp * **operator--** (int)
- _Tp * **operator-=** (ptrdiff_t __d)
- _Tp * **operator=** (_Tp *__v)
- atomic & **operator=** (const atomic &) volatile
- void **store** (_Tp *, memory_order=memory_order_seq_cst)

5.345.1 Detailed Description

template<typename _Tp> struct std::atomic< _Tp * >

Partial specialization for pointer types.

Definition at line 134 of file atomic.

The documentation for this struct was generated from the following file:

- atomic

5.346 std::atomic< bool > Struct Template Reference

Explicit specialization for bool.

Inherits __atomic_bool_base.

Public Types

- typedef atomic_bool **__base_type**
- typedef bool **__integral_type**

Public Member Functions

- **atomic** (__integral_type __i)
- **atomic** (const atomic &)
- atomic & **operator=** (const atomic &) volatile

Public Attributes

- bool **_M_i**

5.346.1 Detailed Description

template<> struct std::atomic< bool >

Explicit specialization for bool.

Definition at line 222 of file atomic.

The documentation for this struct was generated from the following file:

- atomic

5.347 std::atomic< char > Struct Template Reference

Explicit specialization for char.

Inherits __atomic_char_base.

Public Types

- typedef atomic_char **__base_type**
- typedef char **__integral_type**

Public Member Functions

- **atomic** (__integral_type __i)
- **atomic** (const atomic &)
- atomic & **operator=** (const atomic &) volatile

Public Attributes

- char **_M_i**

5.347.1 Detailed Description

template<> struct std::atomic< char >

Explicit specialization for char.

Definition at line 240 of file atomic.

The documentation for this struct was generated from the following file:

- atomic

5.348 std::atomic< char16_t > Struct Template Reference

Explicit specialization for char16_t.

Inherits __atomic_short_base.

Public Types

- typedef atomic_char16_t **__base_type**
- typedef char16_t **__integral_type**

Public Member Functions

- **atomic** (__integral_type __i)
- **atomic** (const atomic &)
- atomic & **operator=** (const atomic &) volatile

Public Attributes

- short **_M_i**

5.348.1 Detailed Description

template<> struct std::atomic< char16_t >

Explicit specialization for char16_t.

Definition at line 456 of file atomic.

The documentation for this struct was generated from the following file:

- atomic

5.349 std::atomic< char32_t > Struct Template Reference

Explicit specialization for char32_t.

Inherits __atomic_int_base.

Public Types

- typedef atomic_char32_t **__base_type**
- typedef char32_t **__integral_type**

Public Member Functions

- **atomic** (__integral_type __i)
- **atomic** (const atomic &)
- atomic & **operator=** (const atomic &) volatile

Public Attributes

- int **_M_i**

5.349.1 Detailed Description

template<> struct std::atomic< char32_t >

Explicit specialization for char32_t.

Definition at line 474 of file atomic.

The documentation for this struct was generated from the following file:

- atomic

5.350 std::atomic< int > Struct Template Reference

Explicit specialization for int.

Inherits __atomic_int_base.

Public Types

- typedef atomic_int **__base_type**
- typedef int **__integral_type**

Public Member Functions

- **atomic** (__integral_type __i)
- **atomic** (const atomic &)
- atomic & **operator=** (const atomic &) volatile

Public Attributes

- int **_M_i**

5.350.1 Detailed Description

template<> struct std::atomic< int >

Explicit specialization for int.

Definition at line 330 of file atomic.

The documentation for this struct was generated from the following file:

- atomic

5.351 std::atomic< long > Struct Template Reference

Explicit specialization for long.

Inherits __atomic_long_base.

Public Types

- typedef atomic_long **__base_type**
- typedef long **__integral_type**

Public Member Functions

- **atomic** (__integral_type __i)
- **atomic** (const atomic &)
- atomic & **operator=** (const atomic &) volatile

Public Attributes

- long **_M_i**

5.351.1 Detailed Description

template<> struct std::atomic< long >

Explicit specialization for long.

Definition at line 366 of file atomic.

The documentation for this struct was generated from the following file:

- atomic

5.352 std::atomic< long long > Struct Template Reference

Explicit specialization for long long.

Inherits __atomic_llong_base.

Public Types

- typedef atomic_llong **__base_type**
- typedef long long **__integral_type**

Public Member Functions

- **atomic** (__integral_type __i)
- **atomic** (const atomic &)
- atomic & **operator=** (const atomic &) volatile

Public Attributes

- long long **_M_i**

5.352.1 Detailed Description

template<> struct std::atomic< long long >

Explicit specialization for long long.

Definition at line 402 of file atomic.

The documentation for this struct was generated from the following file:

- atomic

5.353 std::atomic< short > Struct Template Reference

Explicit specialization for short.

Inherits __atomic_short_base.

Public Types

- typedef atomic_short **__base_type**
- typedef short **__integral_type**

Public Member Functions

- **atomic** (__integral_type __i)
- **atomic** (const atomic &)
- atomic & **operator=** (const atomic &) volatile

Public Attributes

- short **_M_i**

5.353.1 Detailed Description

template<> struct std::atomic< short >

Explicit specialization for short.

Definition at line 294 of file atomic.

The documentation for this struct was generated from the following file:

- atomic

5.354 std::atomic< signed char > Struct Template Reference

Explicit specialization for signed char.

Inherits __atomic_schar_base.

Public Types

- typedef atomic_schar **__base_type**
- typedef signed char **__integral_type**

Public Member Functions

- **atomic** (__integral_type __i)
- **atomic** (const atomic &)
- atomic & **operator=** (const atomic &) volatile

Public Attributes

- signed char **_M_i**

5.354.1 Detailed Description

template<> struct std::atomic< signed char >

Explicit specialization for signed char.

Definition at line 258 of file atomic.

The documentation for this struct was generated from the following file:

- atomic

5.355 std::atomic< unsigned char > Struct Template Reference

Explicit specialization for unsigned char.

Inherits __atomic_uchar_base.

Public Types

- typedef atomic_uchar **__base_type**
- typedef unsigned char **__integral_type**

Public Member Functions

- **atomic** (__integral_type __i)
- **atomic** (const atomic &)
- atomic & **operator=** (const atomic &) volatile

Public Attributes

- unsigned char **_M_i**

5.355.1 Detailed Description

template<> struct std::atomic< unsigned char >

Explicit specialization for unsigned char.

Definition at line 276 of file atomic.

The documentation for this struct was generated from the following file:

- atomic

5.356 std::atomic< unsigned int > Struct Template Reference

Explicit specialization for unsigned int.

Inherits __atomic_uint_base.

Public Types

- typedef atomic_uint **__base_type**
- typedef unsigned int **__integral_type**

Public Member Functions

- **atomic** (__integral_type __i)
- **atomic** (const atomic &)
- atomic & **operator=** (const atomic &) volatile

Public Attributes

- unsigned int **_M_i**

5.356.1 Detailed Description

template<> struct std::atomic< unsigned int >

Explicit specialization for unsigned int.

Definition at line 348 of file atomic.

The documentation for this struct was generated from the following file:

- atomic

5.357 std::atomic< unsigned long > Struct Template Reference

Explicit specialization for unsigned long.

Inherits __atomic_ulong_base.

Public Types

- typedef atomic_ulong **__base_type**
- typedef unsigned long **__integral_type**

Public Member Functions

- **atomic** (__integral_type __i)
- **atomic** (const atomic &)
- atomic & **operator=** (const atomic &) volatile

Public Attributes

- unsigned long **_M_i**

5.357.1 Detailed Description

template<> struct std::atomic< unsigned long >

Explicit specialization for unsigned long.

Definition at line 384 of file atomic.

The documentation for this struct was generated from the following file:

- atomic

5.358 std::atomic< unsigned long long > Struct Template Reference

Explicit specialization for unsigned long long.

Inherits __atomic_ullong_base.

Public Types

- typedef atomic_ullong **__base_type**
- typedef unsigned long long **__integral_type**

Public Member Functions

- **atomic** (__integral_type __i)
- **atomic** (const atomic &)
- atomic & **operator=** (const atomic &) volatile

Public Attributes

- unsigned long long **_M_i**

5.358.1 Detailed Description

template<> struct std::atomic< unsigned long long >

Explicit specialization for unsigned long long.

Definition at line 420 of file atomic.

The documentation for this struct was generated from the following file:

- atomic

5.359 std::atomic< unsigned short > Struct Template Reference

Explicit specialization for unsigned short.

Inherits __atomic_ushort_base.

Public Types

- typedef atomic_ushort **__base_type**
- typedef unsigned short **__integral_type**

Public Member Functions

- **atomic** (__integral_type __i)
- **atomic** (const atomic &)
- atomic & **operator=** (const atomic &) volatile

Public Attributes

- unsigned short **_M_i**

5.359.1 Detailed Description

template<> struct std::atomic< unsigned short >

Explicit specialization for unsigned short.

Definition at line 312 of file atomic.

The documentation for this struct was generated from the following file:

- atomic

5.360 std::atomic< void * > Struct Template Reference

Explicit specialization for void*.

Inherits atomic_address.

Public Types

- typedef atomic_address **__base_type**
- typedef void * **__integral_type**

Public Member Functions

- **atomic** (__integral_type __i)
- **atomic** (const atomic &)
- atomic & **operator=** (const atomic &) volatile

5.360.1 Detailed Description

template<> struct std::atomic< void * >

Explicit specialization for void*.

Definition at line 204 of file atomic.

The documentation for this struct was generated from the following file:

- atomic

5.361 std::atomic< wchar_t > Struct Template Reference

Explicit specialization for wchar_t.

Inherits __atomic_wchar_t_base.

Public Types

- typedef atomic_wchar_t **__base_type**
- typedef wchar_t **__integral_type**

Public Member Functions

- **atomic** (__integral_type __i)
- **atomic** (const atomic &)
- atomic & **operator=** (const atomic &) volatile

Public Attributes

- wchar_t **_M_i**

5.361.1 Detailed Description

template<> struct std::atomic< wchar_t >

Explicit specialization for wchar_t.

Definition at line 438 of file atomic.

The documentation for this struct was generated from the following file:

- atomic

5.362 std::auto_ptr< _Tp > Class Template Reference

A simple smart pointer providing strict ownership semantics.

Public Types

- typedef _Tp element_type

Public Member Functions

- auto_ptr (auto_ptr_ref< element_type > __ref) throw ()
- template<typename _Tp1 >
  auto_ptr (auto_ptr< _Tp1 > &__a) throw ()
- auto_ptr (auto_ptr &__a) throw ()
- auto_ptr (element_type *__p=0) throw ()
- ~auto_ptr ()
- element_type * get () const throw ()
- template<typename _Tp1 >
  operator auto_ptr< _Tp1 > () throw ()
- template<typename _Tp1 >
  operator auto_ptr_ref< _Tp1 > () throw ()
- element_type & operator* () const throw ()
- element_type * operator-> () const throw ()
- auto_ptr & **operator=** (auto_ptr_ref< element_type > __ref) throw ()
- template<typename _Tp1 >
  auto_ptr & operator= (auto_ptr< _Tp1 > &__a) throw ()
- auto_ptr & operator= (auto_ptr &__a) throw ()
- element_type * release () throw ()
- void reset (element_type *__p=0) throw ()

5.362.1 Detailed Description

template<typename _Tp> class std::auto_ptr< _Tp >

A simple smart pointer providing strict ownership semantics. The Standard says:

```
An  auto_ptr owns the object it holds a pointer to.  Copying
an  auto_ptr copies the pointer and transfers ownership to the
destination.  If more than one  auto_ptr owns the same object
at the same time the behavior of the program is undefined.
```

```
The uses of  auto_ptr include providing temporary
exception-safety for dynamically allocated memory, passing
ownership of dynamically allocated memory to a function, and
returning dynamically allocated memory from a function.   auto_ptr does not meet the CopyCon
requirements for Standard Library  container elements and thus
instantiating a Standard Library container with an  auto_ptr results in undefined behavior.
```

Quoted from [20.4.5]/3.

Good examples of what can and cannot be done with auto_ptr can be found in the libstdc++ testsuite.

_GLIBCXX_RESOLVE_LIB_DEFECTS 127. auto_ptr<> conversion issues These resolutions have all been incorporated.

Definition at line 85 of file auto_ptr.h.

5.362.2 Member Typedef Documentation

5.362.2.1 template<typename _Tp> typedef _Tp std::auto_ptr< _Tp >::element_type

The pointed-to type.

Definition at line 92 of file auto_ptr.h.

5.362.3 Constructor & Destructor Documentation

5.362.3.1 template<typename _Tp> std::auto_ptr< _Tp >::auto_ptr (element_type * __p = 0) throw () [inline, explicit]

An auto_ptr is usually constructed from a raw pointer.

Parameters:

p A pointer (defaults to NULL).

This object now *owns* the object pointed to by *p*.

Definition at line 101 of file auto_ptr.h.

5.362.3.2 template<typename _Tp> std::auto_ptr< _Tp >::auto_ptr (auto_ptr< _Tp > & __a) throw () [inline]

An auto_ptr can be constructed from another auto_ptr.

Parameters:

a Another auto_ptr of the same type.

This object now *owns* the object previously owned by *a*, which has given up ownership.

Definition at line 110 of file auto_ptr.h.

5.362.3.3 template<typename _Tp> template<typename _Tp1 > std::auto_ptr< _Tp >::auto_ptr (auto_ptr< _Tp1 > & *__a*) throw () [inline]

An auto_ptr can be constructed from another auto_ptr.

Parameters:

a Another auto_ptr of a different but related type.

A pointer-to-Tp1 must be convertible to a pointer-to-Tp/element_type.

This object now *owns* the object previously owned by *a*, which has given up ownership.

Definition at line 123 of file auto_ptr.h.

5.362.3.4 template<typename _Tp> std::auto_ptr< _Tp >::~auto_ptr () [inline]

When the auto_ptr goes out of scope, the object it owns is deleted. If it no longer owns anything (i.e., `get()` is `NULL`), then this has no effect.

The C++ standard says there is supposed to be an empty throw specification here, but omitting it is standard conforming. Its presence can be detected only if _Tp::~_Tp() throws, but this is prohibited. [17.4.3.6]/2

Definition at line 168 of file auto_ptr.h.

5.362.3.5 template<typename _Tp> std::auto_ptr< _Tp >::auto_ptr (auto_ptr_ref< element_type > *__ref*) throw () [inline]

Automatic conversions. These operations convert an auto_ptr into and from an auto_ptr_ref automatically as needed. This allows constructs such as

```
auto_ptr<Derived>  func_returning_auto_ptr(.....);
...
auto_ptr<Base> ptr = func_returning_auto_ptr(.....);
```

Definition at line 258 of file auto_ptr.h.

5.362.4 Member Function Documentation

5.362.4.1 template<typename _Tp> element_type* std::auto_ptr< _Tp >::get (void) const throw () [inline]

Bypassing the smart pointer.

Returns:

The raw pointer being managed.

You can get a copy of the pointer that this object owns, for situations such as passing to a function which only accepts a raw pointer.

Note:

This auto_ptr still owns the memory.

Definition at line 209 of file auto_ptr.h.

5.362.4.2 template<typename _Tp> element_type& std::auto_ptr< _Tp >::operator* () const throw () [inline]

Smart pointer dereferencing. If this auto_ptr no longer owns anything, then this operation will crash. (For a smart pointer, *no longer owns anything* is the same as being a null pointer, and you know what happens when you dereference one of those...)

Definition at line 179 of file auto_ptr.h.

5.362.4.3 template<typename _Tp> element_type* std::auto_ptr< _Tp >::operator-> () const throw () [inline]

Smart pointer dereferencing. This returns the pointer itself, which the language then will automatically cause to be dereferenced.

Definition at line 192 of file auto_ptr.h.

5.362.4.4 template<typename _Tp> template<typename _Tp1 > auto_ptr& std::auto_ptr< _Tp >::operator= (auto_ptr< _Tp1 > & __a) throw () [inline]

auto_ptr assignment operator.

Parameters:

a Another auto_ptr of a different but related type.

A pointer-to-Tp1 must be convertible to a pointer-to-Tp/element_type.

This object now *owns* the object previously owned by *a*, which has given up ownership. The object that this one *used* to own and track has been deleted.

Definition at line 152 of file auto_ptr.h.

5.362.4.5 template<typename _Tp> auto_ptr& std::auto_ptr< _Tp >::operator= (auto_ptr< _Tp > & __a) throw () [inline]

auto_ptr assignment operator.

Parameters:

a Another auto_ptr of the same type.

This object now *owns* the object previously owned by *a*, which has given up ownership. The object that this one *used* to own and track has been deleted.

Definition at line 134 of file auto_ptr.h.

5.362.4.6 template<typename _Tp> element_type* std::auto_ptr< _Tp >::release () throw () [inline]

Bypassing the smart pointer.

Returns:

The raw pointer being managed.

You can get a copy of the pointer that this object owns, for situations such as passing to a function which only accepts a raw pointer.

Note:

This auto_ptr no longer owns the memory. When this object goes out of scope, nothing will happen.

Definition at line 223 of file auto_ptr.h.

5.362.4.7 template<typename _Tp> void std::auto_ptr< _Tp >::reset (element_type * __p = 0) throw () [inline]

Forcibly deletes the managed object.

Parameters:

p A pointer (defaults to NULL).

This object now *owns* the object pointed to by *p*. The previous object has been deleted.

Definition at line 238 of file auto_ptr.h.

The documentation for this class was generated from the following file:

- auto_ptr.h

5.363 std::auto_ptr_ref< _Tp1 > Struct Template Reference

Public Member Functions

- **auto_ptr_ref** (_Tp1 *__p)

Public Attributes

- _Tp1 * **_M_ptr**

5.363.1 Detailed Description

template<typename _Tp1> struct std::auto_ptr_ref< _Tp1 >

A wrapper class to provide auto_ptr with reference semantics. For example, an auto_ptr can be assigned (or constructed from) the result of a function which returns an auto_ptr by value.

All the auto_ptr_ref stuff should happen behind the scenes.

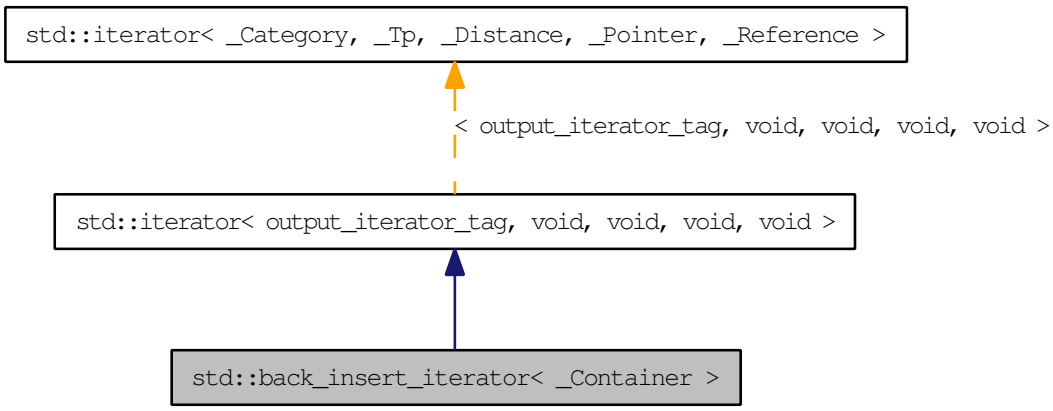
Definition at line 46 of file auto_ptr.h.

The documentation for this struct was generated from the following file:

- auto_ptr.h

5.364 std::back_insert_iterator< _Container > Class Template Reference

Turns assignment into insertion. Inheritance diagram for std::back_insert_iterator< _Container >:



Public Types

- typedef _Container container_type
- typedef void difference_type
- typedef output_iterator_tag iterator_category
- typedef void pointer
- typedef void reference
- typedef void value_type

Public Member Functions

- back_insert_iterator (_Container &__x)
- back_insert_iterator & operator* ()
- back_insert_iterator operator++ (int)
- back_insert_iterator & operator++ ()
- back_insert_iterator & **operator=** (typename _Container::value_type &&__value)
- back_insert_iterator & operator= (typename _Container::const_reference __value)

Protected Attributes

- _Container * **container**

5.364.1 Detailed Description

template<typename _Container> class std::back_insert_iterator< _Container >

Turns assignment into insertion. These are output iterators, constructed from a container-of-T. Assigning a T to the iterator appends it to the container using push_back.

Tip: Using the back_inserter function to create these iterators can save typing.

Definition at line 394 of file stl_iterator.h.

5.364.2 Member Typedef Documentation

5.364.2.1 template<typename _Container > typedef _Container std::back_insert_iterator< _Container >::container_type

A nested typedef for the type of whatever container you used.

Definition at line 402 of file stl_iterator.h.

5.364.2.2 typedef void std::iterator< output_iterator_tag , void , void , void , void >::difference_type [inherited]

Distance between iterators is represented as this type.

Definition at line 115 of file stl_iterator_base_types.h.

5.364.2.3 typedef output_iterator_tag std::iterator< output_iterator_tag , void , void , void , void >::iterator_category [inherited]

One of the tag types.

Definition at line 111 of file stl_iterator_base_types.h.

5.364.2.4 typedef void std::iterator< output_iterator_tag , void , void , void , void >::pointer [inherited]

This type represents a pointer-to-value_type.

Definition at line 117 of file stl_iterator_base_types.h.

5.364.2.5 typedef void std::iterator< output_iterator_tag , void , void , void , void >::reference [inherited]

This type represents a reference-to-value_type.

Definition at line 119 of file stl_iterator_base_types.h.

5.364.2.6 typedef void std::iterator< output_iterator_tag , void , void , void , void >::value_type [inherited]

The type "pointed to" by the iterator.

Definition at line 113 of file stl_iterator_base_types.h.

5.364.3 Constructor & Destructor Documentation

5.364.3.1 template<typename _Container > std::back_insert_iterator< _Container >::back_insert_iterator (_Container & __x) [inline, explicit]

The only way to create this iterator is with a container.

Definition at line 406 of file stl_iterator.h.

5.364.4 Member Function Documentation

5.364.4.1 template<typename _Container > back_insert_iterator& std::back_insert_iterator< _Container >::operator* () [inline]

Simply returns *this.

Definition at line 437 of file stl_iterator.h.

5.364.4.2 template<typename _Container > back_insert_iterator std::back_insert_iterator< _Container >::operator++ (int) [inline]

Simply returns *this. (This iterator does not *move*.).

Definition at line 447 of file stl_iterator.h.

5.364.4.3 template<typename _Container > back_insert_iterator& std::back_insert_iterator< _Container >::operator++ () [inline]

Simply returns ∗this. (This iterator does not *move*.).

Definition at line 442 of file stl_iterator.h.

5.364.4.4 template<typename _Container > back_insert_iterator& std::back_insert_iterator< _Container >::operator= (typename _Container::const_reference *__value*) [inline]

Parameters:

value An instance of whatever type container_type::const_reference is; presumably a reference-to-const T for container<T>.

Returns:

This iterator, for chained operations.

This kind of iterator doesn't really have a *position* in the container (you can think of the position as being permanently at the end, if you like). Assigning a value to the iterator will always append the value to the end of the container.

Definition at line 420 of file stl_iterator.h.

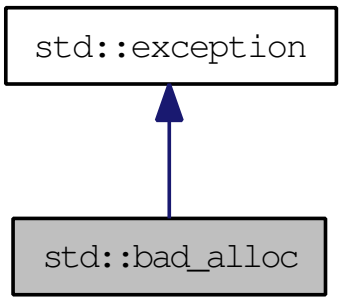
The documentation for this class was generated from the following file:

- stl_iterator.h

5.365 std::bad_alloc Class Reference

Exception possibly thrown by `new`.

`bad_alloc` (or classes derived from it) is used to report allocation errors from the throwing forms of `new`. Inheritance diagram for std::bad_alloc:



Public Member Functions

- virtual const char * what () const throw ()

5.365.1 Detailed Description

Exception possibly thrown by `new`.

`bad_alloc` (or classes derived from it) is used to report allocation errors from the throwing forms of `new`.

Definition at line 56 of file new.

5.365.2 Member Function Documentation

5.365.2.1 virtual const char* std::bad_alloc::what () const throw () [virtual]

Returns a C-style character string describing the general cause of the current error.

Reimplemented from std::exception.

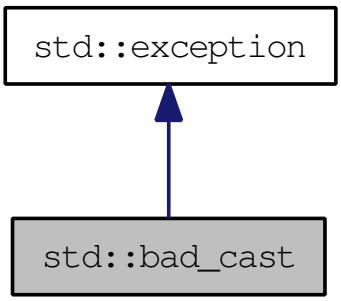
The documentation for this class was generated from the following file:

- new

5.366 std::bad_cast Class Reference

Thrown during incorrect typecasting.

If you attempt an invalid `dynamic_cast` expression, an instance of this class (or something derived from this class) is thrown. Inheritance diagram for std::bad_cast:



Public Member Functions

- virtual const char * what () const throw ()

5.366.1 Detailed Description

Thrown during incorrect typecasting.

If you attempt an invalid `dynamic_cast` expression, an instance of this class (or something derived from this class) is thrown.

Definition at line 174 of file typeinfo.

5.366.2 Member Function Documentation

5.366.2.1 virtual const char* std::bad_cast::what () const throw () [virtual]

Returns a C-style character string describing the general cause of the current error.

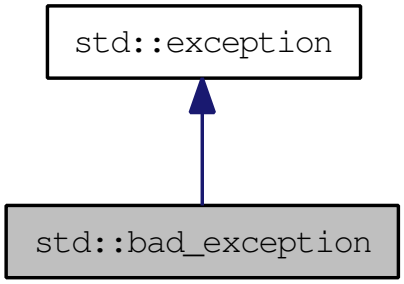
Reimplemented from std::exception.

The documentation for this class was generated from the following file:

- typeinfo

5.367 std::bad_exception Class Reference

Inheritance diagram for std::bad_exception:



Public Member Functions

- virtual const char * what () const throw ()

5.367.1 Detailed Description

If an exception is thrown which is not listed in a function's exception specification, one of these may be thrown.

Definition at line 74 of file exception.

5.367.2 Member Function Documentation

5.367.2.1 virtual const char* std::bad_exception::what () const throw () [virtual]

Returns a C-style character string describing the general cause of the current error.

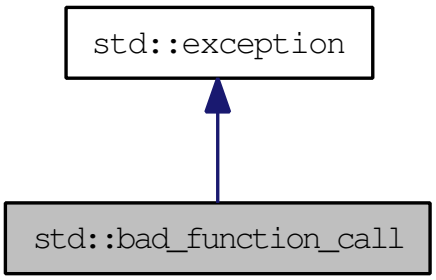
Reimplemented from std::exception.

The documentation for this class was generated from the following file:

- exception

5.368 std::bad_function_call Class Reference

Exception class thrown when class template function's operator() is called with an empty target. Inheritance diagram for std::bad_function_call:



Public Member Functions

- virtual const char ∗ what () const throw ()

5.368.1 Detailed Description

Exception class thrown when class template function's operator() is called with an empty target.

Definition at line 1405 of file functional.

5.368.2 Member Function Documentation

5.368.2.1 virtual const char∗ std::exception::what () const throw () [virtual, inherited]

Returns a C-style character string describing the general cause of the current error.

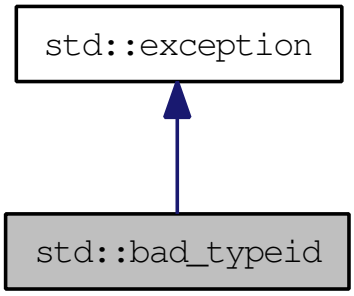
Reimplemented in std::bad_exception, std::bad_alloc, std::bad_cast, std::bad_typeid, std::future_error, std::logic_error, std::runtime_error, std::bad_weak_ptr, and std::ios_base::failure.

The documentation for this class was generated from the following file:

- functional

5.369 std::bad_typeid Class Reference

Thrown when a NULL pointer in a `typeid` expression is used. Inheritance diagram for std::bad_typeid:



Public Member Functions

- virtual const char * what () const throw ()

5.369.1 Detailed Description

Thrown when a NULL pointer in a `typeid` expression is used.

Definition at line 191 of file typeinfo.

5.369.2 Member Function Documentation

5.369.2.1 virtual const char* std::bad_typeid::what () const throw () [virtual]

Returns a C-style character string describing the general cause of the current error.

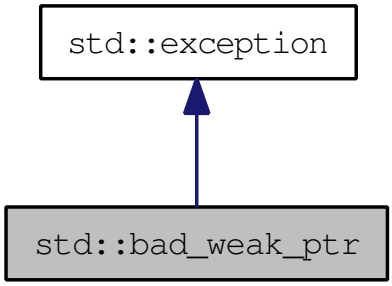
Reimplemented from std::exception.

The documentation for this class was generated from the following file:

- typeinfo

5.370 std::bad_weak_ptr Class Reference

Exception possibly thrown by shared_ptr. Inheritance diagram for std::bad_weak_ptr:



Public Member Functions

- virtual char const * what () const throw ()

5.370.1 Detailed Description

Exception possibly thrown by shared_ptr.

Definition at line 58 of file boost_sp_counted_base.h.

5.370.2 Member Function Documentation

5.370.2.1 virtual char const* std::bad_weak_ptr::what () const throw () [inline, virtual]

Returns a C-style character string describing the general cause of the current error.

Reimplemented from std::exception.

Definition at line 62 of file boost_sp_counted_base.h.

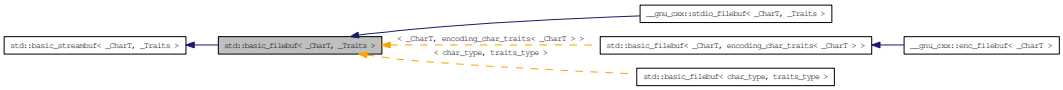
The documentation for this class was generated from the following file:

- boost_sp_counted_base.h

5.371 std::basic_filebuf< _CharT, _Traits > Class Template Reference

The actual work of input and output (for files).

This class associates both its input and output sequence with an external disk file, and maintains a joint file position for both sequences. Many of its semantics are described in terms of similar behavior in the Standard C Library's `FILE` streams. Inheritance diagram for std::basic_filebuf< _CharT, _Traits >:



Public Types

- typedef codecvt< char_type, char, __state_type > **__codecvt_type**
- typedef __basic_file< char > **__file_type**
- typedef basic_filebuf< char_type, traits_type > **__filebuf_type**
- typedef traits_type::state_type **__state_type**
- typedef basic_streambuf< char_type, traits_type > __streambuf_type
- typedef _CharT char_type
- typedef traits_type::int_type int_type
- typedef traits_type::off_type off_type
- typedef traits_type::pos_type pos_type
- typedef _Traits traits_type

Public Member Functions

- basic_filebuf ()
- virtual ~basic_filebuf ()
- __filebuf_type * close ()
- streamsize in_avail ()
- bool is_open () const throw ()
- __filebuf_type * open (const std::string &__s, ios_base::openmode __mode)
- __filebuf_type * open (const char *__s, ios_base::openmode __mode)
- int_type sbumpc ()
- int_type sgetc ()
- streamsize sgetn (char_type *__s, streamsize __n)
- int_type snextc ()
- int_type sputbackc (char_type __c)

- int_type sputc (char_type __c)
- streamsize sputn (const char_type *__s, streamsize __n)
- void stossc ()
- int_type sungetc ()

Protected Member Functions

- void **_M_allocate_internal_buffer** ()
- bool **_M_convert_to_external** (char_type *, streamsize)
- void _M_create_pback ()
- void **_M_destroy_internal_buffer** () throw ()
- void _M_destroy_pback () throw ()
- pos_type **_M_seek** (off_type __off, ios_base::seekdir __way, __state_type __state)
- void _M_set_buffer (streamsize __off)
- bool **_M_terminate_output** ()
- void gbump (int __n)
- virtual void imbue (const locale &__loc)
- virtual int_type overflow (int_type __c=_Traits::eof())
- virtual int_type pbackfail (int_type __c=_Traits::eof())
- void pbump (int __n)
- virtual pos_type seekoff (off_type __off, ios_base::seekdir __way, ios_base::openmode __mode=ios_base::in|ios_base::out)
- virtual pos_type seekpos (pos_type __pos, ios_base::openmode __mode=ios_base::in|ios_base::out)
- virtual __streambuf_type * setbuf (char_type *__s, streamsize __n)
- void setg (char_type *__gbeg, char_type *__gnext, char_type *__gend)
- void setp (char_type *__pbeg, char_type *__pend)
- virtual streamsize showmanyc ()
- virtual int sync ()
- virtual int_type uflow ()
- virtual int_type underflow ()
- virtual streamsize xsgetn (char_type *__s, streamsize __n)
- virtual streamsize xsputn (const char_type *__s, streamsize __n)

Protected Attributes

- char_type * _M_buf
- bool **_M_buf_allocated**
- size_t _M_buf_size
- const __codecvt_type * **_M_codecvt**
- char * _M_ext_buf

- streamsize _M_ext_buf_size
- char * **_M_ext_end**
- const char * _M_ext_next
- __file_type **_M_file**
- __c_lock **_M_lock**
- ios_base::openmode _M_mode
- bool _M_reading
- __state_type **_M_state_beg**
- __state_type **_M_state_cur**
- __state_type **_M_state_last**
- bool **_M_writing**

  - char_type _M_pback
  - char_type * _M_pback_cur_save
  - char_type * _M_pback_end_save
  - bool _M_pback_init

Friends

- template<bool _IsMove, typename _CharT2 > __gnu_cxx::__enable_if< __is_char< _CharT2 >::__value, _CharT2 * >::__type **__copy_move_a2** (istreambuf_iterator< _CharT2 >, istreambuf_iterator< _CharT2 >, _CharT2 *)
- streamsize **__copy_streambufs_eof** (__streambuf_type *, __streambuf_type *, bool &)
- class **basic_ios< char_type, traits_type >**
- class **basic_istream< char_type, traits_type >**
- class **basic_ostream< char_type, traits_type >**
- template<typename _CharT2 > __gnu_cxx::__enable_if< __is_char< _CharT2 >::__value, istreambuf_iterator< _CharT2 > >::__type **find** (istreambuf_iterator< _CharT2 >, istreambuf_iterator< _CharT2 >, const _CharT2 &)
- template<typename _CharT2 , typename _Traits2 , typename _Alloc > basic_istream< _CharT2, _Traits2 > & **getline** (basic_istream< _CharT2, _Traits2 > &, basic_string< _CharT2, _Traits2, _Alloc > &, _CharT2)
- class **ios_base**
- class **istreambuf_iterator< char_type, traits_type >**
- template<typename _CharT2 , typename _Traits2 , typename _Alloc > basic_istream< _CharT2, _Traits2 > & **operator>>** (basic_istream< _CharT2, _Traits2 > &, basic_string< _CharT2, _Traits2, _Alloc > &)
- template<typename _CharT2 , typename _Traits2 > basic_istream< _CharT2, _Traits2 > & **operator>>** (basic_istream< _CharT2, _Traits2 > &, _CharT2 *)

- class **ostreambuf_iterator< char_type, traits_type >**

- locale _M_buf_locale
- char_type * _M_in_beg
- char_type * _M_in_cur
- char_type * _M_in_end
- char_type * _M_out_beg
- char_type * _M_out_cur
- char_type * _M_out_end
- char_type * eback () const
- char_type * egptr () const
- char_type * epptr () const
- char_type * gptr () const
- char_type * pbase () const
- char_type * pptr () const
- locale getloc () const
- locale pubimbue (const locale &__loc)
- pos_type pubseekoff (off_type __off, ios_base::seekdir __way, ios_base::openmode __mode=ios_base::in|ios_base::out)
- pos_type pubseekpos (pos_type __sp, ios_base::openmode __mode=ios_base::in|ios_base::out)
- __streambuf_type * pubsetbuf (char_type *__s, streamsize __n)
- int pubsync ()

5.371.1 Detailed Description

template<typename _CharT, typename _Traits> class std::basic_filebuf< _CharT, _Traits >

The actual work of input and output (for files).

This class associates both its input and output sequence with an external disk file, and maintains a joint file position for both sequences. Many of its semantics are described in terms of similar behavior in the Standard C Library's `FILE` streams.

Definition at line 67 of file fstream.

5.371.2 Member Typedef Documentation

5.371.2.1 template<typename _CharT, typename _Traits> typedef basic_streambuf<char_type, traits_type> std::basic_filebuf< _CharT, _Traits >::__streambuf_type

This is a non-standard type.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 77 of file fstream.

5.371.2.2 template<typename _CharT, typename _Traits> typedef _CharT std::basic_filebuf< _CharT, _Traits >::char_type

These are standard types. They permit a standardized way of referring to names of (or names dependant on) the template parameters, which are specific to the implementation.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Reimplemented in __gnu_cxx::stdio_filebuf< _CharT, _Traits >.

Definition at line 71 of file fstream.

5.371.2.3 template<typename _CharT, typename _Traits> typedef traits_type::int_type std::basic_filebuf< _CharT, _Traits >::int_type

This is a non-standard type.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Reimplemented in __gnu_cxx::stdio_filebuf< _CharT, _Traits >.

Definition at line 73 of file fstream.

5.371.2.4 template<typename _CharT, typename _Traits> typedef traits_type::off_type std::basic_filebuf< _CharT, _Traits >::off_type

This is a non-standard type.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Reimplemented in __gnu_cxx::stdio_filebuf< _CharT, _Traits >.

Definition at line 75 of file fstream.

5.371.2.5 template<typename _CharT, typename _Traits> typedef traits_type::pos_type std::basic_filebuf< _CharT, _Traits >::pos_type

This is a non-standard type.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Reimplemented in __gnu_cxx::enc_filebuf< _CharT >, and __gnu_cxx::stdio_filebuf< _CharT, _Traits >.

Definition at line 74 of file fstream.

5.371.2.6 template<typename _CharT, typename _Traits> typedef _Traits std::basic_filebuf< _CharT, _Traits >::traits_type

This is a non-standard type.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Reimplemented in __gnu_cxx::enc_filebuf< _CharT >, and __gnu_cxx::stdio_filebuf< _CharT, _Traits >.

Definition at line 72 of file fstream.

5.371.3 Constructor & Destructor Documentation

5.371.3.1 template<typename _CharT , typename _Traits > std::basic_filebuf< _CharT, _Traits >::basic_filebuf () [inline]

Does not open any files. The default constructor initializes the parent class using its own default ctor.

Definition at line 79 of file fstream.tcc.

References std::basic_streambuf< _CharT, _Traits >::_M_buf_locale.

5.371.3.2 template<typename _CharT, typename _Traits> virtual std::basic_filebuf< _CharT, _Traits >::~basic_filebuf () [inline, virtual]

The destructor closes the file first.

Definition at line 214 of file fstream.

5.371.4 Member Function Documentation

5.371.4.1 template<typename _CharT, typename _Traits> void std::basic_filebuf< _CharT, _Traits >::_M_create_pback () [inline, protected]

Initializes pback buffers, and moves normal buffers to safety. Assumptions: _M_in_cur has already been moved back

Definition at line 172 of file fstream.

Referenced by std::basic_filebuf< _CharT, _Traits >::pbackfail().

5.371.4.2 template<typename _CharT, typename _Traits> void std::basic_filebuf< _CharT, _Traits >::_M_destroy_pback () throw () [inline, protected]

Deactivates pback buffer contents, and restores normal buffer. Assumptions: The pback buffer has only moved forward.

Definition at line 189 of file fstream.

Referenced by std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekpos(), std::basic_filebuf< _CharT, _Traits >::underflow(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.371.4.3 template<typename _CharT, typename _Traits> void std::basic_filebuf< _CharT, _Traits >::_M_set_buffer (streamsize *__off*) [inline, protected]

This function sets the pointers of the internal buffer, both get and put areas. Typically:

__off == egptr() - eback() upon underflow/uflow (**read** mode); __off == 0 upon overflow (**write** mode); __off == -1 upon open, setbuf, seekoff/pos (**uncommitted** mode).

NB: epptr() - pbase() == _M_buf_size - 1, since _M_buf_size reflects the actual allocated memory and the last cell is reserved for the overflow char of a full put area.

Definition at line 387 of file fstream.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_filebuf< _CharT, _Traits >::open(), std::basic_filebuf< _CharT, _Traits >::overflow(), __gnu_cxx::stdio_filebuf< _CharT, _Traits >::stdio_filebuf(), std::basic_filebuf< _CharT, _Traits >::underflow(), std::basic_filebuf< _CharT, _Traits >::xsgetn(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.371.4.4 template<typename _CharT , typename _Traits > basic_filebuf< _CharT, _Traits >::__filebuf_type * std::basic_filebuf< _CharT, _Traits >::close () [inline]

Closes the currently associated file.

Returns:

`this` on success, NULL on failure

If no file is currently open, this function immediately fails.

If a *put buffer area* exists, `overflow(eof)` is called to flush all the characters. The file is then closed.

If any operations fail, this function also fails.

Definition at line 128 of file fstream.tcc.

References std::basic_filebuf< _CharT, _Traits >::is_open().

Referenced by std::basic_filebuf< _CharT, _Traits >::open().

5.371.4.5 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::eback () const [inline, protected, inherited]

Access to the get area. These functions are only available to other protected functions, including derived classes.

- eback() returns the beginning pointer for the input sequence
- gptr() returns the next pointer for the input sequence
- egptr() returns the end pointer for the input sequence

Definition at line 460 of file streambuf.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::underflow(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.371.4.6 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::egptr () const [inline, protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 466 of file streambuf.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::showmanyc(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::underflow(), std::basic_filebuf< _CharT, _Traits >::underflow(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.371.4.7 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::epptr () const [inline, protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 513 of file streambuf.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_streambuf< _CharT, _Traits >::xsputn(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.371.4.8 template<typename _CharT, typename _Traits> void std::basic_streambuf< _CharT, _Traits >::gbump (int __n) [inline, protected, inherited]

Moving the read position.

Parameters:

n The delta by which to move.

This just advances the read position without returning any data.

Definition at line 476 of file streambuf.

Referenced by std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.371.4.9 template<typename _CharT, typename _Traits> locale std::basic_streambuf< _CharT, _Traits >::getloc () const [inline, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 222 of file streambuf.

5.371.4.10 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::gptr () const [inline, protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 463 of file streambuf.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::showmanyc(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::underflow(), std::basic_filebuf< _CharT, _Traits >::underflow(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.371.4.11 template<typename _CharT , typename _Traits > void std::basic_filebuf< _CharT, _Traits >::imbue (const locale &) [inline, protected, virtual]

Changes translations.

Parameters:

loc A new locale.

Translations done during I/O which depend on the current locale are changed by this call. The standard adds, *Between invocations of this function a class derived from streambuf can safely cache results of calls to locale functions and to members of facets so obtained.*

Note:

Base class version does nothing.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 855 of file fstream.tcc.

References std::basic_filebuf< _CharT, _Traits >::_M_ext_buf, std::basic_filebuf< _CharT, _Traits >::_M_ext_next, std::basic_filebuf< _CharT, _Traits >::_M_mode, std::basic_filebuf< _CharT, _Traits >::_M_reading, std::basic_filebuf< _CharT, _Traits >::_M_set_buffer(), std::ios_base::cur, std::basic_streambuf< _CharT, _Traits >::eback(), std::basic_streambuf< _CharT, _Traits >::gptr(), std::basic_filebuf< _CharT, _Traits >::is_open(), and std::basic_filebuf< _CharT, _Traits >::seekoff().

5.371.4.12 template<typename _CharT, typename _Traits> streamsize std::basic_streambuf< _CharT, _Traits >::in_avail () [inline, inherited]

Looking ahead into the stream.

Returns:

The number of characters available.

If a read position is available, returns the number of characters available for reading before the buffer must be refilled. Otherwise returns the derived `showmanyc()`.

Definition at line 262 of file streambuf.

5.371.4.13 template<typename _CharT, typename _Traits> bool std::basic_filebuf< _CharT, _Traits >::is_open () const throw () [inline]

Returns true if the external file is open.

Definition at line 222 of file fstream.

Referenced by std::basic_filebuf< _CharT, _Traits >::close(), std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_filebuf< _CharT, _Traits >::open(), std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekpos(), std::basic_filebuf< _CharT, _Traits >::setbuf(), std::basic_filebuf< _CharT, _Traits >::showmanyc(), and __gnu_cxx::stdio_filebuf< _CharT, _Traits >::stdio_filebuf().

5.371.4.14 template<typename _CharT, typename _Traits> __filebuf_type* std::basic_filebuf< _CharT, _Traits >::open (const std::string & __*s*, ios_base::openmode __*mode*) [inline]

Opens an external file.

Parameters:

s The name of the file.

mode The open mode flags.

Returns:

`this` on success, NULL on failure

Definition at line 275 of file fstream.

Referenced by std::basic_filebuf< char_type, traits_type >::open().

5.371.4.15 template<typename _CharT , typename _Traits > basic_filebuf< _CharT, _Traits >::__filebuf_type * std::basic_filebuf< _CharT, _Traits >::open (const char * __s, ios_base::openmode __mode) [inline]

Opens an external file.

Parameters:

s The name of the file.

mode The open mode flags.

Returns:

`this` on success, NULL on failure

If a file is already open, this function immediately fails. Otherwise it tries to open the file named *s* using the flags given in *mode*.

Table 92, adapted here, gives the relation between openmode combinations and the equivalent fopen() flags. (NB: lines app, in|out|app, in|app, binary|app, binary|in|out|app, and binary|in|app per DR 596) +---------+ | ios_base Flag combination stdio equivalent | |binary in out trunc app | +---+ | + w | | + + a | | + a | | + + w | | + r | | + + r+ | | + + + w+ | | + + + a+ | | + + a+ | +---+ | + + wb | | + + + ab | | + + ab | | + + + wb | | + + rb | | + + + r+b | | + + + + w+b | | + + + + a+b | | + + + a+b | +---+

Definition at line 94 of file fstream.tcc.

References std::basic_filebuf< _CharT, _Traits >::_M_mode, std::basic_filebuf< _CharT, _Traits >::_M_reading, std::basic_filebuf< _CharT, _Traits >::_M_set_buffer(), std::ios_base::ate, std::basic_filebuf< _CharT, _Traits >::close(), std::ios_base::end, std::basic_filebuf< _CharT, _Traits >::is_open(), and std::basic_filebuf< _CharT, _Traits >::seekoff().

5.371.4.16 template<typename _CharT , typename _Traits > basic_filebuf< _CharT, _Traits >::int_type std::basic_filebuf< _CharT, _Traits >::overflow (int_type = _Traits::eof()) [inline, protected, virtual]

Consumes data from the buffer; writes to the controlled sequence.

Parameters:

c An additional character to consume.

Returns:

eof() to indicate failure, something else (usually *c*, or not_eof())

Informally, this function is called when the output buffer is full (or does not exist, as buffering need not actually be done). If a buffer exists, it is *consumed*, with *some effect* on the controlled sequence. (Typically, the buffer is written out to the sequence verbatim.) In either case, the character *c* is also written out, if *c* is not `eof()`.

For a formal definition of this function, see a good text such as Langer & Kreft, or [27.5.2.4.5]/3-7.

A functioning output streambuf can be created by overriding only this function (no buffer area will be used).

Note:

Base class version does nothing, returns eof().

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 408 of file fstream.tcc.

References std::basic_filebuf< _CharT, _Traits >::_M_buf_size, std::basic_filebuf< _CharT, _Traits >::_M_mode, std::basic_filebuf< _CharT, _Traits >::_M_reading, std::basic_filebuf< _CharT, _Traits >::_M_set_buffer(), std::ios_base::out, std::basic_streambuf< _CharT, _Traits >::pbase(), std::basic_streambuf< _CharT, _Traits >::pbump(), and std::basic_streambuf< _CharT, _Traits >::pptr().

Referenced by std::basic_filebuf< _CharT, _Traits >::sync().

5.371.4.17 template<typename _CharT , typename _Traits > basic_filebuf< _CharT, _Traits >::int_type std::basic_filebuf< _CharT, _Traits >::pbackfail (int_type = _Traits::eof()) [inline, protected, virtual]

Tries to back up the input sequence.

Parameters:

c The character to be inserted back into the sequence.

Returns:

eof() on failure, *some other value* on success

Postcondition:

The constraints of `gptr()`, `eback()`, and `pptr()` are the same as for `underflow()`.

Note:

Base class version does nothing, returns eof().

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 356 of file fstream.tcc.

References std::basic_filebuf< _CharT, _Traits >::_M_create_pback(), std::basic_filebuf< _CharT, _Traits >::_M_mode, std::basic_filebuf< _CharT, _Traits >::_M_pback_init, std::basic_filebuf< _CharT, _Traits >::_M_reading, std::ios_base::cur, std::basic_streambuf< _CharT, _Traits >::eback(), std::basic_streambuf< _CharT, _Traits >::gbump(), std::basic_streambuf< _CharT, _Traits >::gptr(), std::ios_base::in, std::basic_filebuf< _CharT, _Traits >::seekoff(), and std::basic_filebuf< _CharT, _Traits >::underflow().

5.371.4.18 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::pbase () const [inline, protected, inherited]

Access to the put area. These functions are only available to other protected functions, including derived classes.

- pbase() returns the beginning pointer for the output sequence
- pptr() returns the next pointer for the output sequence
- epptr() returns the end pointer for the output sequence

Definition at line 507 of file streambuf.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::sync(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.371.4.19 template<typename _CharT, typename _Traits> void std::basic_streambuf< _CharT, _Traits >::pbump (int __n) [inline, protected, inherited]

Moving the write position.

Parameters:

n The delta by which to move.

This just advances the write position without returning any data.

Definition at line 523 of file streambuf.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), and std::basic_streambuf< _CharT, _Traits >::xsputn().

5.371.4.20 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::pptr () const [inline, protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 510 of file streambuf.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::sync(), std::basic_streambuf< _CharT, _Traits >::xsputn(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.371.4.21 template<typename _CharT, typename _Traits> locale std::basic_streambuf< _CharT, _Traits >::pubimbue (const locale & __loc) [inline, inherited]

Entry point for imbue().

Parameters:

loc The new locale.

Returns:

The previous locale.

Calls the derived imbue(loc).

Definition at line 205 of file streambuf.

5.371.4.22 template<typename _CharT, typename _Traits> pos_type std::basic_streambuf< _CharT, _Traits >::pubseekoff (off_type *__off*, ios_base::seekdir *__way*, ios_base::openmode *__mode* = ios_base::in | ios_base::out) [inline, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 239 of file streambuf.

5.371.4.23 template<typename _CharT, typename _Traits> pos_type std::basic_streambuf< _CharT, _Traits >::pubseekpos (pos_type *__sp*, ios_base::openmode *__mode* = ios_base::in | ios_base::out) [inline, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 244 of file streambuf.

5.371.4.24 template<typename _CharT, typename _Traits> __streambuf_type* std::basic_streambuf< _CharT, _Traits >::pubsetbuf (char_type * *__s*, streamsize *__n*) [inline, inherited]

Entry points for derived buffer functions. The public versions of `pubfoo` dispatch to the protected derived `foo` member functions, passing the arguments (if any) and returning the result unchanged.

Definition at line 235 of file streambuf.

5.371.4.25 template<typename _CharT, typename _Traits> int std::basic_streambuf< _CharT, _Traits >::pubsync () [inline, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 249 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::sync().

5.371.4.26 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::sbumpc () [inline, inherited]

Getting the next character.

Returns:

The next character, or eof.

If the input read position is available, returns that character and increments the read pointer, otherwise calls and returns `uflow()`.

Definition at line 294 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), and std::istreambuf_iterator< _CharT, _Traits >::operator++().

5.371.4.27 template<typename _CharT , typename _Traits > basic_filebuf< _CharT, _Traits >::pos_type std::basic_filebuf< _CharT, _Traits >::seekoff (off_type, ios_base::seekdir, ios_base::openmode = ios_base::in | ios_base::out) [inline, protected, virtual]

Alters the stream positions. Each derived class provides its own appropriate behavior.

Note:

Base class version does nothing, returns a `pos_type` that represents an invalid stream position.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 686 of file fstream.tcc.

References std::basic_filebuf< _CharT, _Traits >::_M_destroy_pback(), std::basic_filebuf< _CharT, _Traits >::_M_ext_buf, std::basic_filebuf< _CharT, _Traits >::_M_ext_next, std::basic_filebuf< _CharT, _Traits >::_M_reading, std::ios_base::cur, std::basic_streambuf< _CharT, _Traits >::eback(), std::basic_streambuf< _CharT, _Traits >::egptr(), std::basic_streambuf< _CharT, _Traits >::gptr(), and std::basic_filebuf< _CharT, _Traits >::is_open().

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_filebuf< _CharT, _Traits >::open(), and std::basic_filebuf< _CharT, _Traits >::pbackfail().

5.371.4.28 template<typename _CharT , typename _Traits > basic_filebuf< _CharT, _Traits >::pos_type std::basic_filebuf< _CharT, _Traits >::seekpos (pos_type, ios_base::openmode = ios_base::in | ios_base::out) [inline, protected, virtual]

Alters the stream positions. Each derived class provides its own appropriate behavior.

Note:

Base class version does nothing, returns a `pos_type` that represents an invalid stream position.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 739 of file fstream.tcc.

References std::basic_filebuf< _CharT, _Traits >::_M_destroy_pback(), std::ios_base::beg, and std::basic_filebuf< _CharT, _Traits >::is_open().

5.371.4.29 template<typename _CharT , typename _Traits > basic_filebuf< _CharT, _Traits >::__streambuf_type * std::basic_filebuf< _CharT, _Traits >::setbuf (char_type * __s, streamsize __n) [inline, protected, virtual]

Manipulates the buffer.

Parameters:

s Pointer to a buffer area.

n Size of *s*.

Returns:

`this`

If no file has been opened, and both *s* and *n* are zero, then the stream becomes unbuffered. Otherwise, `s` is used as a buffer; see http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch25s02.html for more.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 657 of file fstream.tcc.

References std::basic_filebuf< _CharT, _Traits >::_M_buf, std::basic_filebuf< _CharT, _Traits >::_M_buf_size, and std::basic_filebuf< _CharT, _Traits >::is_open().

5.371.4.30 template<typename _CharT, typename _Traits> void std::basic_streambuf< _CharT, _Traits >::setg (char_type * *__gbeg*, char_type * *__gnext*, char_type * *__gend*) [inline, protected, inherited]

Setting the three read area pointers.

Parameters:

gbeg A pointer.

gnext A pointer.

gend A pointer.

Postcondition:

gbeg == `eback()`, *gnext* == `gptr()`, and *gend* == `egptr()`

Definition at line 487 of file streambuf.

5.371.4.31 template<typename _CharT, typename _Traits> void std::basic_streambuf< _CharT, _Traits >::setp (char_type * *__pbeg*, char_type * *__pend*) [inline, protected, inherited]

Setting the three write area pointers.

Parameters:

pbeg A pointer.

pend A pointer.

Postcondition:

pbeg == pbase(), *pbeg* == pptr(), and *pend* == epptr()

Definition at line 533 of file streambuf.

5.371.4.32 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::sgetc () [inline, inherited]

Getting the next character.

Returns:

The next character, or eof.

If the input read position is available, returns that character, otherwise calls and returns underflow(). Does not move the read position after fetching the character.

Definition at line 316 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), and std::basic_istream< _CharT, _Traits >::sentry::sentry().

5.371.4.33 template<typename _CharT, typename _Traits> streamsize std::basic_streambuf< _CharT, _Traits >::sgetn (char_type * __s, streamsize __n) [inline, inherited]

Entry point for xsgetn.

Parameters:

s A buffer area.

n A count.

Returns xsgetn(s,n). The effect is to fill *s*[0] through *s*[n-1] with characters from the input sequence, if possible.

Definition at line 335 of file streambuf.

5.371.4.34 template<typename _CharT , typename _Traits > streamsize std::basic_filebuf< _CharT, _Traits >::showmanyc () [inline, protected, virtual]

Investigating the data available.

Returns:

An estimate of the number of characters available in the input sequence, or -1.

If it returns a positive value, then successive calls to `underflow()` *will not return* `traits::eof()` *until at least that number of characters have been supplied. If* `showmanyc()` *returns -1, then calls to* `underflow()` *or* `uflow()` *will fail.* [27.5.2.4.3]/1

Note:

Base class version does nothing, returns zero.
The standard adds that *the intention is not only that the calls [to underflow or uflow] will not return* `eof()` *but that they will return immediately.*
The standard adds that *the morphemes of* `showmanyc` *are* ***es-how-many-see****, not* ***show-manic***.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 178 of file fstream.tcc.

References std::basic_filebuf< _CharT, _Traits >::_M_mode, std::ios_base::binary, std::basic_streambuf< _CharT, _Traits >::egptr(), std::basic_streambuf< _CharT, _Traits >::gptr(), std::ios_base::in, and std::basic_filebuf< _CharT, _Traits >::is_open().

5.371.4.35 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::snextc () [inline, inherited]

Getting the next character.

Returns:

The next character, or eof.

Calls `sbumpc()`, and if that function returns `traits::eof()`, so does this function. Otherwise, `sgetc()`.

Definition at line 276 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), and std::basic_istream< _CharT, _Traits >::sentry::sentry().

5.371.4.36 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::sputbackc (char_type __c) [inline, inherited]

Pushing characters back into the input stream.

Parameters:

c The character to push back.

Returns:

The previous character, if possible.

Similar to sungetc(), but *c* is pushed onto the stream instead of *the previous character*. If successful, the next character fetched from the input stream will be *c*.

Definition at line 350 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::putback().

5.371.4.37 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::sputc (char_type __c) [inline, inherited]

Entry point for all single-character output functions.

Parameters:

c A character to output.

Returns:

c, if possible.

One of two public output functions.

If a write position is available for the output sequence (i.e., the buffer is not full), stores *c* in that position, increments the position, and returns `traits::to_int_type(c)`. If a write position is not available, returns `overflow(c)`.

Definition at line 402 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::get(), and std::ostreambuf_iterator< _CharT, _Traits >::operator=().

5.371.4.38 template<typename _CharT, typename _Traits> streamsize std::basic_streambuf< _CharT, _Traits >::sputn (const char_type * __s, streamsize __n) [inline, inherited]

Entry point for all single-character output functions.

Parameters:

s A buffer read area.

n A count.

One of two public output functions.

Returns xsputn(s,n). The effect is to write *s*[0] through *s*[n-1] to the output sequence, if possible.

Definition at line 428 of file streambuf.

5.371.4.39 template<typename _CharT, typename _Traits> void std::basic_streambuf< _CharT, _Traits >::stossc () [inline, inherited]

Tosses a character. Advances the read pointer, ignoring the character that would have been read.

See http://gcc.gnu.org/ml/libstdc++/2002-05/msg00168.html

Definition at line 761 of file streambuf.

5.371.4.40 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::sungetc () [inline, inherited]

Moving backwards in the input stream.

Returns:

The previous character, if possible.

If a putback position is available, this function decrements the input pointer and returns that character. Otherwise, calls and returns pbackfail(). The effect is to *unget* the last character *gotten*.

Definition at line 375 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::unget().

5.371.4.41 template<typename _CharT , typename _Traits > int std::basic_filebuf< _CharT, _Traits >::sync () [inline, protected, virtual]

Synchronizes the buffer arrays with the controlled sequences.

Returns:

-1 on failure.

Each derived class provides its own appropriate behavior, including the definition of *failure*.

Note:

Base class version does nothing, returns zero.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 838 of file fstream.tcc.

References std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_streambuf< _CharT, _Traits >::pbase(), and std::basic_streambuf< _CharT, _Traits >::pptr().

5.371.4.42 template<typename _CharT, typename _Traits> virtual int_type std::basic_streambuf< _CharT, _Traits >::uflow () [inline, protected, virtual, inherited]

Fetches more data from the controlled sequence.

Returns:

The first character from the *pending sequence*.

Informally, this function does the same thing as `underflow()`, and in fact is required to call that function. It also returns the new character, like `underflow()` does. However, this function also moves the read position forward by one.

Reimplemented in __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >.

Definition at line 678 of file streambuf.

5.371.4.43 template<typename _CharT , typename _Traits > basic_filebuf< _CharT, _Traits >::int_type std::basic_filebuf< _CharT, _Traits >::underflow () [inline, protected, virtual]

Fetches more data from the controlled sequence.

Returns:

The first character from the *pending sequence*.

Informally, this function is called when the input buffer is exhausted (or does not exist, as buffering need not actually be done). If a buffer exists, it is *refilled*. In either case, the next available character is returned, or `traits::eof()` to indicate a null pending sequence.

For a formal definition of the pending sequence, see a good text such as Langer & Kreft, or [27.5.2.4.3]/7-14.

A functioning input streambuf can be created by overriding only this function (no buffer area will be used). For an example, see http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch25.html

Note:

Base class version does nothing, returns eof().

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 204 of file fstream.tcc.

References std::basic_filebuf< _CharT, _Traits >::_M_buf_size, std::basic_filebuf< _CharT, _Traits >::_M_destroy_pback(), std::basic_filebuf< _CharT, _Traits >::_M_ext_buf, std::basic_filebuf< _CharT, _Traits >::_M_ext_buf_size, std::basic_filebuf< _CharT, _Traits >::_M_ext_next, std::basic_filebuf< _CharT, _Traits >::_M_mode, std::basic_filebuf< _CharT, _Traits >::_M_reading, std::basic_filebuf< _CharT, _Traits >::_M_set_buffer(), std::basic_streambuf< _CharT, _Traits >::eback(), std::basic_streambuf< _CharT, _Traits >::egptr(), std::basic_streambuf< _CharT, _Traits >::gptr(), std::__codecvt_abstract_base< _InternT, _ExternT, _StateT >::in(), std::ios_base::in, and std::min().

Referenced by std::basic_filebuf< _CharT, _Traits >::pbackfail().

5.371.4.44 template<typename _CharT , typename _Traits > streamsize std::basic_filebuf< _CharT, _Traits >::xsgetn (char_type * __s, streamsize __n) [inline, protected, virtual]

Multiple character extraction.

Parameters:

s A buffer area.

n Maximum number of characters to assign.

Returns:

The number of characters assigned.

Fills *s*[0] through *s*[n-1] with characters from the input sequence, as if by sbumpc(). Stops when either *n* characters have been copied, or when traits::eof() would be copied.

It is expected that derived classes provide a more efficient implementation by overriding this definition.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 527 of file fstream.tcc.

References std::basic_filebuf< _CharT, _Traits >::_M_buf_size, std::basic_filebuf< _CharT, _Traits >::_M_destroy_pback(), std::basic_filebuf< _CharT, _Traits >::_M_mode, std::basic_filebuf< _CharT, _Traits >::_M_pback_init, std::basic_filebuf< _CharT, _Traits >::_M_reading, std::basic_filebuf< _CharT, _Traits >::_M_set_buffer(), std::basic_streambuf< _CharT, _Traits >::eback(), std::basic_streambuf< _CharT, _Traits >::egptr(), std::basic_streambuf< _CharT, _Traits >::gbump(), std::basic_streambuf< _CharT, _Traits >::gptr(), std::ios_base::in, and std::basic_streambuf< char_type, traits_type >::xsgetn().

5.371.4.45 template<typename _CharT , typename _Traits > streamsize std::basic_filebuf< _CharT, _Traits >::xsputn (const char_type * __s, streamsize __n) [inline, protected, virtual]

Multiple character insertion.

Parameters:

s A buffer area.

n Maximum number of characters to write.

Returns:

The number of characters written.

Writes *s*[0] through *s*[n-1] to the output sequence, as if by sputc(). Stops when either *n* characters have been copied, or when sputc() would return traits::eof().

It is expected that derived classes provide a more efficient implementation by overriding this definition.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 610 of file fstream.tcc.

References std::basic_filebuf< _CharT, _Traits >::_M_buf_size, std::basic_filebuf< _CharT, _Traits >::_M_mode, std::basic_filebuf< _CharT, _Traits >::_M_reading, std::basic_filebuf< _CharT, _Traits >::_M_set_buffer(), std::basic_streambuf< _CharT, _Traits >::epptr(), std::min(), std::ios_base::out, std::basic_streambuf< _-

CharT, _Traits >::pbase(), std::basic_streambuf< _CharT, _Traits >::pptr(), and std::basic_streambuf< char_type, traits_type >::xsputn().

5.371.5 Member Data Documentation

5.371.5.1 template<typename _CharT, typename _Traits> char_type* std::basic_filebuf< _CharT, _Traits >::_M_buf [protected]

Pointer to the beginning of internal buffer.

Definition at line 109 of file fstream.

Referenced by std::basic_filebuf< _CharT, _Traits >::setbuf().

5.371.5.2 template<typename _CharT, typename _Traits> locale std::basic_streambuf< _CharT, _Traits >::_M_buf_locale [protected, inherited]

Current locale setting.

Definition at line 188 of file streambuf.

Referenced by std::basic_filebuf< _CharT, _Traits >::basic_filebuf().

5.371.5.3 template<typename _CharT, typename _Traits> size_t std::basic_filebuf< _CharT, _Traits >::_M_buf_size [protected]

Actual size of internal buffer. This number is equal to the size of the put area + 1 position, reserved for the overflow char of a full area.

Definition at line 116 of file fstream.

Referenced by std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_filebuf< _CharT, _Traits >::setbuf(), __gnu_cxx::stdio_filebuf< _CharT, _Traits >::stdio_filebuf(), std::basic_filebuf< _CharT, _Traits >::underflow(), std::basic_filebuf< _CharT, _Traits >::xsgetn(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.371.5.4 template<typename _CharT, typename _Traits> char* std::basic_filebuf< _CharT, _Traits >::_M_ext_buf [protected]

Buffer for external characters. Used for input when codecvt::always_noconv() == false. When valid, this corresponds to eback().

Definition at line 151 of file fstream.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_filebuf< _CharT, _Traits >::seekoff(), and std::basic_filebuf< _CharT, _Traits >::underflow().

5.371.5.5 template<typename _CharT, typename _Traits> streamsize std::basic_filebuf< _CharT, _Traits >::_M_ext_buf_size [protected]

Size of buffer held by _M_ext_buf.

Definition at line 156 of file fstream.

Referenced by std::basic_filebuf< _CharT, _Traits >::underflow().

5.371.5.6 template<typename _CharT, typename _Traits> const char* std::basic_filebuf< _CharT, _Traits >::_M_ext_next [protected]

Pointers into the buffer held by _M_ext_buf that delimit a subsequence of bytes that have been read but not yet converted. When valid, _M_ext_next corresponds to egptr().

Definition at line 163 of file fstream.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_filebuf< _CharT, _Traits >::seekoff(), and std::basic_filebuf< _CharT, _Traits >::underflow().

5.371.5.7 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_in_beg [protected, inherited]

This is based on _IO_FILE, just reordered to be more consistent, and is intended to be the most minimal abstraction for an internal buffer.

- get == input == read
- put == output == write

Definition at line 180 of file streambuf.

5.371.5.8 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_in_cur [protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 181 of file streambuf.

5.371.5.9 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_in_end [protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 182 of file streambuf.

5.371.5.10 template<typename _CharT, typename _Traits> ios_base::openmode std::basic_filebuf< _CharT, _Traits >::_M_mode [protected]

Place to stash in || out || in | out settings for current filebuf.

Definition at line 94 of file fstream.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_filebuf< _CharT, _Traits >::open(), std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_filebuf< _CharT, _Traits >::showmanyc(), __gnu_cxx::stdio_filebuf< _CharT, _Traits >::stdio_filebuf(), std::basic_filebuf< _CharT, _Traits >::underflow(), std::basic_filebuf< _CharT, _Traits >::xsgetn(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.371.5.11 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_out_beg [protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 183 of file streambuf.

5.371.5.12 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_out_cur [protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 184 of file streambuf.

5.371.5.13 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_out_end [protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 185 of file streambuf.

5.371.5.14 template<typename _CharT, typename _Traits> char_type std::basic_filebuf< _CharT, _Traits >::_M_pback [protected]

Necessary bits for putback buffer management.

Note:

pbacks of over one character are not currently supported.

Definition at line 137 of file fstream.

5.371.5.15 template<typename _CharT, typename _Traits> char_type* std::basic_filebuf< _CharT, _Traits >::_M_pback_cur_save [protected]

Necessary bits for putback buffer management.

Note:

pbacks of over one character are not currently supported.

Definition at line 138 of file fstream.

5.371.5.16 template<typename _CharT, typename _Traits> char_type* std::basic_filebuf< _CharT, _Traits >::_M_pback_end_save [protected]

Necessary bits for putback buffer management.

Note:

pbacks of over one character are not currently supported.

Definition at line 139 of file fstream.

5.371.5.17 template<typename _CharT, typename _Traits> bool std::basic_filebuf< _CharT, _Traits >::_M_pback_init [protected]

Necessary bits for putback buffer management.

Note:

pbacks of over one character are not currently supported.

Definition at line 140 of file fstream.

Referenced by std::basic_filebuf< _CharT, _Traits >::pbackfail(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.371.5.18 template<typename _CharT, typename _Traits> bool std::basic_filebuf< _CharT, _Traits >::_M_reading [protected]

_M_reading == false && _M_writing == false for **uncommitted** mode; _M_reading == true for **read** mode; _M_writing == true for **write** mode;

NB: _M_reading == true && _M_writing == true is unused.

Definition at line 128 of file fstream.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_filebuf< _CharT, _Traits >::open(), std::basic_filebuf< _CharT, _Traits >::overflow(),

std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_filebuf< _CharT, _Traits >::seekoff(), __gnu_cxx::stdio_filebuf< _CharT, _Traits >::stdio_filebuf(), std::basic_filebuf< _CharT, _Traits >::underflow(), std::basic_filebuf< _CharT, _Traits >::xsgetn(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

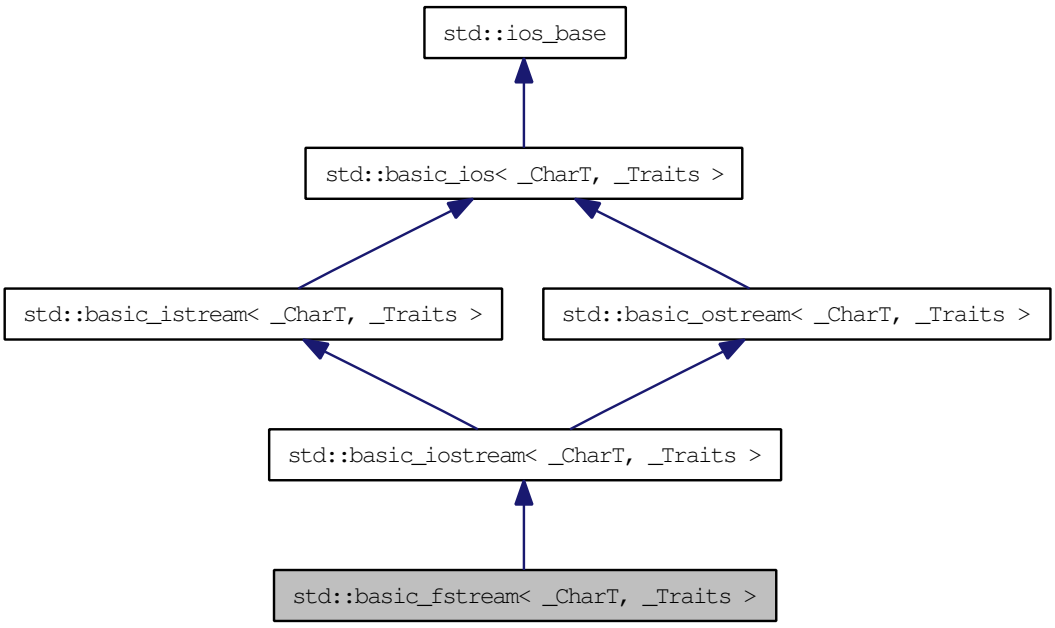
The documentation for this class was generated from the following files:

- fstream
- fstream.tcc

5.372 std::basic_fstream< _CharT, _Traits > Class Template Reference

Controlling input and output for files.

This class supports reading from and writing to named files, using the inherited functions from std::basic_iostream. To control the associated sequence, an instance of std::basic_filebuf is used, which this page refers to as `sb`. Inheritance diagram for std::basic_fstream< _CharT, _Traits >:



Public Types

- typedef ctype< _CharT > __ctype_type
- typedef ctype< _CharT > __ctype_type
- typedef basic_filebuf< char_type, traits_type > **__filebuf_type**
- typedef basic_ios< char_type, traits_type > **__ios_type**
- typedef basic_iostream< char_type, traits_type > **__iostream_type**
- typedef basic_istream< _CharT, _Traits > **__istream_type**
- typedef num_get< _CharT, istreambuf_iterator< _CharT, _Traits > > __num_get_type
- typedef num_put< _CharT, ostreambuf_iterator< _CharT, _Traits > > __num_put_type

- typedef basic_ostream< _CharT, _Traits > **__ostream_type**
- typedef basic_streambuf< _CharT, _Traits > **__streambuf_type**
- typedef basic_streambuf< _CharT, _Traits > **__streambuf_type**
- typedef _CharT char_type
- enum event { **erase_event**, **imbue_event**, **copyfmt_event** }
- typedef void(* event_callback)(event, ios_base &, int)
- typedef _Ios_Fmtflags fmtflags
- typedef traits_type::int_type int_type
- typedef int **io_state**
- typedef _Ios_Iostate iostate
- typedef traits_type::off_type off_type
- typedef int **open_mode**
- typedef _Ios_Openmode openmode
- typedef traits_type::pos_type pos_type
- typedef int **seek_dir**
- typedef _Ios_Seekdir seekdir
- typedef std::streamoff **streamoff**
- typedef std::streampos **streampos**
- typedef _Traits traits_type

Public Member Functions

- basic_fstream (const std::string &__s, ios_base::openmode __mode=ios_base::in|ios_base::out)
- basic_fstream (const char *__s, ios_base::openmode __mode=ios_base::in|ios_base::out)
- basic_fstream ()
- ~basic_fstream ()
- const locale & _M_getloc () const
- void **_M_setstate** (iostate __state)
- bool bad () const
- void clear (iostate __state=goodbit)
- void close ()
- basic_ios & copyfmt (const basic_ios &__rhs)
- bool eof () const
- void exceptions (iostate __except)
- iostate exceptions () const
- bool fail () const
- char_type fill (char_type __ch)
- char_type fill () const
- fmtflags flags (fmtflags __fmtfl)
- fmtflags flags () const

- __ostream_type & flush ()
- streamsize gcount () const
- template<>
  basic_istream< wchar_t > & **getline** (char_type *__s, streamsize __n, char_type __delim)
- template<>
  basic_istream< char > & **getline** (char_type *__s, streamsize __n, char_type __delim)
- locale getloc () const
- bool good () const
- template<>
  basic_istream< wchar_t > & **ignore** (streamsize __n, int_type __delim)
- template<>
  basic_istream< wchar_t > & **ignore** (streamsize __n)
- template<>
  basic_istream< char > & **ignore** (streamsize __n, int_type __delim)
- template<>
  basic_istream< char > & **ignore** (streamsize __n)
- locale imbue (const locale &__loc)
- bool **is_open** () const
- bool is_open ()
- long & iword (int __ix)
- char narrow (char_type __c, char __dfault) const
- void open (const std::string &__s, ios_base::openmode __mode=ios_base::in|ios_base::out)
- void open (const char *__s, ios_base::openmode __mode=ios_base::in|ios_base::out)
- streamsize precision (streamsize __prec)
- streamsize precision () const
- void *& pword (int __ix)
- basic_streambuf< _CharT, _Traits > * rdbuf (basic_streambuf< _CharT, _Traits > *__sb)
- __filebuf_type * rdbuf () const
- iostate rdstate () const
- void register_callback (event_callback __fn, int __index)
- __ostream_type & seekp (off_type, ios_base::seekdir)
- __ostream_type & seekp (pos_type)
- fmtflags setf (fmtflags __fmtfl, fmtflags __mask)
- fmtflags setf (fmtflags __fmtfl)
- void setstate (iostate __state)
- pos_type tellp ()
- basic_ostream< _CharT, _Traits > * tie (basic_ostream< _CharT, _Traits > *__tiestr)

- basic_ostream< _CharT, _Traits > * tie () const
- void unsetf (fmtflags __mask)
- char_type widen (char __c) const
- streamsize width (streamsize __wide)
- streamsize width () const

Unformatted Output Functions

All the unformatted output functions have some common behavior. Each starts by constructing a temporary object of type std::basic_ostream::sentry. This has several effects, concluding with the setting of a status flag; see the sentry documentation for more.

If the sentry status is good, the function tries to generate whatever data is appropriate for the type of the argument.

If an exception is thrown during insertion, ios_base::badbit will be turned on in the stream's error state. If badbit is on in the stream's exceptions mask, the exception will be rethrown without completing its actions.

- void _M_write (const char_type *__s, streamsize __n)
- __ostream_type & put (char_type __c)
- __ostream_type & write (const char_type *__s, streamsize __n)

Unformatted Input Functions

All the unformatted input functions have some common behavior. Each starts by constructing a temporary object of type std::basic_istream::sentry with the second argument (noskipws) set to true. This has several effects, concluding with the setting of a status flag; see the sentry documentation for more.

If the sentry status is good, the function tries to extract whatever data is appropriate for the type of the argument.

The number of characters extracted is stored for later retrieval by gcount().

If an exception is thrown during extraction, ios_base::badbit will be turned on in the stream's error state without causing an ios_base::failure to be thrown. The original exception will then be rethrown.

- __istream_type & get (__streambuf_type &__sb)
- __istream_type & get (__streambuf_type &__sb, char_type __delim)
- __istream_type & get (char_type *__s, streamsize __n)
- __istream_type & get (char_type *__s, streamsize __n, char_type __delim)
- __istream_type & get (char_type &__c)
- int_type get ()
- __istream_type & getline (char_type *__s, streamsize __n)
- __istream_type & getline (char_type *__s, streamsize __n, char_type __delim)
- __istream_type & ignore (streamsize __n, int_type __delim)
- __istream_type & ignore (streamsize __n)

- __istream_type & ignore ()
- int_type peek ()
- __istream_type & putback (char_type __c)
- __istream_type & read (char_type *__s, streamsize __n)
- streamsize readsome (char_type *__s, streamsize __n)
- __istream_type & seekg (off_type, ios_base::seekdir)
- __istream_type & seekg (pos_type)
- int sync ()
- pos_type tellg ()
- __istream_type & unget ()

Arithmetic Inserters

All the `operator<<` functions (aka formatted output functions) have some common behavior. Each starts by constructing a temporary object of type std::basic_ostream::sentry. This can have several effects, concluding with the setting of a status flag; see the sentry documentation for more.

If the sentry status is good, the function tries to generate whatever data is appropriate for the type of the argument.

If an exception is thrown during insertion, ios_base::badbit will be turned on in the stream's error state without causing an ios_base::failure to be thrown. The original exception will then be rethrown.

- __ostream_type & operator<< (__streambuf_type *__sb)
- __ostream_type & operator<< (const void *__p)
- __ostream_type & operator<< (long double __f)
- __ostream_type & operator<< (float __f)
- __ostream_type & operator<< (double __f)
- __ostream_type & operator<< (unsigned long long __n)
- __ostream_type & operator<< (long long __n)
- __ostream_type & operator<< (unsigned int __n)
- __ostream_type & operator<< (int __n)
- __ostream_type & operator<< (unsigned short __n)
- __ostream_type & operator<< (short __n)
- __ostream_type & operator<< (bool __n)
- __ostream_type & operator<< (unsigned long __n)
- __ostream_type & operator<< (long __n)

- __ostream_type & operator<< (ios_base &(*__pf)(ios_base &))
- __ostream_type & operator<< (__ios_type &(*__pf)(__ios_type &))
- __ostream_type & operator<< (__ostream_type &(*__pf)(__ostream_type &))

Arithmetic Extractors

All the `operator>>` functions (aka formatted input functions) have some common behavior. Each starts by constructing a temporary object of type std::basic_istream::sentry with the second argument (noskipws) set to false. This has several

effects, concluding with the setting of a status flag; see the sentry documentation for more.

If the sentry status is good, the function tries to extract whatever data is appropriate for the type of the argument.

If an exception is thrown during extraction, ios_base::badbit will be turned on in the stream's error state without causing an ios_base::failure to be thrown. The original exception will then be rethrown.

- __istream_type & operator>> (__streambuf_type *__sb)
- __istream_type & operator>> (void *&__p)
- __istream_type & operator>> (long double &__f)
- __istream_type & operator>> (double &__f)
- __istream_type & operator>> (float &__f)
- __istream_type & operator>> (unsigned long long &__n)
- __istream_type & operator>> (long long &__n)
- __istream_type & operator>> (unsigned long &__n)
- __istream_type & operator>> (long &__n)
- __istream_type & operator>> (unsigned int &__n)
- __istream_type & operator>> (int &__n)
- __istream_type & operator>> (unsigned short &__n)
- __istream_type & operator>> (short &__n)
- __istream_type & operator>> (bool &__n)

- __istream_type & operator>> (ios_base &(*__pf)(ios_base &))
- __istream_type & operator>> (__ios_type &(*__pf)(__ios_type &))
- __istream_type & operator>> (__istream_type &(*__pf)(__istream_type &))

Static Public Member Functions

- static bool sync_with_stdio (bool __sync=true)
- static int xalloc () throw ()

Static Public Attributes

- static const fmtflags adjustfield
- static const openmode app
- static const openmode ate
- static const iostate badbit
- static const fmtflags basefield
- static const seekdir beg
- static const openmode binary
- static const fmtflags boolalpha
- static const seekdir cur

- static const fmtflags dec
- static const seekdir end
- static const iostate eofbit
- static const iostate failbit
- static const fmtflags fixed
- static const fmtflags floatfield
- static const iostate goodbit
- static const fmtflags hex
- static const openmode in
- static const fmtflags internal
- static const fmtflags left
- static const fmtflags oct
- static const openmode out
- static const fmtflags right
- static const fmtflags scientific
- static const fmtflags showbase
- static const fmtflags showpoint
- static const fmtflags showpos
- static const fmtflags skipws
- static const openmode trunc
- static const fmtflags unitbuf
- static const fmtflags uppercase

Protected Types

- enum { **_S_local_word_size** }

Protected Member Functions

- void **_M_cache_locale** (const locale &__loc)
- void **_M_call_callbacks** (event __ev) throw ()
- void **_M_dispose_callbacks** (void) throw ()
- template<typename _ValueT >
  __istream_type & **_M_extract** (_ValueT &__v)
- _Words & **_M_grow_words** (int __index, bool __iword)
- void **_M_init** () throw ()
- template<typename _ValueT >
  __ostream_type & **_M_insert** (_ValueT __v)
- void init (basic_streambuf< _CharT, _Traits > *__sb)

Protected Attributes

- _Callback_list * **_M_callbacks**
- const __ctype_type * **_M_ctype**
- iostate **_M_exception**
- char_type **_M_fill**
- bool **_M_fill_init**
- fmtflags **_M_flags**
- streamsize _M_gcount
- locale **_M_ios_locale**
- _Words **_M_local_word** [_S_local_word_size]
- const __num_get_type * **_M_num_get**
- const __num_put_type * **_M_num_put**
- streamsize **_M_precision**
- basic_streambuf< _CharT, _Traits > * **_M_streambuf**
- iostate **_M_streambuf_state**
- basic_ostream< _CharT, _Traits > * **_M_tie**
- streamsize **_M_width**
- _Words * **_M_word**
- int **_M_word_size**
- _Words **_M_word_zero**

Friends

- class **sentry**
- class **sentry**

- typedef num_put< _CharT, ostreambuf_iterator< _CharT, _Traits > > __num_put_type
- operator void * () const
- bool operator! () const

5.372.1 Detailed Description

template<typename _CharT, typename _Traits> class std::basic_fstream< _CharT, _Traits >

Controlling input and output for files.

This class supports reading from and writing to named files, using the inherited functions from std::basic_iostream. To control the associated sequence, an instance of std::basic_filebuf is used, which this page refers to as `sb`.

Definition at line 756 of file fstream.

5.372.2 Member Typedef Documentation

5.372.2.1 template<typename _CharT, typename _Traits> typedef ctype<_CharT> std::basic_ostream< _CharT, _Traits >::__ctype_type [inherited]

These are non-standard types.

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 71 of file ostream.

5.372.2.2 template<typename _CharT, typename _Traits> typedef ctype<_CharT> std::basic_istream< _CharT, _Traits >::__ctype_type [inherited]

These are non-standard types.

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 71 of file istream.

5.372.2.3 template<typename _CharT, typename _Traits> typedef num_get<_CharT, istreambuf_iterator<_CharT, _Traits> > std::basic_istream< _CharT, _Traits >::__num_get_type [inherited]

These are non-standard types.

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 70 of file istream.

5.372.2.4 template<typename _CharT, typename _Traits> typedef num_put<_CharT, ostreambuf_iterator<_CharT, _Traits> > std::basic_ostream< _CharT, _Traits >::__num_put_type [inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 70 of file ostream.

5.372.2.5 template<typename _CharT, typename _Traits> typedef num_put<_CharT, ostreambuf_iterator<_CharT, _Traits> > std::basic_ios< _CharT, _Traits >::__num_put_type [inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Reimplemented in std::basic_ostream< _CharT, _Traits >, std::basic_ostream< char, _Traits >, and std::basic_ostream< char >.

Definition at line 84 of file basic_ios.h.

5.372.2.6 template<typename _CharT , typename _Traits > typedef _CharT std::basic_fstream< _CharT, _Traits >::char_type

These are standard types. They permit a standardized way of referring to names of (or names dependant on) the template parameters, which are specific to the implementation.

Reimplemented from std::basic_iostream< _CharT, _Traits >.

Definition at line 760 of file fstream.

5.372.2.7 typedef void(* std::ios_base::event_callback)(event, ios_base &, int) [inherited]

The type of an event callback function.

Parameters:

event One of the members of the event enum.

ios_base Reference to the ios_base object.

int The integer provided when the callback was registered.

Event callbacks are user defined functions that get called during several ios_base and basic_ios functions, specifically imbue(), copyfmt(), and ~ios().

Definition at line 444 of file ios_base.h.

5.372.2.8 typedef _Ios_Fmtflags std::ios_base::fmtflags [inherited]

This is a bitmask type. *_Ios_Fmtflags* is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type fmtflags are:

- boolalpha
- dec
- fixed
- hex
- internal
- left
- oct
- right
- scientific
- showbase
- showpoint
- showpos
- skipws
- unitbuf
- uppercase
- adjustfield
- basefield
- floatfield

Definition at line 263 of file ios_base.h.

5.372.2.9 template<typename _CharT , typename _Traits > typedef traits_type::int_type std::basic_fstream< _CharT, _Traits >::int_type

These are non-standard types.

Reimplemented from std::basic_iostream< _CharT, _Traits >.

Definition at line 762 of file fstream.

5.372.2.10 typedef _Ios_Iostate std::ios_base::iostate [inherited]

This is a bitmask type. *_Ios_Iostate* is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type iostate are:

- badbit
- eofbit
- failbit
- goodbit

Definition at line 338 of file ios_base.h.

5.372.2.11 template<typename _CharT , typename _Traits > typedef traits_type::off_type std::basic_fstream< _CharT, _Traits >::off_type

These are non-standard types.

Reimplemented from std::basic_iostream< _CharT, _Traits >.

Definition at line 764 of file fstream.

5.372.2.12 typedef _Ios_Openmode std::ios_base::openmode [inherited]

This is a bitmask type. *_Ios_Openmode* is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type openmode are:

- app
- ate
- binary
- in
- out
- trunc

Definition at line 369 of file ios_base.h.

5.372.2.13 template<typename _CharT , typename _Traits > typedef traits_type::pos_type std::basic_fstream< _CharT, _Traits >::pos_type

These are non-standard types.

Reimplemented from std::basic_iostream< _CharT, _Traits >.

Definition at line 763 of file fstream.

5.372.2.14 typedef _Ios_Seekdir std::ios_base::seekdir [inherited]

This is an enumerated type. *_Ios_Seekdir* is implementation-defined. Defined values of type seekdir are:

- beg
- cur, equivalent to SEEK_CUR in the C standard library.
- end, equivalent to SEEK_END in the C standard library.

Definition at line 401 of file ios_base.h.

5.372.2.15 template<typename _CharT , typename _Traits > typedef _Traits std::basic_fstream< _CharT, _Traits >::traits_type

These are non-standard types.

Reimplemented from std::basic_iostream< _CharT, _Traits >.

Definition at line 761 of file fstream.

5.372.3 Member Enumeration Documentation

5.372.3.1 enum std::ios_base::event [inherited]

The set of events that may be passed to an event callback. erase_event is used during ~ios() and copyfmt(). imbue_event is used during imbue(). copyfmt_event is used during copyfmt().

Definition at line 427 of file ios_base.h.

5.372.4 Constructor & Destructor Documentation

5.372.4.1 template<typename _CharT , typename _Traits > std::basic_fstream< _CharT, _Traits >::basic_fstream () [inline]

Default constructor. Initializes `sb` using its default constructor, and passes `&sb` to the base class initializer. Does not open any files (you haven't given it a filename to open).

Definition at line 783 of file fstream.

5.372.4.2 template<typename _CharT , typename _Traits > std::basic_fstream< _CharT, _Traits >::basic_fstream (const char * __*s*, ios_base::openmode __*mode* = ios_base::in | ios_base::out) [inline, explicit]

Create an input/output file stream.

Parameters:

s Null terminated string specifying the filename.

mode Open file in specified mode (see std::ios_base).

Tip: When using std::string to hold the filename, you must use .c_str() before passing it to this constructor.

Definition at line 796 of file fstream.

5.372.4.3 template<typename _CharT , typename _Traits > std::basic_fstream< _CharT, _Traits >::basic_fstream (const std::string & __*s*, ios_base::openmode __*mode* = ios_base::in | ios_base::out) [inline, explicit]

Create an input/output file stream.

Parameters:

s Null terminated string specifying the filename.

mode Open file in specified mode (see std::ios_base).

Definition at line 811 of file fstream.

5.372.4.4 template<typename _CharT , typename _Traits > std::basic_fstream< _CharT, _Traits >::~basic_fstream () [inline]

The destructor does nothing. The file is closed by the filebuf object, not the formatting stream.

Definition at line 826 of file fstream.

5.372.5 Member Function Documentation

5.372.5.1 const locale& std::ios_base::_M_getloc () const [inline, inherited]

Locale access.

Returns:

A reference to the current locale.

Like getloc above, but returns a reference instead of generating a copy.

Definition at line 705 of file ios_base.h.

Referenced by std::money_get< _CharT, _InIter >::do_get(), std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_date(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_time(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::time_put< _CharT, _OutIter >::do_put(), std::num_put< _CharT, _OutIter >::do_put(), and std::time_put< _CharT, _OutIter >::put().

5.372.5.2 template<typename _CharT, typename _Traits> void std::basic_ostream< _CharT, _Traits >::_M_write (const char_type * __s, streamsize __n) [inline, inherited]

Simple insertion.

Parameters:

c The character to insert.

Returns:

*this

Tries to insert *c*.

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 287 of file ostream.

Referenced by std::basic_ostream< _CharT, _Traits >::write().

5.372.5.3 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::bad () const [inline, inherited]

Fast error checking.

Returns:

True if the badbit is set.

Note that other iostate flags may also be set.

Definition at line 201 of file basic_ios.h.

5.372.5.4 template<typename _CharT , typename _Traits > void std::basic_ios< _CharT, _Traits >::clear (iostate *__state* = goodbit) [inline, inherited]

[Re]sets the error state.

Parameters:

state The new state flag(s) to set.

See std::ios_base::iostate for the possible bit values. Most users will not need to pass an argument.

Definition at line 40 of file basic_ios.tcc.

Referenced by std::basic_ios< _CharT, _Traits >::rdbuf().

5.372.5.5 template<typename _CharT , typename _Traits > void std::basic_fstream< _CharT, _Traits >::close () [inline]

Close the file. Calls `std::basic_filebuf::close()`. If that function fails, `failbit` is set in the stream's error state.

Definition at line 906 of file fstream.

5.372.5.6 template<typename _CharT , typename _Traits > basic_ios< _CharT, _Traits > & std::basic_ios< _CharT, _Traits >::copyfmt (const basic_ios< _CharT, _Traits > & *__rhs*) [inline, inherited]

Copies fields of __rhs into this.

Parameters:

__rhs The source values for the copies.

Returns:

Reference to this object.

All fields of __rhs are copied into this object except that rdbuf() and rdstate() remain unchanged. All values in the pword and iword arrays are copied. Before copying, each callback is invoked with erase_event. After copying, each (new) callback is invoked with copyfmt_event. The final step is to copy exceptions().

Definition at line 62 of file basic_ios.tcc.

References std::basic_ios< _CharT, _Traits >::exceptions(), std::basic_ios< _CharT, _Traits >::fill(), std::ios_base::flags(), std::ios_base::getloc(), std::ios_base::precision(), std::basic_ios< _CharT, _Traits >::tie(), and std::ios_base::width().

5.372.5.7 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::eof () const [inline, inherited]

Fast error checking.

Returns:

True if the eofbit is set.

Note that other iostate flags may also be set.

Definition at line 180 of file basic_ios.h.

Referenced by std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_istream< _CharT, _Traits >::putback(), and std::basic_istream< _CharT, _Traits >::unget().

5.372.5.8 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::exceptions (iostate *__except*) [inline, inherited]

Throwing exceptions on errors.

Parameters:

except The new exceptions mask.

By default, error flags are set silently. You can set an exceptions mask for each stream; if a bit in the mask becomes set in the error flags, then an exception of type std::ios_base::failure is thrown.

If the error flag is already set when the exceptions mask is added, the exception is immediately thrown. Try running the following under GCC 3.1 or later:

```
#include <iostream>
#include <fstream>
#include <exception>

int main()
{
    std::set_terminate (__gnu_cxx::__verbose_terminate_handler);

    std::ifstream f ("/etc/motd");

    std::cerr << "Setting badbit\n";
    f.setstate (std::ios_base::badbit);

    std::cerr << "Setting exception mask\n";
    f.exceptions (std::ios_base::badbit);
}
```

Definition at line 247 of file basic_ios.h.

5.372.5.9 template<typename _CharT, typename _Traits> iostate std::basic_ios< _CharT, _Traits >::exceptions () const [inline, inherited]

Throwing exceptions on errors.

Returns:

The current exceptions mask.

This changes nothing in the stream. See the one-argument version of exceptions(iostate) for the meaning of the return value.

Definition at line 212 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.372.5.10 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::fail () const [inline, inherited]

Fast error checking.

Returns:

True if either the badbit or the failbit is set.

Checking the badbit in fail() is historical practice. Note that other iostate flags may also be set.

Definition at line 191 of file basic_ios.h.

Referenced by std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_ostream< _CharT, _Traits >::tellp(), and std::regex_traits< _Ch_type >::value().

5.372.5.11 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::fill (char_type __*ch*) [inline, inherited]

Sets a new *empty* character.

Parameters:

ch The new character.

Returns:

The previous fill character.

The fill character is used to fill out space when P+ characters have been requested (e.g., via setw), Q characters are actually used, and Q<P. It defaults to a space (' ') in the current locale.

Definition at line 380 of file basic_ios.h.

5.372.5.12 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::fill () const [inline, inherited]

Retrieves the *empty* character.

Returns:

The current fill character.

It defaults to a space (' ') in the current locale.

Definition at line 360 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.372.5.13 fmtflags std::ios_base::flags (fmtflags *__fmtfl*) [inline, inherited]

Setting new format flags all at once.

Parameters:

fmtfl The new flags to set.

Returns:

The previous format control flags.

This function overwrites all the format flags with *fmtfl*.

Definition at line 561 of file ios_base.h.

5.372.5.14 fmtflags std::ios_base::flags () const [inline, inherited]

Access to format flags.

Returns:

The format control flags for both input and output.

Definition at line 550 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::num_get< _CharT, _InIter >::do_get(), std::num_put< _CharT, _OutIter >::do_put(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator<<(), and std::operator>>().

5.372.5.15 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::flush () [inline, inherited]

Synchronizing the stream buffer.

Returns:

∗this

If `rdbuf()` is a null pointer, changes nothing.

Otherwise, calls `rdbuf()->pubsync()`, and if that returns -1, sets badbit.

Definition at line 211 of file ostream.tcc.

References std::ios_base::badbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

Referenced by std::flush().

5.372.5.16 template<typename _CharT, typename _Traits> streamsize std::basic_istream< _CharT, _Traits >::gcount () const [inline, inherited]

Character counting.

Returns:

The number of characters extracted by the previous unformatted input function dispatched for this stream.

Definition at line 249 of file istream.

5.372.5.17 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::get (__streambuf_type & *__sb*) [inline, inherited]

Extraction into another streambuf.

Parameters:

sb A streambuf in which to store data.

Returns:

∗this

Returns `get`(sb,widen('\n')).

Definition at line 366 of file istream.

5.372.5.18 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::get (__streambuf_type & *__sb*, char_type *__delim*) [inline, inherited]

Extraction into another streambuf.

Parameters:

sb A streambuf in which to store data.

delim A "stop" character.

Returns:

∗this

Characters are extracted and inserted into *sb* until one of the following happens:

- the input sequence reaches EOF
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted)
- the next character equals *delim* (in this case, the character is not extracted)
- an exception occurs (and in this case is caught)

If no characters are stored, failbit is set in the stream's error state.

Definition at line 356 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), std::basic_streambuf< _CharT, _Traits >::snextc(), and std::basic_streambuf< _CharT, _Traits >::sputc().

5.372.5.19 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::get (char_type ∗ __s, streamsize __n) [inline, inherited]

Simple multiple-character extraction.

Parameters:

s Pointer to an array.

n Maximum number of characters to store in *s*.

Returns:

∗this

Returns `get`(s,n,widen('\n')).

Definition at line 333 of file istream.

5.372.5.20 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::get (char_type * __s, streamsize __n, char_type __delim) [inline, inherited]

Simple multiple-character extraction.

Parameters:

s Pointer to an array.

n Maximum number of characters to store in *s*.

delim A "stop" character.

Returns:

*this

Characters are extracted and stored into *s* until one of the following happens:

- `n-1` characters are stored
- the input sequence reaches EOF
- the next character equals *delim*, in which case the character is not extracted

If no characters are stored, failbit is set in the stream's error state.

In any case, a null character is stored into the next location in the array.

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 309 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), and std::basic_streambuf< _CharT, _Traits >::snextc().

5.372.5.21 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::get (char_type & __c) [inline, inherited]

Simple extraction.

Parameters:

c The character in which to store data.

Returns:

∗this

Tries to extract a character and store it in *c*. If none are available, sets failbit and returns traits::eof().

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 272 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.372.5.22 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits >::int_type std::basic_istream< _CharT, _Traits >::get (void) [inline, inherited]

Simple extraction.

Returns:

A character, or eof().

Tries to extract a character. If none are available, sets failbit and returns traits::eof().

Definition at line 236 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.372.5.23 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::getline (char_type ∗ __s, streamsize __n) [inline, inherited]

String extraction.

Parameters:

s A character array in which to store the data.

n Maximum number of characters to extract.

Returns:

*this

Returns `getline`(s,n,widen('\n')).

Definition at line 406 of file istream.

Referenced by std::basic_istream< char >::getline().

5.372.5.24 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::getline (char_type * *__s*, streamsize *__n*, char_type *__delim*) [inline, inherited]

String extraction.

Parameters:

s A character array in which to store the data.

n Maximum number of characters to extract.

delim A "stop" character.

Returns:

*this

Extracts and stores characters into *s* until one of the following happens. Note that these criteria are required to be tested in the order listed here, to allow an input line to exactly fill the *s* array without setting failbit.

1. the input sequence reaches end-of-file, in which case eofbit is set in the stream error state
2. the next character equals `delim`, in which case the character is extracted (and therefore counted in `gcount()`) but not stored
3. `n-1` characters are stored, in which case failbit is set in the stream error state

If no characters are extracted, failbit is set. (An empty line of input should therefore not cause failbit to be set.)

In any case, a null character is stored in the next location in the array.

Definition at line 400 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_streambuf< _CharT, _Traits >::sbumpc(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), and std::basic_streambuf< _CharT, _Traits >::snextc().

5.372.5.25 locale std::ios_base::getloc () const [inline, inherited]

Locale access.

Returns:

A copy of the current locale.

If `imbue(loc)` has previously been called, then this function returns `loc`. Otherwise, it returns a copy of `std::locale()`, the global C++ locale.

Definition at line 694 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::money_put< _CharT, _OutIter >::do_put(), std::basic_ios< _CharT, _Traits >::imbue(), std::operator>>(), and std::ws().

5.372.5.26 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::good () const [inline, inherited]

Fast error checking.

Returns:

True if no error flags are set.

A wrapper around rdstate.

Definition at line 170 of file basic_ios.h.

5.372.5.27 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::ignore (streamsize __n, int_type __delim) [inline, inherited]

Extraction into another streambuf.

Parameters:

sb A streambuf in which to store data.

Returns:

∗this

Returns `get`(sb,widen('\n')).

Definition at line 555 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_streambuf< _CharT, _Traits >::sbumpc(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), and std::basic_streambuf< _CharT, _Traits >::snextc().

5.372.5.28 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::ignore (streamsize __n) [inline, inherited]

Extraction into another streambuf.

Parameters:

sb A streambuf in which to store data.

Returns:

∗this

Returns `get`(sb,widen('\n')).

Definition at line 493 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), and std::basic_streambuf< _CharT, _Traits >::snextc().

5.372.5.29 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::ignore (void) [inline, inherited]

Discarding characters.

Parameters:

n Number of characters to discard.

delim A "stop" character.

Returns:

*this

Extracts characters and throws them away until one of the following happens:

- if *n* != std::numeric_limits<int>::max(), *n* characters are extracted
- the input sequence reaches end-of-file
- the next character equals *delim* (in this case, the character is extracted); note that this condition will never occur if *delim* equals traits::eof().

NB: Provide three overloads, instead of the single function (with defaults) mandated by the Standard: this leads to a better performing implementation, while still conforming to the Standard.

Definition at line 460 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_streambuf< _CharT, _Traits >::sbumpc(), and std::basic_ios< _CharT, _Traits >::setstate().

5.372.5.30 template<typename _CharT , typename _Traits > locale std::basic_ios< _CharT, _Traits >::imbue (const locale & *__loc*) [inline, inherited]

Moves to a new locale.

Parameters:

loc The new locale.

Returns:

The previous locale.

Calls ios_base::imbue(loc), and if a stream buffer is associated with this stream, calls that buffer's pubimbue(loc).

Additional l10n notes are at http://gcc.gnu.org/onlinedocs/libstdc++/manual/localizati

Reimplemented from std::ios_base.

Definition at line 113 of file basic_ios.tcc.

References std::ios_base::getloc(), and std::basic_ios< _CharT, _Traits >::rdbuf().

Referenced by std::operator<<().

5.372.5.31 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::init (basic_streambuf< _CharT, _Traits > * *__sb*) [inline, protected, inherited]

All setup is performed here. This is called from the public constructor. It is not virtual and cannot be redefined.

Definition at line 125 of file basic_ios.tcc.

References std::ios_base::badbit, and std::ios_base::goodbit.

5.372.5.32 template<typename _CharT , typename _Traits > bool std::basic_fstream< _CharT, _Traits >::is_open () [inline]

Wrapper to test for an open file.

Returns:

`rdbuf()->is_open()`

Definition at line 845 of file fstream.

5.372.5.33 long& std::ios_base::iword (int *__ix*) [inline, inherited]

Access to integer array.

Parameters:

__ix Index into the array.

Returns:

A reference to an integer associated with the index.

The iword function provides access to an array of integers that can be used for any purpose. The array grows as required to hold the supplied index. All integers in the array are initialized to 0.

The implementation reserves several indices. You should use xalloc to obtain an index that is safe to use. Also note that since the array can grow dynamically, it is not safe to hold onto the reference.

Definition at line 740 of file ios_base.h.

5.372.5.34 template<typename _CharT, typename _Traits> char std::basic_ios< _CharT, _Traits >::narrow (char_type __c, char __dfault) const [inline, inherited]

Squeezes characters.

Parameters:

c The character to narrow.

dfault The character to narrow.

Returns:

The narrowed character.

Maps a character of `char_type` to a character of `char`, if possible.

Returns the result of

```
std::use_facet<ctype<char_type> >(getloc()).narrow(c,dfault)
```

Additional l10n notes are at http://gcc.gnu.org/onlinedocs/libstdc++/manual/localizati

Definition at line 420 of file basic_ios.h.

5.372.5.35 template<typename _CharT , typename _Traits > void std::basic_fstream< _CharT, _Traits >::open (const std::string & __s, ios_base::openmode __mode = ios_base::in | ios_base::out) [inline]

Opens an external file.

Parameters:

s The name of the file.

mode The open mode flags.

Calls `std::basic_filebuf::open(s,mode)`. If that function fails, `failbit` is set in the stream's error state.

Definition at line 887 of file fstream.

5.372.5.36 template<typename _CharT , typename _Traits > void std::basic_fstream< _CharT, _Traits >::open (const char * __s, ios_base::openmode __mode = ios_base::in | ios_base::out) [inline]

Opens an external file.

Parameters:

s The name of the file.

mode The open mode flags.

Calls `std::basic_filebuf::open(s,mode)`. If that function fails, `failbit` is set in the stream's error state.

Tip: When using std::string to hold the filename, you must use .c_str() before passing it to this constructor.

Definition at line 866 of file fstream.

5.372.5.37 template<typename _CharT, typename _Traits> std::basic_ios< _CharT, _Traits >::operator void * () const [inline, inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Definition at line 111 of file basic_ios.h.

5.372.5.38 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::operator! () const [inline, inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Definition at line 115 of file basic_ios.h.

5.372.5.39 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::operator<< (__streambuf_type * *__sb*) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 120 of file ostream.tcc.

References std::ios_base::badbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.372.5.40 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (const void * __p) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 225 of file ostream.

5.372.5.41 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (long double __f) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 221 of file ostream.

5.372.5.42 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (float __f) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,

- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 213 of file ostream.

5.372.5.43 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (double __f) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 209 of file ostream.

5.372.5.44 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (unsigned long long __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 204 of file ostream.

5.372.5.45 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (long long __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 200 of file ostream.

5.372.5.46 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (unsigned int __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 191 of file ostream.

5.372.5.47 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::operator<< (int __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,

- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 106 of file ostream.tcc.

References std::ios_base::basefield, std::ios_base::flags(), std::ios_base::hex, and std::ios_base::oct.

5.372.5.48 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (unsigned short __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 180 of file ostream.

5.372.5.49 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::operator<< (short __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 92 of file ostream.tcc.

References std::ios_base::basefield, std::ios_base::flags(), std::ios_base::hex, and std::ios_base::oct.

5.372.5.50 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (bool __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or

- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 173 of file ostream.

5.372.5.51 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (unsigned long __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 169 of file ostream.

5.372.5.52 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (long __n) [inline, inherited]

Basic arithmetic inserters.

Parameters:

A variable of builtin type.

Returns:

`*this` if successful

These functions use the stream's current locale (specifically, the `num_get` facet) to perform numeric formatting.

Definition at line 165 of file ostream.

5.372.5.53 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (ios_base &(*)(ios_base &) *__pf*) [inline, inherited]

Interface for manipulators. Manipulators such as `std::endl` and `std::hex` use these functions in constructs like "std::cout << std::endl". For more information, see the iomanip header.

Definition at line 127 of file ostream.

5.372.5.54 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (__ios_type &(*)(__ios_type &) *__pf*) [inline, inherited]

Interface for manipulators. Manipulators such as `std::endl` and `std::hex` use these functions in constructs like "std::cout << std::endl". For more information, see the iomanip header.

Definition at line 117 of file ostream.

5.372.5.55 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (__ostream_type &(*)(__ostream_type &) *__pf*) [inline, inherited]

Interface for manipulators. Manipulators such as `std::endl` and `std::hex` use these functions in constructs like "std::cout << std::endl". For more information, see the iomanip header.

Definition at line 108 of file ostream.

5.372.5.56 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::operator>> (__streambuf_type * *__sb*) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 204 of file istream.tcc.

References std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.372.5.57 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (void *& __p) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or

- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 215 of file istream.

5.372.5.58 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (long double & __f) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 211 of file istream.

5.372.5.59 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (double & __f) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 207 of file istream.

5.372.5.60 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (float & __f) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 203 of file istream.

5.372.5.61 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (unsigned long long & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 198 of file istream.

5.372.5.62 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (long long & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,

- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 194 of file istream.

5.372.5.63 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (unsigned long & *__n*) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 189 of file istream.

5.372.5.64 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (long & *__n*) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 185 of file istream.

5.372.5.65 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (unsigned int & *__n*) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 181 of file istream.

5.372.5.66 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::operator>> (int & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 159 of file istream.tcc.

References std::ios_base::badbit, std::ios_base::failbit, std::num_get< _CharT, _InIter >::get(), std::ios_base::goodbit, and std::basic_ios< _CharT, _Traits >::setstate().

5.372.5.67 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (unsigned short & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 174 of file istream.

5.372.5.68 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::operator>> (short & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 114 of file istream.tcc.

References std::ios_base::badbit, std::ios_base::failbit, std::num_get< _CharT, _InIter >::get(), std::ios_base::goodbit, and std::basic_ios< _CharT, _Traits >::setstate().

5.372.5.69 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (bool & __n) [inline, inherited]

Basic arithmetic extractors.

Parameters:

A variable of builtin type.

Returns:

`*this` if successful

These functions use the stream's current locale (specifically, the `num_get` facet) to parse the input data.

Definition at line 167 of file istream.

5.372.5.70 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (ios_base &(*)(ios_base &) *__pf*) [inline, inherited]

Interface for manipulators. Manipulators such as `std::ws` and `std::dec` use these functions in constructs like `std::cin >> std::ws`. For more information, see the iomanip header.

Definition at line 131 of file istream.

5.372.5.71 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (__ios_type &(*)(__ios_type &) *__pf*) [inline, inherited]

Interface for manipulators. Manipulators such as `std::ws` and `std::dec` use these functions in constructs like `std::cin >> std::ws`. For more information, see the iomanip header.

Definition at line 124 of file istream.

5.372.5.72 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (__istream_type &(*)(__istream_type &) *__pf*) [inline, inherited]

Interface for manipulators. Manipulators such as `std::ws` and `std::dec` use these functions in constructs like `std::cin >> std::ws`. For more information, see the iomanip header.

Definition at line 120 of file istream.

5.372.5.73 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits >::int_type std::basic_istream< _CharT, _Traits >::peek (void) [inline, inherited]

Looking ahead in the stream.

Returns:

The next character, or eof().

If, after constructing the sentry object, `good()` is false, returns `traits::eof()`. Otherwise reads but does not extract the next input character.

Definition at line 620 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.372.5.74 streamsize std::ios_base::precision (streamsize *__prec*) [inline, inherited]

Changing flags.

Parameters:

prec The new precision value.

Returns:

The previous value of precision().

Definition at line 629 of file ios_base.h.

5.372.5.75 streamsize std::ios_base::precision () const [inline, inherited]

Flags access.

Returns:

The precision to generate on certain output operations.

Be careful if you try to give a definition of *precision* here; see DR 189.

Definition at line 620 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), and std::operator<<().

5.372.5.76 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::put (char_type __c) [inline, inherited]

Simple insertion.

Parameters:

c The character to insert.

Returns:

∗this

Tries to insert *c*.

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 149 of file ostream.tcc.

References std::ios_base::badbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

Referenced by std::endl(), and std::ends().

5.372.5.77 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::putback (char_type __c) [inline, inherited]

Unextracting a single character.

Parameters:

c The character to push back into the input stream.

Returns:

∗this

If `rdbuf()` is not null, calls `rdbuf()->sputbackc(c)`.

If `rdbuf()` is null or if `sputbackc()` fails, sets badbit in the error state.

Note:

Since no characters are extracted, the next call to `gcount()` will return 0, as required by DR 60.

Definition at line 711 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), and std::basic_streambuf< _CharT, _Traits >::sputbackc().

Referenced by std::operator>>().

5.372.5.78 void*& std::ios_base::pword (int __ix) [inline, inherited]

Access to void pointer array.

Parameters:

__ix Index into the array.

Returns:

A reference to a void* associated with the index.

The pword function provides access to an array of pointers that can be used for any purpose. The array grows as required to hold the supplied index. All pointers in the array are initialized to 0.

The implementation reserves several indices. You should use xalloc to obtain an index that is safe to use. Also note that since the array can grow dynamically, it is not safe to hold onto the reference.

Definition at line 761 of file ios_base.h.

5.372.5.79 template<typename _CharT, typename _Traits> basic_streambuf< _CharT, _Traits > * std::basic_ios< _CharT, _Traits >::rdbuf (basic_streambuf< _CharT, _Traits > * __sb) [inline, inherited]

Changing the underlying buffer.

Parameters:

sb The new stream buffer.

Returns:

The previous stream buffer.

Associates a new buffer with the current stream, and clears the error state.

Due to historical accidents which the LWG refuses to correct, the I/O library suffers from a design error: this function is hidden in derived classes by overrides of the zero-argument rdbuf(), which is non-virtual for hysterical raisins. As a result, you must use explicit qualifications to access this function via any derived class. For example:

```
std::fstream     foo;         // or some other derived type
std::streambuf*  p = .....;

foo.ios::rdbuf(p);            // ios == basic_ios<char>
```

Definition at line 52 of file basic_ios.tcc.

References std::basic_ios< _CharT, _Traits >::clear().

5.372.5.80 template<typename _CharT , typename _Traits > __filebuf_type* std::basic_fstream< _CharT, _Traits >::rdbuf () const [inline]

Accessing the underlying buffer.

Returns:

The current basic_filebuf buffer.

This hides both signatures of std::basic_ios::rdbuf().

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 837 of file fstream.

5.372.5.81 template<typename _CharT, typename _Traits> iostate std::basic_ios< _CharT, _Traits >::rdstate () const [inline, inherited]

Returns the error state of the stream buffer.

Returns:

A bit pattern (well, isn't everything?)

See std::ios_base::iostate for the possible bit values. Most users will call one of the interpreting wrappers, e.g., good().

Definition at line 127 of file basic_ios.h.

5.372.5.82 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::read (char_type * __s, streamsize __n) [inline, inherited]

Extraction without delimiters.

Parameters:

s A character array.

n Maximum number of characters to store.

Returns:

∗this

If the stream state is `good()`, extracts characters and stores them into *s* until one of the following happens:

- *n* characters are stored
- the input sequence reaches end-of-file, in which case the error state is set to `failbit|eofbit`.

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 650 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.372.5.83 template<typename _CharT , typename _Traits > streamsize std::basic_istream< _CharT, _Traits >::readsome (char_type ∗ __s, streamsize __n) [inline, inherited]

Extraction until the buffer is exhausted, but no more.

Parameters:

s A character array.

n Maximum number of characters to store.

Returns:

The number of characters extracted.

Extracts characters and stores them into *s* depending on the number of characters remaining in the streambuf's buffer, `rdbuf()->in_avail()`, called `A` here:

- if `A == -1`, sets eofbit and extracts no characters
- if `A == 0`, extracts no characters

- if A > 0, extracts min(A,n)

The goal is to empty the current buffer, and to not request any more from the external input sequence controlled by the streambuf.

Definition at line 679 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::ios_base::eofbit, std::ios_base::goodbit, std::min(), std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.372.5.84 void std::ios_base::register_callback (event_callback *__fn*, int *__index*) [inherited]

Add the callback __fn with parameter __index.

Parameters:

__fn The function to add.

__index The integer to pass to the function when invoked.

Registers a function as an event callback with an integer parameter to be passed to the function when invoked. Multiple copies of the function are allowed. If there are multiple callbacks, they are invoked in the order they were registered.

5.372.5.85 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::seekg (off_type *__off*, ios_base::seekdir *__dir*) [inline, inherited]

Changing the current read position.

Parameters:

off A file offset object.

dir The direction in which to seek.

Returns:

*this

If fail() is not true, calls rdbuf()->pubseekoff(off,dir). If that function fails, sets failbit.

Note:

This function does not count the number of characters extracted, if any, and therefore does not affect the next call to gcount().

Definition at line 870 of file istream.tcc.

References std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::failbit, std::ios_base::goodbit, std::ios_base::in, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.372.5.86 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::seekg (pos_type *__pos*) [inline, inherited]

Changing the current read position.

Parameters:

pos A file position object.

Returns:

∗this

If `fail()` is not true, calls `rdbuf()->pubseekpos(pos)`. If that function fails, sets failbit.

Note:

This function does not count the number of characters extracted, if any, and therefore does not affect the next call to `gcount()`.

Definition at line 837 of file istream.tcc.

References std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::failbit, std::ios_base::goodbit, std::ios_base::in, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.372.5.87 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::seekp (off_type *__off*, ios_base::seekdir *__dir*) [inline, inherited]

Changing the current write position.

Parameters:

off A file offset object.

dir The direction in which to seek.

Returns:

∗this

If `fail()` is not true, calls `rdbuf()->pubseekoff(off,dir)`. If that function fails, sets failbit.

Definition at line 290 of file ostream.tcc.

References std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::failbit, std::ios_base::goodbit, std::ios_base::out, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.372.5.88 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::seekp (pos_type *__pos*) [inline, inherited]

Changing the current write position.

Parameters:

pos A file position object.

Returns:

*this

If `fail()` is not true, calls `rdbuf()->pubseekpos(pos)`. If that function fails, sets failbit.

Definition at line 258 of file ostream.tcc.

References std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::failbit, std::ios_base::goodbit, std::ios_base::out, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.372.5.89 fmtflags std::ios_base::setf (fmtflags *__fmtfl*, fmtflags *__mask*) [inline, inherited]

Setting new format flags.

Parameters:

fmtfl Additional flags to set.

mask The flags mask for *fmtfl*.

Returns:

The previous format control flags.

This function clears *mask* in the format flags, then sets *fmtfl* & *mask*. An example mask is `ios_base::adjustfield`.

Definition at line 594 of file ios_base.h.

5.372.5.90 fmtflags std::ios_base::setf (fmtflags *__fmtfl*) [inline, inherited]

Setting new format flags.

Parameters:

fmtfl Additional flags to set.

Returns:

The previous format control flags.

This function sets additional flags in format control. Flags that were previously set remain set.

Definition at line 577 of file ios_base.h.

Referenced by std::boolalpha(), std::dec(), std::fixed(), std::hex(), std::internal(), std::left(), std::oct(), std::right(), std::scientific(), std::showbase(), std::showpoint(), std::showpos(), std::skipws(), std::unitbuf(), and std::uppercase().

5.372.5.91 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::setstate (iostate *__state*) [inline, inherited]

Sets additional flags in the error state.

Parameters:

state The additional state flag(s) to set.

See std::ios_base::iostate for the possible bit values.

Definition at line 147 of file basic_ios.h.

Referenced by std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::basic_istream< _CharT, _Traits >::operator>>(), std::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), std::basic_istream< _CharT, _Traits >::unget(), and std::ws().

5.372.5.92 template<typename _CharT , typename _Traits > int std::basic_istream< _CharT, _Traits >::sync (void) [inline, inherited]

Synchronizing the stream buffer.

Returns:

0 on success, -1 on failure

If `rdbuf()` is a null pointer, returns -1.

Otherwise, calls `rdbuf()->pubsync()`, and if that returns -1, sets badbit and returns -1.

Otherwise, returns 0.

Note:

This function does not count the number of characters extracted, if any, and therefore does not affect the next call to `gcount()`.

Definition at line 777 of file istream.tcc.

References std::ios_base::badbit, std::ios_base::goodbit, std::basic_streambuf< _CharT, _Traits >::pubsync(), std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.372.5.93 static bool std::ios_base::sync_with_stdio (bool *__sync* = true) [static, inherited]

Interaction with the standard C I/O objects.

Parameters:

sync Whether to synchronize or not.

Returns:

True if the standard streams were previously synchronized.

The synchronization referred to is *only* that between the standard C facilities (e.g., stdout) and the standard C++ objects (e.g., cout). User-declared streams are unaffected. See http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch28s02.html

5.372.5.94 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits >::pos_type std::basic_istream< _CharT, _Traits >::tellg (void) [inline, inherited]

Getting the current read position.

Returns:

A file position object.

If `fail()` is not false, returns `pos_type`(-1) to indicate failure. Otherwise returns `rdbuf()->pubseekoff(0,cur,in)`.

Note:

This function does not count the number of characters extracted, if any, and therefore does not affect the next call to `gcount()`.

Definition at line 813 of file istream.tcc.

References std::ios_base::badbit, std::ios_base::cur, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::in, and std::basic_ios< _CharT, _Traits >::rdbuf().

5.372.5.95 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits >::pos_type std::basic_ostream< _CharT, _Traits >::tellp () [inline, inherited]

Getting the current write position.

Returns:

A file position object.

If `fail()` is not false, returns `pos_type`(-1) to indicate failure. Otherwise returns `rdbuf()->pubseekoff(0,cur,out)`.

Definition at line 237 of file ostream.tcc.

References std::ios_base::badbit, std::ios_base::cur, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::out, and std::basic_ios< _CharT, _Traits >::rdbuf().

5.372.5.96 template<typename _CharT, typename _Traits> basic_ostream<_CharT, _Traits>* std::basic_ios< _CharT, _Traits >::tie (basic_ostream< _CharT, _Traits > * *__tiestr*) [inline, inherited]

Ties this stream to an output stream.

Parameters:

tiestr The output stream.

Returns:

The previously tied output stream, or NULL if the stream was not tied.

This sets up a new tie; see tie() for more.

Definition at line 297 of file basic_ios.h.

5.372.5.97 template<typename _CharT, typename _Traits> basic_ostream<_CharT, _Traits>* std::basic_ios< _CharT, _Traits >::tie () const [inline, inherited]

Fetches the current *tied* stream.

Returns:

A pointer to the tied stream, or NULL if the stream is not tied.

A stream may be *tied* (or synchronized) to a second output stream. When this stream performs any I/O, the tied stream is first flushed. For example, `std::cin` is tied to `std::cout`.

Definition at line 285 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.372.5.98 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::unget (void) [inline, inherited]

Unextracting the previous character.

Returns:

*this

If `rdbuf()` is not null, calls `rdbuf()->sungetc(c)`.

If `rdbuf()` is null or if `sungetc()` fails, sets badbit in the error state.

Note:

Since no characters are extracted, the next call to `gcount()` will return 0, as required by DR 60.

Definition at line 744 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), and std::basic_streambuf< _CharT, _Traits >::sungetc().

5.372.5.99 void std::ios_base::unsetf (fmtflags *__mask*) [inline, inherited]

Clearing format flags.

Parameters:

mask The flags to unset.

This function clears *mask* in the format flags.

Definition at line 609 of file ios_base.h.

Referenced by std::noboolalpha(), std::noshowbase(), std::noshowpoint(), std::noshowpos(), std::noskipws(), std::nounitbuf(), and std::nouppercase().

5.372.5.100 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::widen (char *__c*) const [inline, inherited]

Widens characters.

Parameters:

c The character to widen.

Returns:

The widened character.

Maps a character of `char` to a character of `char_type`.
Returns the result of

```
std::use_facet<ctype<char_type> >(getloc()).widen(c)
```

Additional l10n notes are at http://gcc.gnu.org/onlinedocs/libstdc++/manual/localizati

Definition at line 439 of file basic_ios.h.

Referenced by std::endl(), std::getline(), and std::operator>>().

5.372.5.101 streamsize std::ios_base::width (streamsize __*wide*) [inline, inherited]

Changing flags.

Parameters:

wide The new width value.

Returns:

The previous value of width().

Definition at line 652 of file ios_base.h.

5.372.5.102 streamsize std::ios_base::width () const [inline, inherited]

Flags access.

Returns:

The minimum field width to generate on output operations.

Minimum field width refers to the number of characters.

Definition at line 643 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::num_put< _CharT, _OutIter >::do_put(), and std::operator>>().

5.372.5.103 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::write (const char_type * __*s*, streamsize __*n*) [inline, inherited]

Character string insertion.

Parameters:

s The array to insert.

n Maximum number of characters to insert.

Returns:

*this

Characters are copied from *s* and inserted into the stream until one of the following happens:

- *n* characters are inserted
- inserting into the output sequence fails (in this case, badbit will be set in the stream's error state)

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 183 of file ostream.tcc.

References std::basic_ostream< _CharT, _Traits >::_M_write(), and std::ios_base::badbit.

5.372.5.104 static int std::ios_base::xalloc () throw () [static, inherited]

Access to unique indices.

Returns:

An integer different from all previous calls.

This function returns a unique integer every time it is called. It can be used for any purpose, but is primarily intended to be a unique index for the iword and pword functions. The expectation is that an application calls xalloc in order to obtain an index in the iword and pword arrays that can be used without fear of conflict.

The implementation maintains a static variable that is incremented and returned on each invocation. xalloc is guaranteed to return an index that is safe to use in the iword and pword arrays.

5.372.6 Member Data Documentation

5.372.6.1 template<typename _CharT, typename _Traits> streamsize std::basic_istream< _CharT, _Traits >::_M_gcount [protected, inherited]

The number of characters extracted in the previous unformatted function; see gcount().

Definition at line 79 of file istream.

Referenced by std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(),

std::basic_istream< _CharT, _Traits >::peek(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), and std::basic_istream< _CharT, _Traits >::unget().

5.372.6.2 const fmtflags std::ios_base::adjustfield [static, inherited]

A mask of left|right|internal. Useful for the 2-arg form of `setf`.

Definition at line 318 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

5.372.6.3 const openmode std::ios_base::app [static, inherited]

Seek to end before each write.

Definition at line 372 of file ios_base.h.

5.372.6.4 const openmode std::ios_base::ate [static, inherited]

Open and seek to end immediately after opening.

Definition at line 375 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::open().

5.372.6.5 const iostate std::ios_base::badbit [static, inherited]

Indicates a loss of integrity in an input or output sequence (such as an irrecoverable read error from a file).

Definition at line 342 of file ios_base.h.

Referenced by std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ios< _CharT, _Traits >::init(), std::operator<<(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_ostream< _CharT, _Traits >::tellp(), std::basic_istream< _CharT, _Traits >::unget(), and std::basic_ostream< _CharT, _Traits >::write().

5.372.6.6 const fmtflags std::ios_base::basefield [static, inherited]

A mask of dec|oct|hex. Useful for the 2-arg form of `setf`.

Definition at line 321 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), and std::basic_ostream< _CharT, _Traits >::operator<<().

5.372.6.7 const seekdir std::ios_base::beg [static, inherited]

Request a seek relative to the beginning of the stream.

Definition at line 404 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::seekpos().

5.372.6.8 const openmode std::ios_base::binary [static, inherited]

Perform input and output in binary mode (as opposed to text mode). This is probably not what you think it is; see http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch27s02.html.

Definition at line 380 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::showmanyc().

5.372.6.9 const fmtflags std::ios_base::boolalpha [static, inherited]

Insert/extract `bool` in alphabetic rather than numeric format.

Definition at line 266 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), and std::num_put< _CharT, _OutIter >::do_put().

5.372.6.10 const seekdir std::ios_base::cur [static, inherited]

Request a seek relative to the current position within the sequence.

Definition at line 407 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_istream< _CharT, _Traits >::tellg(), and std::basic_ostream< _CharT, _Traits >::tellp().

5.372.6.11 const fmtflags std::ios_base::dec [static, inherited]

Converts integer input or generates integer output in decimal base.

Definition at line 269 of file ios_base.h.

5.372.6.12 const seekdir std::ios_base::end [static, inherited]

Request a seek relative to the current end of the sequence.

Definition at line 410 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::open(), and std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff().

5.372.6.13 const iostate std::ios_base::eofbit [static, inherited]

Indicates that an input operation reached the end of an input sequence.

Definition at line 345 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_date(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_time(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), and std::ws().

5.372.6.14 const iostate std::ios_base::failbit [static, inherited]

Indicates that an input operation failed to read the expected characters, or that an output operation failed to generate the desired characters.

Definition at line 350 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::basic_istream< _CharT, _Traits >::operator>>(), std::operator>>(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::seekg(), and std::basic_ostream< _CharT, _Traits >::seekp().

5.372.6.15 const fmtflags std::ios_base::fixed [static, inherited]

Generate floating-point output in fixed-point notation.

Definition at line 272 of file ios_base.h.

5.372.6.16 const fmtflags std::ios_base::floatfield [static, inherited]

A mask of scientific|fixed. Useful for the 2-arg form of `setf`.

Definition at line 324 of file ios_base.h.

5.372.6.17 const iostate std::ios_base::goodbit [static, inherited]

Indicates all is well.

Definition at line 353 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ios< _CharT, _Traits >::init(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), and std::basic_istream< _CharT, _Traits >::unget().

5.372.6.18 const fmtflags std::ios_base::hex [static, inherited]

Converts integer input or generates integer output in hexadecimal base.

Definition at line 275 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::num_put< _CharT, _OutIter >::do_put(), and std::basic_ostream< _CharT, _Traits >::operator<<().

5.372.6.19 const openmode std::ios_base::in [static, inherited]

Open for input. Default for `ifstream` and fstream.

Definition at line 383 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_-istream< _CharT, _Traits >::seekg(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_-filebuf< _CharT, _Traits >::showmanyc(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::underflow(), std::basic_-filebuf< _CharT, _Traits >::underflow(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.372.6.20 const fmtflags std::ios_base::internal [static, inherited]

Adds fill characters at a designated internal point in certain generated output, or identical to `right` if no such point is designated.

Definition at line 280 of file ios_base.h.

5.372.6.21 const fmtflags std::ios_base::left [static, inherited]

Adds fill characters on the right (final positions) of certain generated output. (I.e., the thing you print is flush left.).

Definition at line 284 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

5.372.6.22 const fmtflags std::ios_base::oct [static, inherited]

Converts integer input or generates integer output in octal base.

Definition at line 287 of file ios_base.h.

Referenced by std::basic_ostream< _CharT, _Traits >::operator<<().

5.372.6.23 const openmode std::ios_base::out [static, inherited]

Open for output. Default for `ofstream` and fstream.

Definition at line 386 of file ios_base.h.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_ostream< _-CharT, _Traits >::tellp(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.372.6.24 const fmtflags std::ios_base::right [static, inherited]

Adds fill characters on the left (initial positions) of certain generated output. (I.e., the thing you print is flush right.).

Definition at line 291 of file ios_base.h.

5.372.6.25 const fmtflags std::ios_base::scientific [static, inherited]

Generates floating-point output in scientific notation.

Definition at line 294 of file ios_base.h.

5.372.6.26 const fmtflags std::ios_base::showbase [static, inherited]

Generates a prefix indicating the numeric base of generated integer output.

Definition at line 298 of file ios_base.h.

5.372.6.27 const fmtflags std::ios_base::showpoint [static, inherited]

Generates a decimal-point character unconditionally in generated floating-point output.

Definition at line 302 of file ios_base.h.

5.372.6.28 const fmtflags std::ios_base::showpos [static, inherited]

Generates a + sign in non-negative generated numeric output.

Definition at line 305 of file ios_base.h.

5.372.6.29 const fmtflags std::ios_base::skipws [static, inherited]

Skips leading white space before certain input operations.

Definition at line 308 of file ios_base.h.

5.372.6.30 const openmode std::ios_base::trunc [static, inherited]

Open for input. Default for `ofstream`.

Definition at line 389 of file ios_base.h.

5.372.6.31 const fmtflags std::ios_base::unitbuf [static, inherited]

Flushes output after each output operation.

Definition at line 311 of file ios_base.h.

5.372.6.32 const fmtflags std::ios_base::uppercase [static, inherited]

Replaces certain lowercase letters with their uppercase equivalents in generated output.

Definition at line 315 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

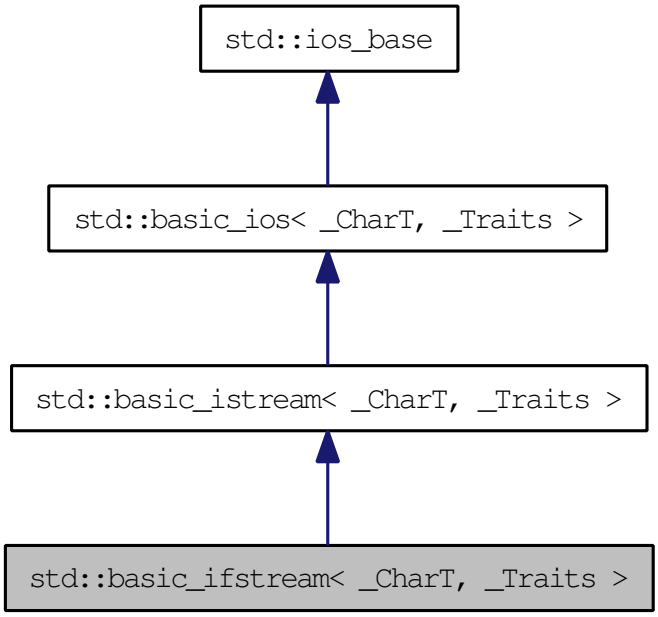
The documentation for this class was generated from the following file:

- fstream

5.373 std::basic_ifstream< _CharT, _Traits > Class Template Reference

Controlling input for files.

This class supports reading from named files, using the inherited functions from std::basic_istream. To control the associated sequence, an instance of std::basic_filebuf is used, which this page refers to as sb. Inheritance diagram for std::basic_ifstream< _CharT, _Traits >:



Public Types

- typedef ctype< _CharT > __ctype_type
- typedef basic_filebuf< char_type, traits_type > **__filebuf_type**
- typedef basic_ios< _CharT, _Traits > **__ios_type**
- typedef basic_istream< char_type, traits_type > **__istream_type**
- typedef num_get< _CharT, istreambuf_iterator< _CharT, _Traits > > __num_get_type
- typedef basic_streambuf< _CharT, _Traits > **__streambuf_type**
- typedef _CharT char_type
- enum event { **erase_event**, **imbue_event**, **copyfmt_event** }
- typedef void(* event_callback)(event, ios_base &, int)

- typedef _Ios_Fmtflags fmtflags
- typedef traits_type::int_type int_type
- typedef int **io_state**
- typedef _Ios_Iostate iostate
- typedef traits_type::off_type off_type
- typedef int **open_mode**
- typedef _Ios_Openmode openmode
- typedef traits_type::pos_type pos_type
- typedef int **seek_dir**
- typedef _Ios_Seekdir seekdir
- typedef std::streamoff **streamoff**
- typedef std::streampos **streampos**
- typedef _Traits traits_type

Public Member Functions

- basic_ifstream (const std::string &__s, ios_base::openmode __mode=ios_base::in)
- basic_ifstream (const char *__s, ios_base::openmode __mode=ios_base::in)
- basic_ifstream ()
- ~basic_ifstream ()
- const locale & _M_getloc () const
- void **_M_setstate** (iostate __state)
- bool bad () const
- void clear (iostate __state=goodbit)
- void close ()
- basic_ios & copyfmt (const basic_ios &__rhs)
- bool eof () const
- void exceptions (iostate __except)
- iostate exceptions () const
- bool fail () const
- char_type fill (char_type __ch)
- char_type fill () const
- fmtflags flags (fmtflags __fmtfl)
- fmtflags flags () const
- streamsize gcount () const
- template<>
  basic_istream< wchar_t > & **getline** (char_type *__s, streamsize __n, char_type __delim)
- template<>
  basic_istream< char > & **getline** (char_type *__s, streamsize __n, char_type __delim)

- locale getloc () const
- bool good () const
- template<>
  basic_istream< wchar_t > & **ignore** (streamsize __n, int_type __delim)
- template<>
  basic_istream< wchar_t > & **ignore** (streamsize __n)
- template<>
  basic_istream< char > & **ignore** (streamsize __n, int_type __delim)
- template<>
  basic_istream< char > & **ignore** (streamsize __n)
- locale imbue (const locale &__loc)
- bool **is_open** () const
- bool is_open ()
- long & iword (int __ix)
- char narrow (char_type __c, char __dfault) const
- void open (const std::string &__s, ios_base::openmode __mode=ios_base::in)
- void open (const char *__s, ios_base::openmode __mode=ios_base::in)
- streamsize precision (streamsize __prec)
- streamsize precision () const
- void *& pword (int __ix)
- basic_streambuf< _CharT, _Traits > * rdbuf (basic_streambuf< _CharT, _Traits > *__sb)
- __filebuf_type * rdbuf () const
- iostate rdstate () const
- void register_callback (event_callback __fn, int __index)
- fmtflags setf (fmtflags __fmtfl, fmtflags __mask)
- fmtflags setf (fmtflags __fmtfl)
- void setstate (iostate __state)
- basic_ostream< _CharT, _Traits > * tie (basic_ostream< _CharT, _Traits > *__-
  _tiestr)
- basic_ostream< _CharT, _Traits > * tie () const
- void unsetf (fmtflags __mask)
- char_type widen (char __c) const
- streamsize width (streamsize __wide)
- streamsize width () const

Unformatted Input Functions

All the unformatted input functions have some common behavior. Each starts by constructing a temporary object of type std::basic_istream::sentry with the second argument (noskipws) set to true. This has several effects, concluding with the setting of a status flag; see the sentry documentation for more.

If the sentry status is good, the function tries to extract whatever data is appropriate for the type of the argument.

The number of characters extracted is stored for later retrieval by gcount().

If an exception is thrown during extraction, ios_base::badbit will be turned on in the stream's error state without causing an ios_base::failure to be thrown. The original exception will then be rethrown.

- __istream_type & get (__streambuf_type &__sb)
- __istream_type & get (__streambuf_type &__sb, char_type __delim)
- __istream_type & get (char_type *__s, streamsize __n)
- __istream_type & get (char_type *__s, streamsize __n, char_type __delim)
- __istream_type & get (char_type &__c)
- int_type get ()
- __istream_type & getline (char_type *__s, streamsize __n)
- __istream_type & getline (char_type *__s, streamsize __n, char_type __delim)
- __istream_type & ignore (streamsize __n, int_type __delim)
- __istream_type & ignore (streamsize __n)
- __istream_type & ignore ()
- int_type peek ()
- __istream_type & putback (char_type __c)
- __istream_type & read (char_type *__s, streamsize __n)
- streamsize readsome (char_type *__s, streamsize __n)
- __istream_type & seekg (off_type, ios_base::seekdir)
- __istream_type & seekg (pos_type)
- int sync ()
- pos_type tellg ()
- __istream_type & unget ()

Arithmetic Extractors

All the `operator>>` functions (aka formatted input functions) have some common behavior. Each starts by constructing a temporary object of type std::basic_istream::sentry with the second argument (noskipws) set to false. This has several effects, concluding with the setting of a status flag; see the sentry documentation for more.

If the sentry status is good, the function tries to extract whatever data is appropriate for the type of the argument.

If an exception is thrown during extraction, ios_base::badbit will be turned on in the stream's error state without causing an ios_base::failure to be thrown. The original exception will then be rethrown.

- __istream_type & operator>> (__streambuf_type *__sb)
- __istream_type & operator>> (void *&__p)
- __istream_type & operator>> (long double &__f)
- __istream_type & operator>> (double &__f)
- __istream_type & operator>> (float &__f)
- __istream_type & operator>> (unsigned long long &__n)
- __istream_type & operator>> (long long &__n)
- __istream_type & operator>> (unsigned long &__n)

- __istream_type & operator>> (long &__n)
- __istream_type & operator>> (unsigned int &__n)
- __istream_type & operator>> (int &__n)
- __istream_type & operator>> (unsigned short &__n)
- __istream_type & operator>> (short &__n)
- __istream_type & operator>> (bool &__n)

- __istream_type & operator>> (ios_base &(*__pf)(ios_base &))
- __istream_type & operator>> (__ios_type &(*__pf)(__ios_type &))
- __istream_type & operator>> (__istream_type &(*__pf)(__istream_type &))

Static Public Member Functions

- static bool sync_with_stdio (bool __sync=true)
- static int xalloc () throw ()

Static Public Attributes

- static const fmtflags adjustfield
- static const openmode app
- static const openmode ate
- static const iostate badbit
- static const fmtflags basefield
- static const seekdir beg
- static const openmode binary
- static const fmtflags boolalpha
- static const seekdir cur
- static const fmtflags dec
- static const seekdir end
- static const iostate eofbit
- static const iostate failbit
- static const fmtflags fixed
- static const fmtflags floatfield
- static const iostate goodbit
- static const fmtflags hex
- static const openmode in
- static const fmtflags internal
- static const fmtflags left
- static const fmtflags oct
- static const openmode out
- static const fmtflags right
- static const fmtflags scientific

- static const fmtflags showbase
- static const fmtflags showpoint
- static const fmtflags showpos
- static const fmtflags skipws
- static const openmode trunc
- static const fmtflags unitbuf
- static const fmtflags uppercase

Protected Types

- enum { **_S_local_word_size** }

Protected Member Functions

- void **_M_cache_locale** (const locale &__loc)
- void **_M_call_callbacks** (event __ev) throw ()
- void **_M_dispose_callbacks** (void) throw ()
- template<typename _ValueT >
  __istream_type & **_M_extract** (_ValueT &__v)
- _Words & **_M_grow_words** (int __index, bool __iword)
- void **_M_init** () throw ()
- void init (basic_streambuf< _CharT, _Traits > *__sb)

Protected Attributes

- _Callback_list * **_M_callbacks**
- const __ctype_type * **_M_ctype**
- iostate **_M_exception**
- char_type **_M_fill**
- bool **_M_fill_init**
- fmtflags **_M_flags**
- streamsize _M_gcount
- locale **_M_ios_locale**
- _Words **_M_local_word** [_S_local_word_size]
- const __num_get_type * **_M_num_get**
- const __num_put_type * **_M_num_put**
- streamsize **_M_precision**
- basic_streambuf< _CharT, _Traits > * **_M_streambuf**
- iostate **_M_streambuf_state**
- basic_ostream< _CharT, _Traits > * **_M_tie**
- streamsize **_M_width**
- _Words * **_M_word**
- int **_M_word_size**
- _Words **_M_word_zero**

Friends

- class **sentry**

- typedef num_put< _CharT, ostreambuf_iterator< _CharT, _Traits > > __num_put_type
- operator void * () const
- bool operator! () const

5.373.1 Detailed Description

template<typename _CharT, typename _Traits> class std::basic_ifstream< _CharT, _Traits >

Controlling input for files.

This class supports reading from named files, using the inherited functions from std::basic_istream. To control the associated sequence, an instance of std::basic_filebuf is used, which this page refers to as `sb`.

Definition at line 415 of file fstream.

5.373.2 Member Typedef Documentation

5.373.2.1 template<typename _CharT, typename _Traits> typedef ctype<_CharT> std::basic_istream< _CharT, _Traits >::__ctype_type [inherited]

These are non-standard types.

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 71 of file istream.

5.373.2.2 template<typename _CharT, typename _Traits> typedef num_get<_CharT, istreambuf_iterator<_CharT, _Traits> > std::basic_istream< _CharT, _Traits >::__num_get_type [inherited]

These are non-standard types.

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 70 of file istream.

5.373.2.3 template<typename _CharT, typename _Traits> typedef num_put<_CharT, ostreambuf_iterator<_CharT, _Traits> > std::basic_ios< _CharT, _Traits >::__num_put_type [inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Reimplemented in std::basic_ostream< _CharT, _Traits >, std::basic_ostream< char, _Traits >, and std::basic_ostream< char >.

Definition at line 84 of file basic_ios.h.

5.373.2.4 template<typename _CharT , typename _Traits > typedef _CharT std::basic_ifstream< _CharT, _Traits >::char_type

These are standard types. They permit a standardized way of referring to names of (or names dependant on) the template parameters, which are specific to the implementation.

Reimplemented from std::basic_istream< _CharT, _Traits >.

Definition at line 419 of file fstream.

5.373.2.5 typedef void(* std::ios_base::event_callback)(event, ios_base &, int) [inherited]

The type of an event callback function.

Parameters:

event One of the members of the event enum.

ios_base Reference to the ios_base object.

int The integer provided when the callback was registered.

Event callbacks are user defined functions that get called during several ios_base and basic_ios functions, specifically imbue(), copyfmt(), and ~ios().

Definition at line 444 of file ios_base.h.

5.373.2.6 typedef _Ios_Fmtflags std::ios_base::fmtflags [inherited]

This is a bitmask type. `_Ios_Fmtflags` is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type fmtflags are:

- boolalpha
- dec
- fixed
- hex
- internal
- left
- oct
- right
- scientific
- showbase
- showpoint
- showpos
- skipws
- unitbuf
- uppercase
- adjustfield
- basefield
- floatfield

Definition at line 263 of file ios_base.h.

5.373.2.7 template<typename _CharT , typename _Traits > typedef traits_type::int_type std::basic_ifstream< _CharT, _Traits >::int_type

These are non-standard types.

Reimplemented from std::basic_istream< _CharT, _Traits >.

Definition at line 421 of file fstream.

5.373.2.8 typedef _Ios_Iostate std::ios_base::iostate [inherited]

This is a bitmask type. *_Ios_Iostate* is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type iostate are:

- badbit
- eofbit
- failbit
- goodbit

Definition at line 338 of file ios_base.h.

5.373.2.9 template<typename _CharT , typename _Traits > typedef traits_type::off_type std::basic_ifstream< _CharT, _Traits >::off_type

These are non-standard types.

Reimplemented from std::basic_istream< _CharT, _Traits >.

Definition at line 423 of file fstream.

5.373.2.10 typedef _Ios_Openmode std::ios_base::openmode [inherited]

This is a bitmask type. *_Ios_Openmode* is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type openmode are:

- app
- ate
- binary
- in
- out
- trunc

Definition at line 369 of file ios_base.h.

5.373.2.11 template<typename _CharT , typename _Traits > typedef traits_type::pos_type std::basic_ifstream< _CharT, _Traits >::pos_type

These are non-standard types.

Reimplemented from std::basic_istream< _CharT, _Traits >.

Definition at line 422 of file fstream.

5.373.2.12 typedef _Ios_Seekdir std::ios_base::seekdir [inherited]

This is an enumerated type. `_Ios_Seekdir` is implementation-defined. Defined values of type seekdir are:

- beg
- cur, equivalent to `SEEK_CUR` in the C standard library.
- end, equivalent to `SEEK_END` in the C standard library.

Definition at line 401 of file ios_base.h.

5.373.2.13 template<typename _CharT , typename _Traits > typedef _Traits std::basic_ifstream< _CharT, _Traits >::traits_type

These are non-standard types.

Reimplemented from std::basic_istream< _CharT, _Traits >.

Definition at line 420 of file fstream.

5.373.3 Member Enumeration Documentation

5.373.3.1 enum std::ios_base::event [inherited]

The set of events that may be passed to an event callback. erase_event is used during ~ios() and copyfmt(). imbue_event is used during imbue(). copyfmt_event is used during copyfmt().

Definition at line 427 of file ios_base.h.

5.373.4 Constructor & Destructor Documentation

5.373.4.1 template<typename _CharT , typename _Traits > std::basic_ifstream< _CharT, _Traits >::basic_ifstream () [inline]

Default constructor. Initializes `sb` using its default constructor, and passes `&sb` to the base class initializer. Does not open any files (you haven't given it a filename to open).

Definition at line 441 of file fstream.

5.373.4.2 template<typename _CharT , typename _Traits > std::basic_ifstream< _CharT, _Traits >::basic_ifstream (const char * __s, ios_base::openmode __mode = ios_base::in) [inline, explicit]

Create an input file stream.

Parameters:

s Null terminated string specifying the filename.

mode Open file in specified mode (see std::ios_base).

`ios_base::in` is automatically included in *mode*.

Tip: When using std::string to hold the filename, you must use .c_str() before passing it to this constructor.

Definition at line 455 of file fstream.

5.373.4.3 template<typename _CharT , typename _Traits > std::basic_ifstream< _CharT, _Traits >::basic_ifstream (const std::string & __s, ios_base::openmode __mode = ios_base::in) [inline, explicit]

Create an input file stream.

Parameters:

s std::string specifying the filename.

mode Open file in specified mode (see std::ios_base).

`ios_base::in` is automatically included in *mode*.

Definition at line 471 of file fstream.

5.373.4.4 template<typename _CharT , typename _Traits > std::basic_ifstream< _CharT, _Traits >::~basic_ifstream () [inline]

The destructor does nothing. The file is closed by the filebuf object, not the formatting stream.

Definition at line 486 of file fstream.

5.373.5 Member Function Documentation

5.373.5.1 const locale& std::ios_base::_M_getloc () const [inline, inherited]

Locale access.

Returns:

A reference to the current locale.

Like getloc above, but returns a reference instead of generating a copy.

Definition at line 705 of file ios_base.h.

Referenced by std::money_get< _CharT, _InIter >::do_get(), std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_date(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_time(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::time_put< _CharT, _OutIter >::do_put(), std::num_put< _CharT, _OutIter >::do_put(), and std::time_put< _CharT, _OutIter >::put().

5.373.5.2 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::bad () const [inline, inherited]

Fast error checking.

Returns:

True if the badbit is set.

Note that other iostate flags may also be set.

Definition at line 201 of file basic_ios.h.

5.373.5.3 template<typename _CharT , typename _Traits > void std::basic_ios< _CharT, _Traits >::clear (iostate __*state* = goodbit) [inline, inherited]

[Re]sets the error state.

Parameters:

state The new state flag(s) to set.

See std::ios_base::iostate for the possible bit values. Most users will not need to pass an argument.

Definition at line 40 of file basic_ios.tcc.

Referenced by std::basic_ios< _CharT, _Traits >::rdbuf().

5.373.5.4 template<typename _CharT , typename _Traits > void std::basic_ifstream< _CharT, _Traits >::close () [inline]

Close the file. Calls `std::basic_filebuf::close()`. If that function fails, `failbit` is set in the stream's error state.

Definition at line 564 of file fstream.

5.373.5.5 template<typename _CharT , typename _Traits > basic_ios< _CharT, _Traits > & std::basic_ios< _CharT, _Traits >::copyfmt (const basic_ios< _CharT, _Traits > & __*rhs*) [inline, inherited]

Copies fields of __rhs into this.

Parameters:

__rhs The source values for the copies.

Returns:

Reference to this object.

All fields of __rhs are copied into this object except that rdbuf() and rdstate() remain unchanged. All values in the pword and iword arrays are copied. Before copying, each callback is invoked with erase_event. After copying, each (new) callback is invoked with copyfmt_event. The final step is to copy exceptions().

Definition at line 62 of file basic_ios.tcc.

References std::basic_ios< _CharT, _Traits >::exceptions(), std::basic_ios< _CharT, _Traits >::fill(), std::ios_base::flags(), std::ios_base::getloc(), std::ios_base::precision(), std::basic_ios< _CharT, _Traits >::tie(), and std::ios_base::width().

5.373.5.6 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::eof () const [inline, inherited]

Fast error checking.

Returns:

True if the eofbit is set.

Note that other iostate flags may also be set.

Definition at line 180 of file basic_ios.h.

Referenced by std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_istream< _CharT, _Traits >::putback(), and std::basic_istream< _CharT, _Traits >::unget().

5.373.5.7 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::exceptions (iostate *__except*) [inline, inherited]

Throwing exceptions on errors.

Parameters:

except The new exceptions mask.

By default, error flags are set silently. You can set an exceptions mask for each stream; if a bit in the mask becomes set in the error flags, then an exception of type std::ios_base::failure is thrown.

If the error flag is already set when the exceptions mask is added, the exception is immediately thrown. Try running the following under GCC 3.1 or later:

```
#include <iostream>
#include <fstream>
#include <exception>

int main()
{
    std::set_terminate (__gnu_cxx::__verbose_terminate_handler);

    std::ifstream f ("/etc/motd");

    std::cerr << "Setting badbit\n";
    f.setstate (std::ios_base::badbit);

    std::cerr << "Setting exception mask\n";
    f.exceptions (std::ios_base::badbit);
}
```

Definition at line 247 of file basic_ios.h.

5.373.5.8 template<typename _CharT, typename _Traits> iostate std::basic_ios< _CharT, _Traits >::exceptions () const [inline, inherited]

Throwing exceptions on errors.

Returns:

The current exceptions mask.

This changes nothing in the stream. See the one-argument version of exceptions(iostate) for the meaning of the return value.

Definition at line 212 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.373.5.9 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::fail () const [inline, inherited]

Fast error checking.

Returns:

True if either the badbit or the failbit is set.

Checking the badbit in fail() is historical practice. Note that other iostate flags may also be set.

Definition at line 191 of file basic_ios.h.

Referenced by std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_ostream< _CharT, _Traits >::tellp(), and std::regex_traits< _Ch_type >::value().

5.373.5.10 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::fill (char_type __*ch*) [inline, inherited]

Sets a new *empty* character.

Parameters:

ch The new character.

Returns:

The previous fill character.

The fill character is used to fill out space when P+ characters have been requested (e.g., via setw), Q characters are actually used, and Q<P. It defaults to a space (' ') in the current locale.

Definition at line 380 of file basic_ios.h.

5.373.5.11 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::fill () const [inline, inherited]

Retrieves the *empty* character.

Returns:

The current fill character.

It defaults to a space (' ') in the current locale.

Definition at line 360 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.373.5.12 fmtflags std::ios_base::flags (fmtflags *__fmtfl*) [inline, inherited]

Setting new format flags all at once.

Parameters:

fmtfl The new flags to set.

Returns:

The previous format control flags.

This function overwrites all the format flags with *fmtfl*.

Definition at line 561 of file ios_base.h.

5.373.5.13 fmtflags std::ios_base::flags () const [inline, inherited]

Access to format flags.

Returns:

The format control flags for both input and output.

Definition at line 550 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::num_get< _CharT, _InIter >::do_get(), std::num_put< _CharT, _OutIter >::do_put(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator<<(), and std::operator>>().

5.373.5.14 template<typename _CharT, typename _Traits> streamsize std::basic_istream< _CharT, _Traits >::gcount () const [inline, inherited]

Character counting.

Returns:

The number of characters extracted by the previous unformatted input function dispatched for this stream.

Definition at line 249 of file istream.

5.373.5.15 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::get (__streambuf_type & *__sb*) [inline, inherited]

Extraction into another streambuf.

Parameters:

sb A streambuf in which to store data.

Returns:

∗this

Returns `get`(sb,widen('\n')).

Definition at line 366 of file istream.

5.373.5.16 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::get (__streambuf_type & *__sb*, char_type *__delim*) [inline, inherited]

Extraction into another streambuf.

Parameters:

sb A streambuf in which to store data.

delim A "stop" character.

Returns:

∗this

Characters are extracted and inserted into *sb* until one of the following happens:

- the input sequence reaches EOF
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted)
- the next character equals *delim* (in this case, the character is not extracted)
- an exception occurs (and in this case is caught)

If no characters are stored, failbit is set in the stream's error state.

Definition at line 356 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), std::basic_streambuf< _CharT, _Traits >::snextc(), and std::basic_streambuf< _CharT, _Traits >::sputc().

5.373.5.17 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::get (char_type ∗ __s, streamsize __n) [inline, inherited]

Simple multiple-character extraction.

Parameters:

s Pointer to an array.

n Maximum number of characters to store in *s*.

Returns:

∗this

Returns `get`(s,n,widen('\n')).

Definition at line 333 of file istream.

5.373.5.18 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::get (char_type * __s, streamsize __n, char_type __delim) [inline, inherited]

Simple multiple-character extraction.

Parameters:

s Pointer to an array.

n Maximum number of characters to store in *s*.

delim A "stop" character.

Returns:

*this

Characters are extracted and stored into *s* until one of the following happens:

- `n-1` characters are stored
- the input sequence reaches EOF
- the next character equals *delim*, in which case the character is not extracted

If no characters are stored, failbit is set in the stream's error state.

In any case, a null character is stored into the next location in the array.

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 309 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), and std::basic_streambuf< _CharT, _Traits >::snextc().

5.373.5.19 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::get (char_type & __c) [inline, inherited]

Simple extraction.

Parameters:

c The character in which to store data.

Returns:

∗this

Tries to extract a character and store it in *c*. If none are available, sets failbit and returns traits::eof().

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 272 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.373.5.20 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits >::int_type std::basic_istream< _CharT, _Traits >::get (void) [inline, inherited]

Simple extraction.

Returns:

A character, or eof().

Tries to extract a character. If none are available, sets failbit and returns traits::eof().

Definition at line 236 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.373.5.21 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::getline (char_type ∗ __s, streamsize __n) [inline, inherited]

String extraction.

Parameters:

s A character array in which to store the data.

n Maximum number of characters to extract.

Returns:

*this

Returns `getline`(s,n,widen('\n')).

Definition at line 406 of file istream.

Referenced by std::basic_istream< char >::getline().

5.373.5.22 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::getline (char_type * *__s*, streamsize *__n*, char_type *__delim*) [inline, inherited]

String extraction.

Parameters:

s A character array in which to store the data.

n Maximum number of characters to extract.

delim A "stop" character.

Returns:

*this

Extracts and stores characters into *s* until one of the following happens. Note that these criteria are required to be tested in the order listed here, to allow an input line to exactly fill the *s* array without setting failbit.

1. the input sequence reaches end-of-file, in which case eofbit is set in the stream error state
2. the next character equals `delim`, in which case the character is extracted (and therefore counted in `gcount()`) but not stored
3. `n-1` characters are stored, in which case failbit is set in the stream error state

If no characters are extracted, failbit is set. (An empty line of input should therefore not cause failbit to be set.)

In any case, a null character is stored in the next location in the array.

Definition at line 400 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_streambuf< _CharT, _Traits >::sbumpc(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), and std::basic_streambuf< _CharT, _Traits >::snextc().

5.373.5.23 locale std::ios_base::getloc () const [inline, inherited]

Locale access.

Returns:

A copy of the current locale.

If `imbue(loc)` has previously been called, then this function returns `loc`. Otherwise, it returns a copy of `std::locale()`, the global C++ locale.

Definition at line 694 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::money_put< _CharT, _OutIter >::do_put(), std::basic_ios< _CharT, _Traits >::imbue(), std::operator>>(), and std::ws().

5.373.5.24 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::good () const [inline, inherited]

Fast error checking.

Returns:

True if no error flags are set.

A wrapper around rdstate.

Definition at line 170 of file basic_ios.h.

5.373.5.25 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::ignore (streamsize __n, int_type __delim) [inline, inherited]

Extraction into another streambuf.

Parameters:

sb A streambuf in which to store data.

Returns:

∗this

Returns `get`(sb,widen('\n')).

Definition at line 555 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_streambuf< _CharT, _Traits >::sbumpc(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), and std::basic_streambuf< _CharT, _Traits >::snextc().

5.373.5.26 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::ignore (streamsize __n) [inline, inherited]

Extraction into another streambuf.

Parameters:

sb A streambuf in which to store data.

Returns:

∗this

Returns `get`(sb,widen('\n')).

Definition at line 493 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), and std::basic_streambuf< _CharT, _Traits >::snextc().

5.373.5.27 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::ignore (void) [inline, inherited]

Discarding characters.

Parameters:

n Number of characters to discard.

delim A "stop" character.

Returns:

*this

Extracts characters and throws them away until one of the following happens:

- if *n* != std::numeric_limits<int>::max(), *n* characters are extracted
- the input sequence reaches end-of-file
- the next character equals *delim* (in this case, the character is extracted); note that this condition will never occur if *delim* equals traits::eof().

NB: Provide three overloads, instead of the single function (with defaults) mandated by the Standard: this leads to a better performing implementation, while still conforming to the Standard.

Definition at line 460 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_streambuf< _CharT, _Traits >::sbumpc(), and std::basic_ios< _CharT, _Traits >::setstate().

5.373.5.28 template<typename _CharT , typename _Traits > locale std::basic_ios< _CharT, _Traits >::imbue (const locale & *__loc*) [inline, inherited]

Moves to a new locale.

Parameters:

loc The new locale.

Returns:

The previous locale.

Calls ios_base::imbue(loc), and if a stream buffer is associated with this stream, calls that buffer's pubimbue(loc).

Additional l10n notes are at http://gcc.gnu.org/onlinedocs/libstdc++/manual/localizati

Reimplemented from std::ios_base.

Definition at line 113 of file basic_ios.tcc.

References std::ios_base::getloc(), and std::basic_ios< _CharT, _Traits >::rdbuf().

Referenced by std::operator<<().

5.373.5.29 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::init (basic_streambuf< _CharT, _Traits > * *__sb*) [inline, protected, inherited]

All setup is performed here. This is called from the public constructor. It is not virtual and cannot be redefined.

Definition at line 125 of file basic_ios.tcc.

References std::ios_base::badbit, and std::ios_base::goodbit.

5.373.5.30 template<typename _CharT , typename _Traits > bool std::basic_ifstream< _CharT, _Traits >::is_open () [inline]

Wrapper to test for an open file.

Returns:

`rdbuf()->is_open()`

Definition at line 505 of file fstream.

5.373.5.31 long& std::ios_base::iword (int *__ix*) [inline, inherited]

Access to integer array.

Parameters:

__ix Index into the array.

Returns:

A reference to an integer associated with the index.

The iword function provides access to an array of integers that can be used for any purpose. The array grows as required to hold the supplied index. All integers in the array are initialized to 0.

The implementation reserves several indices. You should use xalloc to obtain an index that is safe to use. Also note that since the array can grow dynamically, it is not safe to hold onto the reference.

Definition at line 740 of file ios_base.h.

5.373.5.32 template<typename _CharT, typename _Traits> char std::basic_ios< _CharT, _Traits >::narrow (char_type __c, char __dfault) const [inline, inherited]

Squeezes characters.

Parameters:

c The character to narrow.

dfault The character to narrow.

Returns:

The narrowed character.

Maps a character of `char_type` to a character of `char`, if possible.

Returns the result of

```
std::use_facet<ctype<char_type> >(getloc()).narrow(c,dfault)
```

Additional l10n notes are at http://gcc.gnu.org/onlinedocs/libstdc++/manual/localizati

Definition at line 420 of file basic_ios.h.

5.373.5.33 template<typename _CharT , typename _Traits > void std::basic_ifstream< _CharT, _Traits >::open (const std::string & __s, ios_base::openmode __mode = ios_base::in) [inline]

Opens an external file.

Parameters:

s The name of the file.

mode The open mode flags.

Calls `std::basic_filebuf::open`(s,mode|in). If that function fails, `failbit` is set in the stream's error state.

Definition at line 546 of file fstream.

5.373.5.34 template<typename _CharT , typename _Traits > void std::basic_ifstream< _CharT, _Traits >::open (const char * __s, ios_base::openmode __mode = ios_base::in) [inline]

Opens an external file.

Parameters:

s The name of the file.

mode The open mode flags.

Calls `std::basic_filebuf::open`(s,mode|in). If that function fails, `failbit` is set in the stream's error state.

Tip: When using std::string to hold the filename, you must use .c_str() before passing it to this constructor.

Definition at line 526 of file fstream.

5.373.5.35 template<typename _CharT, typename _Traits> std::basic_ios< _CharT, _Traits >::operator void * () const [inline, inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Definition at line 111 of file basic_ios.h.

5.373.5.36 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::operator! () const [inline, inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Definition at line 115 of file basic_ios.h.

5.373.5.37 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::operator>> (__streambuf_type * *__sb*) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 204 of file istream.tcc.

References std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.373.5.38 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (void *& __p) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 215 of file istream.

5.373.5.39 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (long double & __f) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 211 of file istream.

5.373.5.40 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (double & __f) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,

- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 207 of file istream.

5.373.5.41 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (float & *__f*) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 203 of file istream.

5.373.5.42 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (unsigned long long & *__n*) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 198 of file istream.

5.373.5.43 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (long long & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 194 of file istream.

5.373.5.44 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (unsigned long & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 189 of file istream.

5.373.5.45 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (long & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,

- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 185 of file istream.

5.373.5.46 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (unsigned int & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 181 of file istream.

5.373.5.47 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::operator>> (int & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 159 of file istream.tcc.

References std::ios_base::badbit, std::ios_base::failbit, std::num_get< _CharT, _InIter >::get(), std::ios_base::goodbit, and std::basic_ios< _CharT, _Traits >::setstate().

5.373.5.48 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (unsigned short & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 174 of file istream.

5.373.5.49 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::operator>> (short & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 114 of file istream.tcc.

References std::ios_base::badbit, std::ios_base::failbit, std::num_get< _CharT, _InIter >::get(), std::ios_base::goodbit, and std::basic_ios< _CharT, _Traits >::setstate().

5.373.5.50 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (bool & __n) [inline, inherited]

Basic arithmetic extractors.

Parameters:

A variable of builtin type.

Returns:

`*this` if successful

These functions use the stream's current locale (specifically, the `num_get` facet) to parse the input data.

Definition at line 167 of file istream.

5.373.5.51 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (ios_base &(*)(ios_base &) *__pf*) [inline, inherited]

Interface for manipulators. Manipulators such as `std::ws` and `std::dec` use these functions in constructs like `std::cin >> std::ws`. For more information, see the iomanip header.

Definition at line 131 of file istream.

5.373.5.52 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (__ios_type &(*)(__ios_type &) *__pf*) [inline, inherited]

Interface for manipulators. Manipulators such as `std::ws` and `std::dec` use these functions in constructs like `std::cin >> std::ws`. For more information, see the iomanip header.

Definition at line 124 of file istream.

5.373.5.53 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (__istream_type &(*)(__istream_type &) *__pf*) [inline, inherited]

Interface for manipulators. Manipulators such as `std::ws` and `std::dec` use these functions in constructs like `std::cin >> std::ws`. For more information, see the iomanip header.

Definition at line 120 of file istream.

5.373.5.54 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits >::int_type std::basic_istream< _CharT, _Traits >::peek (void) [inline, inherited]

Looking ahead in the stream.

Returns:

The next character, or eof().

If, after constructing the sentry object, `good()` is false, returns `traits::eof()`. Otherwise reads but does not extract the next input character.

Definition at line 620 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.373.5.55 streamsize std::ios_base::precision (streamsize *__prec*) [inline, inherited]

Changing flags.

Parameters:

prec The new precision value.

Returns:

The previous value of precision().

Definition at line 629 of file ios_base.h.

5.373.5.56 streamsize std::ios_base::precision () const [inline, inherited]

Flags access.

Returns:

The precision to generate on certain output operations.

Be careful if you try to give a definition of *precision* here; see DR 189.

Definition at line 620 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), and std::operator<<().

5.373.5.57 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::putback (char_type *__c*) [inline, inherited]

Unextracting a single character.

Parameters:

c The character to push back into the input stream.

Returns:

∗this

If rdbuf() is not null, calls rdbuf()->sputbackc(c).

If rdbuf() is null or if sputbackc() fails, sets badbit in the error state.

Note:

Since no characters are extracted, the next call to gcount() will return 0, as required by DR 60.

Definition at line 711 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), and std::basic_streambuf< _CharT, _Traits >::sputbackc().

Referenced by std::operator>>().

5.373.5.58 void*& std::ios_base::pword (int __ix) [inline, inherited]

Access to void pointer array.

Parameters:

__ix Index into the array.

Returns:

A reference to a void* associated with the index.

The pword function provides access to an array of pointers that can be used for any purpose. The array grows as required to hold the supplied index. All pointers in the array are initialized to 0.

The implementation reserves several indices. You should use xalloc to obtain an index that is safe to use. Also note that since the array can grow dynamically, it is not safe to hold onto the reference.

Definition at line 761 of file ios_base.h.

5.373.5.59 template<typename _CharT, typename _Traits> basic_streambuf< _CharT, _Traits > * std::basic_ios< _CharT, _Traits >::rdbuf (basic_streambuf< _CharT, _Traits > * __sb) [inline, inherited]

Changing the underlying buffer.

Parameters:

sb The new stream buffer.

Returns:

The previous stream buffer.

Associates a new buffer with the current stream, and clears the error state.

Due to historical accidents which the LWG refuses to correct, the I/O library suffers from a design error: this function is hidden in derived classes by overrides of the zero-argument `rdbuf()`, which is non-virtual for hysterical raisins. As a result, you must use explicit qualifications to access this function via any derived class. For example:

```
std::fstream     foo;          // or some other derived type
std::streambuf*  p = .....;

foo.ios::rdbuf(p);             // ios == basic_ios<char>
```

Definition at line 52 of file basic_ios.tcc.

References std::basic_ios< _CharT, _Traits >::clear().

5.373.5.60 template<typename _CharT , typename _Traits > __filebuf_type* std::basic_ifstream< _CharT, _Traits >::rdbuf () const [inline]

Accessing the underlying buffer.

Returns:

The current basic_filebuf buffer.

This hides both signatures of std::basic_ios::rdbuf().

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 497 of file fstream.

5.373.5.61 template<typename _CharT, typename _Traits> iostate std::basic_ios< _CharT, _Traits >::rdstate () const [inline, inherited]

Returns the error state of the stream buffer.

Returns:

A bit pattern (well, isn't everything?)

See std::ios_base::iostate for the possible bit values. Most users will call one of the interpreting wrappers, e.g., good().

Definition at line 127 of file basic_ios.h.

5.373.5.62 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::read (char_type * __s, streamsize __n) [inline, inherited]

Extraction without delimiters.

Parameters:

s A character array.

n Maximum number of characters to store.

Returns:

*this

If the stream state is `good()`, extracts characters and stores them into *s* until one of the following happens:

- *n* characters are stored
- the input sequence reaches end-of-file, in which case the error state is set to `failbit|eofbit`.

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 650 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.373.5.63 template<typename _CharT , typename _Traits > streamsize std::basic_istream< _CharT, _Traits >::readsome (char_type * __s, streamsize __n) [inline, inherited]

Extraction until the buffer is exhausted, but no more.

Parameters:

s A character array.

n Maximum number of characters to store.

Returns:

The number of characters extracted.

Extracts characters and stores them into *s* depending on the number of characters remaining in the streambuf's buffer, `rdbuf()->in_avail()`, called `A` here:

- if `A == -1`, sets eofbit and extracts no characters
- if `A == 0`, extracts no characters
- if `A > 0`, extracts `min(A,n)`

The goal is to empty the current buffer, and to not request any more from the external input sequence controlled by the streambuf.

Definition at line 679 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::ios_base::eofbit, std::ios_base::goodbit, std::min(), std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.373.5.64 void std::ios_base::register_callback (event_callback *__fn*, int *__index*) [inherited]

Add the callback __fn with parameter __index.

Parameters:

__fn The function to add.

__index The integer to pass to the function when invoked.

Registers a function as an event callback with an integer parameter to be passed to the function when invoked. Multiple copies of the function are allowed. If there are multiple callbacks, they are invoked in the order they were registered.

5.373.5.65 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::seekg (off_type *__off*, ios_base::seekdir *__dir*) [inline, inherited]

Changing the current read position.

Parameters:

off A file offset object.

dir The direction in which to seek.

Returns:

∗this

If `fail()` is not true, calls `rdbuf()->pubseekoff(off,dir)`. If that function fails, sets failbit.

Note:

This function does not count the number of characters extracted, if any, and therefore does not affect the next call to `gcount()`.

Definition at line 870 of file istream.tcc.

References std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::failbit, std::ios_base::goodbit, std::ios_base::in, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.373.5.66 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::seekg (pos_type *__pos*) [inline, inherited]

Changing the current read position.

Parameters:

pos A file position object.

Returns:

*this

If `fail()` is not true, calls `rdbuf()->pubseekpos(pos)`. If that function fails, sets failbit.

Note:

This function does not count the number of characters extracted, if any, and therefore does not affect the next call to `gcount()`.

Definition at line 837 of file istream.tcc.

References std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::failbit, std::ios_base::goodbit, std::ios_base::in, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.373.5.67 fmtflags std::ios_base::setf (fmtflags *__fmtfl*, fmtflags *__mask*) [inline, inherited]

Setting new format flags.

Parameters:

fmtfl Additional flags to set.

mask The flags mask for *fmtfl*.

Returns:

The previous format control flags.

This function clears *mask* in the format flags, then sets *fmtfl* & *mask*. An example mask is `ios_base::adjustfield`.

Definition at line 594 of file ios_base.h.

5.373.5.68 fmtflags std::ios_base::setf (fmtflags *__fmtfl*) [inline, inherited]

Setting new format flags.

Parameters:

fmtfl Additional flags to set.

Returns:

The previous format control flags.

This function sets additional flags in format control. Flags that were previously set remain set.

Definition at line 577 of file ios_base.h.

Referenced by std::boolalpha(), std::dec(), std::fixed(), std::hex(), std::internal(), std::left(), std::oct(), std::right(), std::scientific(), std::showbase(), std::showpoint(), std::showpos(), std::skipws(), std::unitbuf(), and std::uppercase().

5.373.5.69 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::setstate (iostate *__state*) [inline, inherited]

Sets additional flags in the error state.

Parameters:

state The additional state flag(s) to set.

See std::ios_base::iostate for the possible bit values.

Definition at line 147 of file basic_ios.h.

Referenced by std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::basic_istream< _CharT, _Traits >::operator>>(), std::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), std::basic_istream< _CharT, _Traits >::unget(), and std::ws().

5.373.5.70 template<typename _CharT , typename _Traits > int std::basic_istream< _CharT, _Traits >::sync (void) [inline, inherited]

Synchronizing the stream buffer.

Returns:

0 on success, -1 on failure

If `rdbuf()` is a null pointer, returns -1.

Otherwise, calls `rdbuf()->pubsync()`, and if that returns -1, sets badbit and returns -1.

Otherwise, returns 0.

Note:

This function does not count the number of characters extracted, if any, and therefore does not affect the next call to `gcount()`.

Definition at line 777 of file istream.tcc.

References std::ios_base::badbit, std::ios_base::goodbit, std::basic_streambuf< _CharT, _Traits >::pubsync(), std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.373.5.71 static bool std::ios_base::sync_with_stdio (bool *__sync* = true) [static, inherited]

Interaction with the standard C I/O objects.

Parameters:

sync Whether to synchronize or not.

Returns:

True if the standard streams were previously synchronized.

The synchronization referred to is *only* that between the standard C facilities (e.g., stdout) and the standard C++ objects (e.g., cout). User-declared streams are unaffected. See http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch28s02.html

5.373.5.72 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits >::pos_type std::basic_istream< _CharT, _Traits >::tellg (void) [inline, inherited]

Getting the current read position.

Returns:

A file position object.

If `fail()` is not false, returns `pos_type`(-1) to indicate failure. Otherwise returns `rdbuf()->pubseekoff(0,cur,in)`.

Note:

This function does not count the number of characters extracted, if any, and therefore does not affect the next call to `gcount()`.

Definition at line 813 of file istream.tcc.

References std::ios_base::badbit, std::ios_base::cur, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::in, and std::basic_ios< _CharT, _Traits >::rdbuf().

5.373.5.73 template<typename _CharT, typename _Traits> basic_ostream<_CharT, _Traits>* std::basic_ios< _CharT, _Traits >::tie (basic_ostream< _CharT, _Traits > * *__tiestr*) [inline, inherited]

Ties this stream to an output stream.

Parameters:

tiestr The output stream.

Returns:

The previously tied output stream, or NULL if the stream was not tied.

This sets up a new tie; see tie() for more.

Definition at line 297 of file basic_ios.h.

5.373.5.74 template<typename _CharT, typename _Traits> basic_ostream<_CharT, _Traits>* std::basic_ios< _CharT, _Traits >::tie () const [inline, inherited]

Fetches the current *tied* stream.

Returns:

A pointer to the tied stream, or NULL if the stream is not tied.

A stream may be *tied* (or synchronized) to a second output stream. When this stream performs any I/O, the tied stream is first flushed. For example, `std::cin` is tied to `std::cout`.

Definition at line 285 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.373.5.75 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::unget (void) [inline, inherited]

Unextracting the previous character.

Returns:

*this

If `rdbuf()` is not null, calls `rdbuf()->sungetc(c)`.

If `rdbuf()` is null or if `sungetc()` fails, sets badbit in the error state.

Note:

Since no characters are extracted, the next call to `gcount()` will return 0, as required by DR 60.

Definition at line 744 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), and std::basic_streambuf< _CharT, _Traits >::sungetc().

5.373.5.76 void std::ios_base::unsetf (fmtflags __*mask*) [inline, inherited]

Clearing format flags.

Parameters:

mask The flags to unset.

This function clears *mask* in the format flags.

Definition at line 609 of file ios_base.h.

Referenced by std::noboolalpha(), std::noshowbase(), std::noshowpoint(), std::noshowpos(), std::noskipws(), std::nounitbuf(), and std::nouppercase().

5.373.5.77 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::widen (char __*c*) const [inline, inherited]

Widens characters.

Parameters:

c The character to widen.

Returns:

The widened character.

Maps a character of `char` to a character of `char_type`.

Returns the result of

```
std::use_facet<ctype<char_type> >(getloc()).widen(c)
```

Additional l10n notes are at http://gcc.gnu.org/onlinedocs/libstdc++/manual/localization.html

Definition at line 439 of file basic_ios.h.

Referenced by std::endl(), std::getline(), and std::operator>>().

5.373.5.78 streamsize std::ios_base::width (streamsize __*wide*) [inline, inherited]

Changing flags.

Parameters:

wide The new width value.

Returns:

The previous value of width().

Definition at line 652 of file ios_base.h.

5.373.5.79 streamsize std::ios_base::width () const [inline, inherited]

Flags access.

Returns:

The minimum field width to generate on output operations.

Minimum field width refers to the number of characters.

Definition at line 643 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::num_put< _CharT, _OutIter >::do_put(), and std::operator>>().

5.373.5.80 static int std::ios_base::xalloc () throw () [static, inherited]

Access to unique indices.

Returns:

An integer different from all previous calls.

This function returns a unique integer every time it is called. It can be used for any purpose, but is primarily intended to be a unique index for the iword and pword functions. The expectation is that an application calls xalloc in order to obtain an index in the iword and pword arrays that can be used without fear of conflict.

The implementation maintains a static variable that is incremented and returned on each invocation. xalloc is guaranteed to return an index that is safe to use in the iword and pword arrays.

5.373.6 Member Data Documentation

5.373.6.1 template<typename _CharT, typename _Traits> streamsize std::basic_istream< _CharT, _Traits >::_M_gcount [protected, inherited]

The number of characters extracted in the previous unformatted function; see gcount().

Definition at line 79 of file istream.

Referenced by std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), and std::basic_istream< _CharT, _Traits >::unget().

5.373.6.2 const fmtflags std::ios_base::adjustfield [static, inherited]

A mask of left|right|internal. Useful for the 2-arg form of `setf`.

Definition at line 318 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

5.373.6.3 const openmode std::ios_base::app [static, inherited]

Seek to end before each write.

Definition at line 372 of file ios_base.h.

5.373.6.4 const openmode std::ios_base::ate [static, inherited]

Open and seek to end immediately after opening.

Definition at line 375 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::open().

5.373.6.5 const iostate std::ios_base::badbit [static, inherited]

Indicates a loss of integrity in an input or output sequence (such as an irrecoverable read error from a file).

Definition at line 342 of file ios_base.h.

Referenced by std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ios< _CharT, _Traits >::init(), std::operator<<(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), std::basic_istream< _CharT, _Traits

>::tellg(), std::basic_ostream< _CharT, _Traits >::tellp(), std::basic_istream< _CharT, _Traits >::unget(), and std::basic_ostream< _CharT, _Traits >::write().

5.373.6.6 const fmtflags std::ios_base::basefield [static, inherited]

A mask of dec|oct|hex. Useful for the 2-arg form of `setf`.

Definition at line 321 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), and std::basic_ostream< _CharT, _Traits >::operator<<().

5.373.6.7 const seekdir std::ios_base::beg [static, inherited]

Request a seek relative to the beginning of the stream.

Definition at line 404 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::seekpos().

5.373.6.8 const openmode std::ios_base::binary [static, inherited]

Perform input and output in binary mode (as opposed to text mode). This is probably not what you think it is; see http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch27s02.html.

Definition at line 380 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::showmanyc().

5.373.6.9 const fmtflags std::ios_base::boolalpha [static, inherited]

Insert/extract `bool` in alphabetic rather than numeric format.

Definition at line 266 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), and std::num_put< _CharT, _OutIter >::do_put().

5.373.6.10 const seekdir std::ios_base::cur [static, inherited]

Request a seek relative to the current position within the sequence.

Definition at line 407 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_stringbuf< _CharT, _Traits, _Alloc

>::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_istream< _CharT, _Traits >::tellg(), and std::basic_ostream< _CharT, _Traits >::tellp().

5.373.6.11 const fmtflags std::ios_base::dec [static, inherited]

Converts integer input or generates integer output in decimal base.

Definition at line 269 of file ios_base.h.

5.373.6.12 const seekdir std::ios_base::end [static, inherited]

Request a seek relative to the current end of the sequence.

Definition at line 410 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::open(), and std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff().

5.373.6.13 const iostate std::ios_base::eofbit [static, inherited]

Indicates that an input operation reached the end of an input sequence.

Definition at line 345 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_date(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_time(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), and std::ws().

5.373.6.14 const iostate std::ios_base::failbit [static, inherited]

Indicates that an input operation failed to read the expected characters, or that an output operation failed to generate the desired characters.

Definition at line 350 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::basic_istream< _CharT, _Traits

>::operator>>(), std::operator>>(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::seekg(), and std::basic_ostream< _CharT, _Traits >::seekp().

5.373.6.15 const fmtflags std::ios_base::fixed [static, inherited]

Generate floating-point output in fixed-point notation.

Definition at line 272 of file ios_base.h.

5.373.6.16 const fmtflags std::ios_base::floatfield [static, inherited]

A mask of scientific|fixed. Useful for the 2-arg form of `setf`.

Definition at line 324 of file ios_base.h.

5.373.6.17 const iostate std::ios_base::goodbit [static, inherited]

Indicates all is well.

Definition at line 353 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ios< _CharT, _Traits >::init(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), and std::basic_istream< _CharT, _Traits >::unget().

5.373.6.18 const fmtflags std::ios_base::hex [static, inherited]

Converts integer input or generates integer output in hexadecimal base.

Definition at line 275 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::num_put< _CharT, _OutIter >::do_put(), and std::basic_ostream< _CharT, _Traits >::operator<<().

5.373.6.19 const openmode std::ios_base::in [static, inherited]

Open for input. Default for `ifstream` and fstream.

Definition at line 383 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_-istream< _CharT, _Traits >::seekg(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_-filebuf< _CharT, _Traits >::showmanyc(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::underflow(), std::basic_-filebuf< _CharT, _Traits >::underflow(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.373.6.20 const fmtflags std::ios_base::internal [static, inherited]

Adds fill characters at a designated internal point in certain generated output, or identical to `right` if no such point is designated.

Definition at line 280 of file ios_base.h.

5.373.6.21 const fmtflags std::ios_base::left [static, inherited]

Adds fill characters on the right (final positions) of certain generated output. (I.e., the thing you print is flush left.).

Definition at line 284 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

5.373.6.22 const fmtflags std::ios_base::oct [static, inherited]

Converts integer input or generates integer output in octal base.

Definition at line 287 of file ios_base.h.

Referenced by std::basic_ostream< _CharT, _Traits >::operator<<().

5.373.6.23 const openmode std::ios_base::out [static, inherited]

Open for output. Default for `ofstream` and fstream.

Definition at line 386 of file ios_base.h.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_ostream< _CharT, _Traits >::seekp(),

std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_ostream< _CharT, _Traits >::tellp(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.373.6.24 const fmtflags std::ios_base::right [static, inherited]

Adds fill characters on the left (initial positions) of certain generated output. (I.e., the thing you print is flush right.).

Definition at line 291 of file ios_base.h.

5.373.6.25 const fmtflags std::ios_base::scientific [static, inherited]

Generates floating-point output in scientific notation.

Definition at line 294 of file ios_base.h.

5.373.6.26 const fmtflags std::ios_base::showbase [static, inherited]

Generates a prefix indicating the numeric base of generated integer output.

Definition at line 298 of file ios_base.h.

5.373.6.27 const fmtflags std::ios_base::showpoint [static, inherited]

Generates a decimal-point character unconditionally in generated floating-point output.

Definition at line 302 of file ios_base.h.

5.373.6.28 const fmtflags std::ios_base::showpos [static, inherited]

Generates a + sign in non-negative generated numeric output.

Definition at line 305 of file ios_base.h.

5.373.6.29 const fmtflags std::ios_base::skipws [static, inherited]

Skips leading white space before certain input operations.

Definition at line 308 of file ios_base.h.

5.373.6.30 const openmode std::ios_base::trunc [static, inherited]

Open for input. Default for `ofstream`.

Definition at line 389 of file ios_base.h.

5.373.6.31 const fmtflags std::ios_base::unitbuf [static, inherited]

Flushes output after each output operation.

Definition at line 311 of file ios_base.h.

5.373.6.32 const fmtflags std::ios_base::uppercase [static, inherited]

Replaces certain lowercase letters with their uppercase equivalents in generated output.

Definition at line 315 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

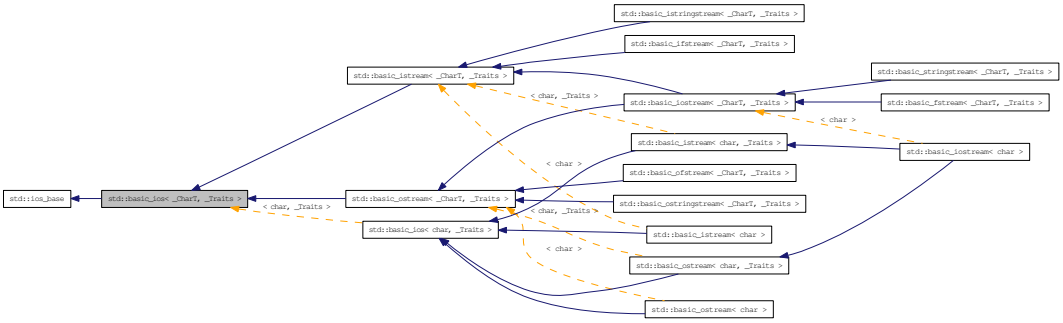
The documentation for this class was generated from the following file:

- fstream

5.374 std::basic_ios< _CharT, _Traits > Class Template Reference

Virtual base class for all stream classes.

Most of the member functions called dispatched on stream objects (e.g., `std::cout.foo(bar);`) are consolidated in this class. Inheritance diagram for std::basic_ios< _CharT, _Traits >:



Public Types

- enum event { **erase_event**, **imbue_event**, **copyfmt_event** }
- typedef void(∗ event_callback)(event, ios_base &, int)
- typedef _Ios_Fmtflags fmtflags
- typedef int **io_state**
- typedef _Ios_Iostate iostate
- typedef int **open_mode**
- typedef _Ios_Openmode openmode
- typedef int **seek_dir**
- typedef _Ios_Seekdir seekdir
- typedef std::streamoff **streamoff**
- typedef std::streampos **streampos**

Public Member Functions

- basic_ios (basic_streambuf< _CharT, _Traits > ∗__sb)
- virtual ∼basic_ios ()
- const locale & _M_getloc () const
- void **_M_setstate** (iostate __state)
- bool bad () const
- void clear (iostate __state=goodbit)

- basic_ios & copyfmt (const basic_ios &__rhs)
- bool eof () const
- void exceptions (iostate __except)
- iostate exceptions () const
- bool fail () const
- char_type fill (char_type __ch)
- char_type fill () const
- fmtflags flags (fmtflags __fmtfl)
- fmtflags flags () const
- locale getloc () const
- bool good () const
- locale imbue (const locale &__loc)
- long & iword (int __ix)
- char narrow (char_type __c, char __dfault) const
- streamsize precision (streamsize __prec)
- streamsize precision () const
- void *& pword (int __ix)
- basic_streambuf< _CharT, _Traits > * rdbuf (basic_streambuf< _CharT, _Traits > *__sb)
- basic_streambuf< _CharT, _Traits > * rdbuf () const
- iostate rdstate () const
- void register_callback (event_callback __fn, int __index)
- fmtflags setf (fmtflags __fmtfl, fmtflags __mask)
- fmtflags setf (fmtflags __fmtfl)
- void setstate (iostate __state)
- basic_ostream< _CharT, _Traits > * tie (basic_ostream< _CharT, _Traits > *__tiestr)
- basic_ostream< _CharT, _Traits > * tie () const
- void unsetf (fmtflags __mask)
- char_type widen (char __c) const
- streamsize width (streamsize __wide)
- streamsize width () const

Static Public Member Functions

- static bool sync_with_stdio (bool __sync=true)
- static int xalloc () throw ()

Static Public Attributes

- static const fmtflags adjustfield
- static const openmode app
- static const openmode ate
- static const iostate badbit
- static const fmtflags basefield
- static const seekdir beg
- static const openmode binary
- static const fmtflags boolalpha
- static const seekdir cur
- static const fmtflags dec
- static const seekdir end
- static const iostate eofbit
- static const iostate failbit
- static const fmtflags fixed
- static const fmtflags floatfield
- static const iostate goodbit
- static const fmtflags hex
- static const openmode in
- static const fmtflags internal
- static const fmtflags left
- static const fmtflags oct
- static const openmode out
- static const fmtflags right
- static const fmtflags scientific
- static const fmtflags showbase
- static const fmtflags showpoint
- static const fmtflags showpos
- static const fmtflags skipws
- static const openmode trunc
- static const fmtflags unitbuf
- static const fmtflags uppercase

Protected Types

- enum { **_S_local_word_size** }

Protected Member Functions

- basic_ios ()
- void **_M_cache_locale** (const locale &__loc)
- void **_M_call_callbacks** (event __ev) throw ()
- void **_M_dispose_callbacks** (void) throw ()
- _Words & **_M_grow_words** (int __index, bool __iword)
- void **_M_init** () throw ()
- void init (basic_streambuf< _CharT, _Traits > *__sb)

Protected Attributes

- _Callback_list * **_M_callbacks**
- const __ctype_type * **_M_ctype**
- iostate **_M_exception**
- char_type **_M_fill**
- bool **_M_fill_init**
- fmtflags **_M_flags**
- locale **_M_ios_locale**
- _Words **_M_local_word** [_S_local_word_size]
- const __num_get_type * **_M_num_get**
- const __num_put_type * **_M_num_put**
- streamsize **_M_precision**
- basic_streambuf< _CharT, _Traits > * **_M_streambuf**
- iostate **_M_streambuf_state**
- basic_ostream< _CharT, _Traits > * **_M_tie**
- streamsize **_M_width**
- _Words * **_M_word**
- int **_M_word_size**
- _Words **_M_word_zero**

- typedef ctype< _CharT > __ctype_type
- typedef num_get< _CharT, istreambuf_iterator< _CharT, _Traits > > __num_get_type
- typedef num_put< _CharT, ostreambuf_iterator< _CharT, _Traits > > __num_put_type
- typedef _CharT char_type
- typedef _Traits::int_type int_type
- typedef _Traits::off_type off_type
- typedef _Traits::pos_type pos_type
- typedef _Traits traits_type
- operator void * () const
- bool operator! () const

5.374.1 Detailed Description

template<typename _CharT, typename _Traits> class std::basic_ios< _CharT, _Traits >

Virtual base class for all stream classes.

Most of the member functions called dispatched on stream objects (e.g., `std::cout.foo(bar);`) are consolidated in this class.

Definition at line 62 of file basic_ios.h.

5.374.2 Member Typedef Documentation

5.374.2.1 template<typename _CharT, typename _Traits> typedef ctype<_CharT> std::basic_ios< _CharT, _Traits >::__ctype_type

These are non-standard types.

Reimplemented in std::basic_istream< _CharT, _Traits >, std::basic_ostream< _CharT, _Traits >, std::basic_istream< char, _Traits >, std::basic_istream< char >, std::basic_ostream< char, _Traits >, and std::basic_ostream< char >.

Definition at line 82 of file basic_ios.h.

5.374.2.2 template<typename _CharT, typename _Traits> typedef num_get<_CharT, istreambuf_iterator<_CharT, _Traits> > std::basic_ios< _CharT, _Traits >::__num_get_type

These are non-standard types.

Reimplemented in std::basic_istream< _CharT, _Traits >, std::basic_istream< char, _Traits >, and std::basic_istream< char >.

Definition at line 86 of file basic_ios.h.

5.374.2.3 template<typename _CharT, typename _Traits> typedef num_put<_CharT, ostreambuf_iterator<_CharT, _Traits> > std::basic_ios< _CharT, _Traits >::__num_put_type

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Reimplemented in std::basic_ostream< _CharT, _Traits >, std::basic_ostream< char, _Traits >, and std::basic_ostream< char >.

Definition at line 84 of file basic_ios.h.

5.374.2.4 template<typename _CharT, typename _Traits> typedef _CharT std::basic_ios< _CharT, _Traits >::char_type

These are standard types. They permit a standardized way of referring to names of (or names dependant on) the template parameters, which are specific to the implementation.

Reimplemented in std::basic_ifstream< _CharT, _Traits >, std::basic_ofstream< _CharT, _Traits >, std::basic_fstream< _CharT, _Traits >, std::basic_istream< _CharT, _Traits >, std::basic_iostream< _CharT, _Traits >, std::basic_ostream< _CharT, _Traits >, std::basic_istringstream< _CharT, _Traits, _Alloc >, std::basic_ostringstream< _CharT, _Traits, _Alloc >, std::basic_stringstream< _CharT, _Traits, _Alloc >, std::basic_istream< char, _Traits >, std::basic_istream< char >, std::basic_iostream< char >, std::basic_ostream< char, _Traits >, and std::basic_ostream< char >.

Definition at line 71 of file basic_ios.h.

5.374.2.5 typedef void(* std::ios_base::event_callback)(event, ios_base &, int) [inherited]

The type of an event callback function.

Parameters:

event One of the members of the event enum.

ios_base Reference to the ios_base object.

int The integer provided when the callback was registered.

Event callbacks are user defined functions that get called during several ios_base and basic_ios functions, specifically imbue(), copyfmt(), and ~ios().

Definition at line 444 of file ios_base.h.

5.374.2.6 typedef _Ios_Fmtflags std::ios_base::fmtflags [inherited]

This is a bitmask type. *_Ios_Fmtflags* is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type fmtflags are:

- boolalpha
- dec
- fixed
- hex

- internal
- left
- oct
- right
- scientific
- showbase
- showpoint
- showpos
- skipws
- unitbuf
- uppercase
- adjustfield
- basefield
- floatfield

Definition at line 263 of file ios_base.h.

5.374.2.7 template<typename _CharT, typename _Traits> typedef _Traits::int_type std::basic_ios< _CharT, _Traits >::int_type

These are non-standard types.

Reimplemented in std::basic_ifstream< _CharT, _Traits >, std::basic_ofstream< _CharT, _Traits >, std::basic_fstream< _CharT, _Traits >, std::basic_istream< _CharT, _Traits >, std::basic_iostream< _CharT, _Traits >, std::basic_ostream< _CharT, _Traits >, std::basic_istringstream< _CharT, _Traits, _Alloc >, std::basic_ostringstream< _CharT, _Traits, _Alloc >, std::basic_stringstream< _CharT, _Traits, _Alloc >, std::basic_istream< char, _Traits >, std::basic_istream< char >, std::basic_iostream< char >, std::basic_ostream< char, _Traits >, and std::basic_ostream< char >.

Definition at line 72 of file basic_ios.h.

5.374.2.8 typedef _Ios_Iostate std::ios_base::iostate [inherited]

This is a bitmask type. *_Ios_Iostate* is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type iostate are:

- badbit
- eofbit
- failbit
- goodbit

Definition at line 338 of file ios_base.h.

5.374.2.9 template<typename _CharT, typename _Traits> typedef _Traits::off_type std::basic_ios< _CharT, _Traits >::off_type

These are non-standard types.

Reimplemented in std::basic_ifstream< _CharT, _Traits >, std::basic_ofstream< _CharT, _Traits >, std::basic_fstream< _CharT, _Traits >, std::basic_istream< _CharT, _Traits >, std::basic_iostream< _CharT, _Traits >, std::basic_ostream< _CharT, _Traits >, std::basic_istringstream< _CharT, _Traits, _Alloc >, std::basic_ostringstream< _CharT, _Traits, _Alloc >, std::basic_stringstream< _CharT, _Traits, _Alloc >, std::basic_istream< char, _Traits >, std::basic_istream< char >, std::basic_iostream< char >, std::basic_ostream< char, _Traits >, and std::basic_ostream< char >.

Definition at line 74 of file basic_ios.h.

5.374.2.10 typedef _Ios_Openmode std::ios_base::openmode [inherited]

This is a bitmask type. *_Ios_Openmode* is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type openmode are:

- app
- ate
- binary
- in
- out

- trunc

Definition at line 369 of file ios_base.h.

5.374.2.11 template<typename _CharT, typename _Traits> typedef _Traits::pos_type std::basic_ios< _CharT, _Traits >::pos_type

These are non-standard types.

Reimplemented in std::basic_ifstream< _CharT, _Traits >, std::basic_ofstream< _CharT, _Traits >, std::basic_fstream< _CharT, _Traits >, std::basic_istream< _CharT, _Traits >, std::basic_iostream< _CharT, _Traits >, std::basic_ostream< _CharT, _Traits >, std::basic_istringstream< _CharT, _Traits, _Alloc >, std::basic_ostringstream< _CharT, _Traits, _Alloc >, std::basic_stringstream< _CharT, _Traits, _Alloc >, std::basic_istream< char, _Traits >, std::basic_istream< char >, std::basic_iostream< char >, std::basic_ostream< char, _Traits >, and std::basic_ostream< char >.

Definition at line 73 of file basic_ios.h.

5.374.2.12 typedef _Ios_Seekdir std::ios_base::seekdir [inherited]

This is an enumerated type. *_Ios_Seekdir* is implementation-defined. Defined values of type seekdir are:

- beg
- cur, equivalent to SEEK_CUR in the C standard library.
- end, equivalent to SEEK_END in the C standard library.

Definition at line 401 of file ios_base.h.

5.374.2.13 template<typename _CharT, typename _Traits> typedef _Traits std::basic_ios< _CharT, _Traits >::traits_type

These are non-standard types.

Reimplemented in std::basic_ifstream< _CharT, _Traits >, std::basic_ofstream< _CharT, _Traits >, std::basic_fstream< _CharT, _Traits >, std::basic_istream< _CharT, _Traits >, std::basic_iostream< _CharT, _Traits >, std::basic_ostream< _CharT, _Traits >, std::basic_istringstream< _CharT, _Traits, _Alloc >, std::basic_ostringstream< _CharT, _Traits, _Alloc >, std::basic_stringstream< _CharT, _Traits, _Alloc >, std::basic_istream< char, _Traits >, std::basic_istream< char >, std::basic_iostream< char >, std::basic_ostream< char, _Traits >, and std::basic_ostream< char >.

Definition at line 75 of file basic_ios.h.

5.374.3 Member Enumeration Documentation

5.374.3.1 enum std::ios_base::event [inherited]

The set of events that may be passed to an event callback. erase_event is used during ~ios() and copyfmt(). imbue_event is used during imbue(). copyfmt_event is used during copyfmt().

Definition at line 427 of file ios_base.h.

5.374.4 Constructor & Destructor Documentation

5.374.4.1 template<typename _CharT, typename _Traits> std::basic_ios< _CharT, _Traits >::basic_ios (basic_streambuf< _CharT, _Traits > * *__sb*) [inline, explicit]

Constructor performs initialization. The parameter is passed by derived streams.

Definition at line 260 of file basic_ios.h.

5.374.4.2 template<typename _CharT, typename _Traits> virtual std::basic_ios< _CharT, _Traits >::~basic_ios () [inline, virtual]

Empty. The destructor does nothing. More specifically, it does not destroy the streambuf held by rdbuf().

Definition at line 272 of file basic_ios.h.

5.374.4.3 template<typename _CharT, typename _Traits> std::basic_ios< _CharT, _Traits >::basic_ios () [inline, protected]

Empty. The default constructor does nothing and is not normally accessible to users.

Definition at line 450 of file basic_ios.h.

5.374.5 Member Function Documentation

5.374.5.1 const locale& std::ios_base::_M_getloc () const [inline, inherited]

Locale access.

Returns:

A reference to the current locale.

Like getloc above, but returns a reference instead of generating a copy.

Definition at line 705 of file ios_base.h.

Referenced by std::money_get< _CharT, _InIter >::do_get(), std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_date(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_time(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::time_put< _CharT, _OutIter >::do_put(), std::num_put< _CharT, _OutIter >::do_put(), and std::time_put< _CharT, _OutIter >::put().

5.374.5.2 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::bad () const [inline]

Fast error checking.

Returns:

True if the badbit is set.

Note that other iostate flags may also be set.

Definition at line 201 of file basic_ios.h.

5.374.5.3 template<typename _CharT , typename _Traits > void std::basic_ios< _CharT, _Traits >::clear (iostate *__state* = goodbit) [inline]

[Re]sets the error state.

Parameters:

state The new state flag(s) to set.

See std::ios_base::iostate for the possible bit values. Most users will not need to pass an argument.

Definition at line 40 of file basic_ios.tcc.

Referenced by std::basic_ios< _CharT, _Traits >::rdbuf().

5.374.5.4 template<typename _CharT , typename _Traits > basic_ios< _CharT, _Traits > & std::basic_ios< _CharT, _Traits >::copyfmt (const basic_ios< _CharT, _Traits > & *__rhs*) [inline]

Copies fields of __rhs into this.

Parameters:

__rhs The source values for the copies.

Returns:

Reference to this object.

All fields of __rhs are copied into this object except that rdbuf() and rdstate() remain unchanged. All values in the pword and iword arrays are copied. Before copying, each callback is invoked with erase_event. After copying, each (new) callback is invoked with copyfmt_event. The final step is to copy exceptions().

Definition at line 62 of file basic_ios.tcc.

References std::basic_ios< _CharT, _Traits >::exceptions(), std::basic_ios< _CharT, _Traits >::fill(), std::ios_base::flags(), std::ios_base::getloc(), std::ios_base::precision(), std::basic_ios< _CharT, _Traits >::tie(), and std::ios_base::width().

5.374.5.5 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::eof () const [inline]

Fast error checking.

Returns:

True if the eofbit is set.

Note that other iostate flags may also be set.

Definition at line 180 of file basic_ios.h.

Referenced by std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_istream< _CharT, _Traits >::putback(), and std::basic_istream< _CharT, _Traits >::unget().

5.374.5.6 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::exceptions (iostate *__except*) [inline]

Throwing exceptions on errors.

Parameters:

except The new exceptions mask.

By default, error flags are set silently. You can set an exceptions mask for each stream; if a bit in the mask becomes set in the error flags, then an exception of type std::ios_base::failure is thrown.

If the error flag is already set when the exceptions mask is added, the exception is immediately thrown. Try running the following under GCC 3.1 or later:

```
#include <iostream>
#include <fstream>
#include <exception>

int main()
{
    std::set_terminate (__gnu_cxx::__verbose_terminate_handler);

    std::ifstream f ("/etc/motd");

    std::cerr << "Setting badbit\n";
    f.setstate (std::ios_base::badbit);

    std::cerr << "Setting exception mask\n";
    f.exceptions (std::ios_base::badbit);
}
```

Definition at line 247 of file basic_ios.h.

5.374.5.7 template<typename _CharT, typename _Traits> iostate std::basic_ios< _CharT, _Traits >::exceptions () const [inline]

Throwing exceptions on errors.

Returns:

The current exceptions mask.

This changes nothing in the stream. See the one-argument version of exceptions(iostate) for the meaning of the return value.

Definition at line 212 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.374.5.8 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::fail () const [inline]

Fast error checking.

Returns:

True if either the badbit or the failbit is set.

Checking the badbit in fail() is historical practice. Note that other iostate flags may also be set.

Definition at line 191 of file basic_ios.h.

Referenced by std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_ostream< _CharT, _Traits >::tellp(), and std::regex_traits< _Ch_type >::value().

5.374.5.9 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::fill (char_type __ch) [inline]

Sets a new *empty* character.

Parameters:

ch The new character.

Returns:

The previous fill character.

The fill character is used to fill out space when P+ characters have been requested (e.g., via setw), Q characters are actually used, and Q<P. It defaults to a space (' ') in the current locale.

Definition at line 380 of file basic_ios.h.

5.374.5.10 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::fill () const [inline]

Retrieves the *empty* character.

Returns:

The current fill character.

It defaults to a space (' ') in the current locale.

Definition at line 360 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.374.5.11 fmtflags std::ios_base::flags (fmtflags *__fmtfl*) [inline, inherited]

Setting new format flags all at once.

Parameters:

fmtfl The new flags to set.

Returns:

The previous format control flags.

This function overwrites all the format flags with *fmtfl*.

Definition at line 561 of file ios_base.h.

5.374.5.12 fmtflags std::ios_base::flags () const [inline, inherited]

Access to format flags.

Returns:

The format control flags for both input and output.

Definition at line 550 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::num_get< _CharT, _InIter >::do_get(), std::num_put< _CharT, _OutIter >::do_put(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator<<(), and std::operator>>().

5.374.5.13 locale std::ios_base::getloc () const [inline, inherited]

Locale access.

Returns:

A copy of the current locale.

If `imbue(loc)` has previously been called, then this function returns `loc`. Otherwise, it returns a copy of `std::locale()`, the global C++ locale.

Definition at line 694 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::money_put< _CharT, _OutIter >::do_put(), std::basic_ios< _CharT, _Traits >::imbue(), std::operator>>(), and std::ws().

5.374.5.14 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::good () const [inline]

Fast error checking.

Returns:

True if no error flags are set.

A wrapper around rdstate.

Definition at line 170 of file basic_ios.h.

5.374.5.15 template<typename _CharT , typename _Traits > locale std::basic_ios< _CharT, _Traits >::imbue (const locale & *__loc*) [inline]

Moves to a new locale.

Parameters:

loc The new locale.

Returns:

The previous locale.

Calls `ios_base::imbue(loc)`, and if a stream buffer is associated with this stream, calls that buffer's `pubimbue(loc)`.

Additional l10n notes are at `http://gcc.gnu.org/onlinedocs/libstdc++/manual/localization.html`

Reimplemented from std::ios_base.

Definition at line 113 of file basic_ios.tcc.

References std::ios_base::getloc(), and std::basic_ios< _CharT, _Traits >::rdbuf().

Referenced by std::operator<<().

5.374.5.16 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::init (basic_streambuf< _CharT, _Traits > * *__sb*) [inline, protected]

All setup is performed here. This is called from the public constructor. It is not virtual and cannot be redefined.

Definition at line 125 of file basic_ios.tcc.

References std::ios_base::badbit, and std::ios_base::goodbit.

5.374.5.17 long& std::ios_base::iword (int __ix) [inline, inherited]

Access to integer array.

Parameters:

__ix Index into the array.

Returns:

A reference to an integer associated with the index.

The iword function provides access to an array of integers that can be used for any purpose. The array grows as required to hold the supplied index. All integers in the array are initialized to 0.

The implementation reserves several indices. You should use xalloc to obtain an index that is safe to use. Also note that since the array can grow dynamically, it is not safe to hold onto the reference.

Definition at line 740 of file ios_base.h.

5.374.5.18 template<typename _CharT, typename _Traits> char std::basic_ios< _CharT, _Traits >::narrow (char_type __c, char __dfault) const [inline]

Squeezes characters.

Parameters:

c The character to narrow.

dfault The character to narrow.

Returns:

The narrowed character.

Maps a character of `char_type` to a character of `char`, if possible.

Returns the result of

```
std::use_facet<ctype<char_type> >(getloc()).narrow(c,dfault)
```

Additional l10n notes are at http://gcc.gnu.org/onlinedocs/libstdc++/manual/localizati

Definition at line 420 of file basic_ios.h.

5.374.5.19 template<typename _CharT, typename _Traits> std::basic_ios< _CharT, _Traits >::operator void * () const [inline]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Definition at line 111 of file basic_ios.h.

5.374.5.20 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::operator! () const [inline]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Definition at line 115 of file basic_ios.h.

5.374.5.21 streamsize std::ios_base::precision (streamsize *__prec*) [inline, inherited]

Changing flags.

Parameters:

prec The new precision value.

Returns:

The previous value of precision().

Definition at line 629 of file ios_base.h.

5.374.5.22 streamsize std::ios_base::precision () const [inline, inherited]

Flags access.

Returns:

The precision to generate on certain output operations.

Be careful if you try to give a definition of *precision* here; see DR 189.

Definition at line 620 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), and std::operator<<().

5.374.5.23 void*& std::ios_base::pword (int __ix) [inline, inherited]

Access to void pointer array.

Parameters:

__ix Index into the array.

Returns:

A reference to a void* associated with the index.

The pword function provides access to an array of pointers that can be used for any purpose. The array grows as required to hold the supplied index. All pointers in the array are initialized to 0.

The implementation reserves several indices. You should use xalloc to obtain an index that is safe to use. Also note that since the array can grow dynamically, it is not safe to hold onto the reference.

Definition at line 761 of file ios_base.h.

5.374.5.24 template<typename _CharT, typename _Traits> basic_streambuf< _CharT, _Traits > * std::basic_ios< _CharT, _Traits >::rdbuf (basic_streambuf< _CharT, _Traits > * __sb) [inline]

Changing the underlying buffer.

Parameters:

sb The new stream buffer.

Returns:

The previous stream buffer.

Associates a new buffer with the current stream, and clears the error state.

Due to historical accidents which the LWG refuses to correct, the I/O library suffers from a design error: this function is hidden in derived classes by overrides of the zero-argument `rdbuf()`, which is non-virtual for hysterical raisins. As a result, you must use explicit qualifications to access this function via any derived class. For example:

```
std::fstream     foo;          // or some other derived type
std::streambuf*  p = .....;

foo.ios::rdbuf(p);             // ios == basic_ios<char>
```

Definition at line 52 of file basic_ios.tcc.

References std::basic_ios< _CharT, _Traits >::clear().

5.374.5.25 template<typename _CharT, typename _Traits> basic_streambuf<_CharT, _Traits>* std::basic_ios< _CharT, _Traits >::rdbuf () const [inline]

Accessing the underlying buffer.

Returns:

The current stream buffer.

This does not change the state of the stream.

Reimplemented in std::basic_ifstream< _CharT, _Traits >, std::basic_ofstream< _CharT, _Traits >, std::basic_fstream< _CharT, _Traits >, std::basic_istringstream< _CharT, _Traits, _Alloc >, std::basic_ostringstream< _CharT, _Traits, _Alloc >, and std::basic_stringstream< _CharT, _Traits, _Alloc >.

Definition at line 311 of file basic_ios.h.

Referenced by std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ios< _CharT, _Traits >::imbue(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::basic_istream< _CharT, _Traits >::operator>>(), std::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_ostream< _CharT, _Traits >::tellp(), std::basic_istream< _CharT, _Traits >::unget(), and std::ws().

5.374.5.26 template<typename _CharT, typename _Traits> iostate std::basic_ios< _CharT, _Traits >::rdstate () const [inline]

Returns the error state of the stream buffer.

Returns:

A bit pattern (well, isn't everything?)

See std::ios_base::iostate for the possible bit values. Most users will call one of the interpreting wrappers, e.g., good().

Definition at line 127 of file basic_ios.h.

5.374.5.27 void std::ios_base::register_callback (event_callback *__fn*, int *__index*) [inherited]

Add the callback __fn with parameter __index.

Parameters:

__fn The function to add.

__index The integer to pass to the function when invoked.

Registers a function as an event callback with an integer parameter to be passed to the function when invoked. Multiple copies of the function are allowed. If there are multiple callbacks, they are invoked in the order they were registered.

5.374.5.28 fmtflags std::ios_base::setf (fmtflags *__fmtfl*, fmtflags *__mask*) [inline, inherited]

Setting new format flags.

Parameters:

fmtfl Additional flags to set.

mask The flags mask for *fmtfl*.

Returns:

The previous format control flags.

This function clears *mask* in the format flags, then sets *fmtfl* & *mask*. An example mask is `ios_base::adjustfield`.

Definition at line 594 of file ios_base.h.

5.374.5.29 fmtflags std::ios_base::setf (fmtflags *__fmtfl*) [inline, inherited]

Setting new format flags.

Parameters:

fmtfl Additional flags to set.

Returns:

The previous format control flags.

This function sets additional flags in format control. Flags that were previously set remain set.

Definition at line 577 of file ios_base.h.

Referenced by std::boolalpha(), std::dec(), std::fixed(), std::hex(), std::internal(), std::left(), std::oct(), std::right(), std::scientific(), std::showbase(), std::showpoint(), std::showpos(), std::skipws(), std::unitbuf(), and std::uppercase().

5.374.5.30 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::setstate (iostate *__state*) [inline]

Sets additional flags in the error state.

Parameters:

state The additional state flag(s) to set.

See std::ios_base::iostate for the possible bit values.

Definition at line 147 of file basic_ios.h.

Referenced by std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::basic_istream< _CharT, _Traits >::operator>>(), std::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), std::basic_istream< _CharT, _Traits >::unget(), and std::ws().

5.374.5.31 static bool std::ios_base::sync_with_stdio (bool *__sync* = true) [static, inherited]

Interaction with the standard C I/O objects.

Parameters:

sync Whether to synchronize or not.

Returns:

True if the standard streams were previously synchronized.

The synchronization referred to is *only* that between the standard C facilities (e.g., stdout) and the standard C++ objects (e.g., cout). User-declared streams are unaffected. See http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch28s02.html

5.374.5.32 template<typename _CharT, typename _Traits> basic_ostream<_CharT, _Traits>* std::basic_ios< _CharT, _Traits >::tie (basic_ostream< _CharT, _Traits > * *__tiestr*) [inline]

Ties this stream to an output stream.

Parameters:

tiestr The output stream.

Returns:

The previously tied output stream, or NULL if the stream was not tied.

This sets up a new tie; see tie() for more.

Definition at line 297 of file basic_ios.h.

5.374.5.33 template<typename _CharT, typename _Traits> basic_ostream<_CharT, _Traits>* std::basic_ios< _CharT, _Traits >::tie () const [inline]

Fetches the current *tied* stream.

Returns:

A pointer to the tied stream, or NULL if the stream is not tied.

A stream may be *tied* (or synchronized) to a second output stream. When this stream performs any I/O, the tied stream is first flushed. For example, `std::cin` is tied to `std::cout`.

Definition at line 285 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.374.5.34 void std::ios_base::unsetf (fmtflags *__mask*) [inline, inherited]

Clearing format flags.

Parameters:

mask The flags to unset.

This function clears *mask* in the format flags.

Definition at line 609 of file ios_base.h.

Referenced by std::noboolalpha(), std::noshowbase(), std::noshowpoint(), std::noshowpos(), std::noskipws(), std::nounitbuf(), and std::nouppercase().

5.374.5.35 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::widen (char __*c*) const [inline]

Widens characters.

Parameters:

c The character to widen.

Returns:

The widened character.

Maps a character of `char` to a character of `char_type`.

Returns the result of

```
std::use_facet<ctype<char_type> >(getloc()).widen(c)
```

Additional l10n notes are at http://gcc.gnu.org/onlinedocs/libstdc++/manual/localization.html

Definition at line 439 of file basic_ios.h.

Referenced by std::endl(), std::getline(), and std::operator>>().

5.374.5.36 streamsize std::ios_base::width (streamsize __*wide*) [inline, inherited]

Changing flags.

Parameters:

wide The new width value.

Returns:

The previous value of width().

Definition at line 652 of file ios_base.h.

5.374.5.37 streamsize std::ios_base::width () const [inline, inherited]

Flags access.

Returns:

The minimum field width to generate on output operations.

Minimum field width refers to the number of characters.

Definition at line 643 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::num_put< _CharT, _OutIter >::do_put(), and std::operator>>().

5.374.5.38 static int std::ios_base::xalloc () throw () [static, inherited]

Access to unique indices.

Returns:

An integer different from all previous calls.

This function returns a unique integer every time it is called. It can be used for any purpose, but is primarily intended to be a unique index for the iword and pword functions. The expectation is that an application calls xalloc in order to obtain an index in the iword and pword arrays that can be used without fear of conflict.

The implementation maintains a static variable that is incremented and returned on each invocation. xalloc is guaranteed to return an index that is safe to use in the iword and pword arrays.

5.374.6 Member Data Documentation

5.374.6.1 const fmtflags std::ios_base::adjustfield [static, inherited]

A mask of left|right|internal. Useful for the 2-arg form of `setf`.

Definition at line 318 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

5.374.6.2 const openmode std::ios_base::app [static, inherited]

Seek to end before each write.

Definition at line 372 of file ios_base.h.

5.374.6.3 const openmode std::ios_base::ate [static, inherited]

Open and seek to end immediately after opening.

Definition at line 375 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::open().

5.374.6.4 const iostate std::ios_base::badbit [static, inherited]

Indicates a loss of integrity in an input or output sequence (such as an irrecoverable read error from a file).

Definition at line 342 of file ios_base.h.

Referenced by std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ios< _CharT, _Traits >::init(), std::operator<<(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_ostream< _CharT, _Traits >::tellp(), std::basic_istream< _CharT, _Traits >::unget(), and std::basic_ostream< _CharT, _Traits >::write().

5.374.6.5 const fmtflags std::ios_base::basefield [static, inherited]

A mask of dec|oct|hex. Useful for the 2-arg form of `setf`.

Definition at line 321 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), and std::basic_ostream< _CharT, _Traits >::operator<<().

5.374.6.6 const seekdir std::ios_base::beg [static, inherited]

Request a seek relative to the beginning of the stream.

Definition at line 404 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::seekpos().

5.374.6.7 const openmode std::ios_base::binary [static, inherited]

Perform input and output in binary mode (as opposed to text mode). This is probably not what you think it is; see http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch27s02.html.

Definition at line 380 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::showmanyc().

5.374.6.8 const fmtflags std::ios_base::boolalpha [static, inherited]

Insert/extract `bool` in alphabetic rather than numeric format.

Definition at line 266 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), and std::num_put< _CharT, _OutIter >::do_put().

5.374.6.9 const seekdir std::ios_base::cur [static, inherited]

Request a seek relative to the current position within the sequence.

Definition at line 407 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_istream< _CharT, _Traits >::tellg(), and std::basic_ostream< _CharT, _Traits >::tellp().

5.374.6.10 const fmtflags std::ios_base::dec [static, inherited]

Converts integer input or generates integer output in decimal base.

Definition at line 269 of file ios_base.h.

5.374.6.11 const seekdir std::ios_base::end [static, inherited]

Request a seek relative to the current end of the sequence.

Definition at line 410 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::open(), and std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff().

5.374.6.12 const iostate std::ios_base::eofbit [static, inherited]

Indicates that an input operation reached the end of an input sequence.

Definition at line 345 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_date(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_time(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), and std::ws().

5.374.6.13 const iostate std::ios_base::failbit [static, inherited]

Indicates that an input operation failed to read the expected characters, or that an output operation failed to generate the desired characters.

Definition at line 350 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::basic_istream< _CharT, _Traits >::operator>>(), std::operator>>(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::seekg(), and std::basic_ostream< _CharT, _Traits >::seekp().

5.374.6.14 const fmtflags std::ios_base::fixed [static, inherited]

Generate floating-point output in fixed-point notation.

Definition at line 272 of file ios_base.h.

5.374.6.15 const fmtflags std::ios_base::floatfield [static, inherited]

A mask of scientific|fixed. Useful for the 2-arg form of `setf`.

Definition at line 324 of file ios_base.h.

5.374.6.16 const iostate std::ios_base::goodbit [static, inherited]

Indicates all is well.

Definition at line 353 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ios< _CharT, _Traits >::init(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), and std::basic_istream< _CharT, _Traits >::unget().

5.374.6.17 const fmtflags std::ios_base::hex [static, inherited]

Converts integer input or generates integer output in hexadecimal base.

Definition at line 275 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::num_put< _CharT, _OutIter >::do_put(), and std::basic_ostream< _CharT, _Traits >::operator<<().

5.374.6.18 const openmode std::ios_base::in [static, inherited]

Open for input. Default for `ifstream` and fstream.

Definition at line 383 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::showmanyc(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::underflow(), std::basic_filebuf< _CharT, _Traits >::underflow(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.374.6.19 const fmtflags std::ios_base::internal [static, inherited]

Adds fill characters at a designated internal point in certain generated output, or identical to `right` if no such point is designated.

Definition at line 280 of file ios_base.h.

5.374.6.20 const fmtflags std::ios_base::left [static, inherited]

Adds fill characters on the right (final positions) of certain generated output. (I.e., the thing you print is flush left.).

Definition at line 284 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

5.374.6.21 const fmtflags std::ios_base::oct [static, inherited]

Converts integer input or generates integer output in octal base.

Definition at line 287 of file ios_base.h.

Referenced by std::basic_ostream< _CharT, _Traits >::operator<<().

5.374.6.22 const openmode std::ios_base::out [static, inherited]

Open for output. Default for `ofstream` and fstream.

Definition at line 386 of file ios_base.h.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_ostream< _CharT, _Traits >::tellp(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.374.6.23 const fmtflags std::ios_base::right [static, inherited]

Adds fill characters on the left (initial positions) of certain generated output. (I.e., the thing you print is flush right.).

Definition at line 291 of file ios_base.h.

5.374.6.24 const fmtflags std::ios_base::scientific [static, inherited]

Generates floating-point output in scientific notation.

Definition at line 294 of file ios_base.h.

5.374.6.25 const fmtflags std::ios_base::showbase [static, inherited]

Generates a prefix indicating the numeric base of generated integer output.

Definition at line 298 of file ios_base.h.

5.374.6.26 const fmtflags std::ios_base::showpoint [static, inherited]

Generates a decimal-point character unconditionally in generated floating-point output.

Definition at line 302 of file ios_base.h.

5.374.6.27 const fmtflags std::ios_base::showpos [static, inherited]

Generates a + sign in non-negative generated numeric output.

Definition at line 305 of file ios_base.h.

5.374.6.28 const fmtflags std::ios_base::skipws [static, inherited]

Skips leading white space before certain input operations.

Definition at line 308 of file ios_base.h.

5.374.6.29 const openmode std::ios_base::trunc [static, inherited]

Open for input. Default for `ofstream`.

Definition at line 389 of file ios_base.h.

5.374.6.30 const fmtflags std::ios_base::unitbuf [static, inherited]

Flushes output after each output operation.

Definition at line 311 of file ios_base.h.

5.374.6.31 const fmtflags std::ios_base::uppercase [static, inherited]

Replaces certain lowercase letters with their uppercase equivalents in generated output.

Definition at line 315 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

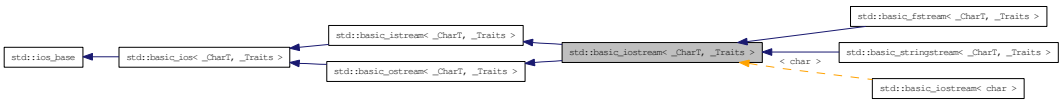
The documentation for this class was generated from the following files:

- basic_ios.h
- basic_ios.tcc

5.375 std::basic_iostream< _CharT, _Traits > Class Template Reference

Merging istream and ostream capabilities.

This class multiply inherits from the input and output stream classes simply to provide a single interface. Inheritance diagram for std::basic_iostream< _CharT, _Traits >:



Public Types

- typedef ctype< _CharT > __ctype_type
- typedef ctype< _CharT > __ctype_type
- typedef basic_ios< _CharT, _Traits > **__ios_type**
- typedef basic_ios< _CharT, _Traits > **__ios_type**
- typedef basic_istream< _CharT, _Traits > **__istream_type**
- typedef num_get< _CharT, istreambuf_iterator< _CharT, _Traits > > __num_get_type
- typedef num_put< _CharT, ostreambuf_iterator< _CharT, _Traits > > __num_put_type
- typedef basic_ostream< _CharT, _Traits > **__ostream_type**
- typedef basic_streambuf< _CharT, _Traits > **__streambuf_type**
- typedef basic_streambuf< _CharT, _Traits > **__streambuf_type**
- typedef _CharT char_type
- enum event { **erase_event**, **imbue_event**, **copyfmt_event** }
- typedef void(* event_callback)(event, ios_base &, int)
- typedef _Ios_Fmtflags fmtflags
- typedef _Traits::int_type int_type
- typedef int **io_state**
- typedef _Ios_Iostate iostate
- typedef _Traits::off_type off_type
- typedef int **open_mode**
- typedef _Ios_Openmode openmode
- typedef _Traits::pos_type pos_type
- typedef int **seek_dir**
- typedef _Ios_Seekdir seekdir
- typedef std::streamoff **streamoff**
- typedef std::streampos **streampos**
- typedef _Traits traits_type

Public Member Functions

- basic_iostream (basic_streambuf< _CharT, _Traits > *__sb)
- virtual ~basic_iostream ()
- const locale & _M_getloc () const
- void **_M_setstate** (iostate __state)
- bool bad () const
- void clear (iostate __state=goodbit)
- basic_ios & copyfmt (const basic_ios &__rhs)
- bool eof () const
- void exceptions (iostate __except)
- iostate exceptions () const
- bool fail () const
- char_type fill (char_type __ch)
- char_type fill () const
- fmtflags flags (fmtflags __fmtfl)
- fmtflags flags () const
- __ostream_type & flush ()
- streamsize gcount () const
- template<>
  basic_istream< wchar_t > & **getline** (char_type *__s, streamsize __n, char_type __delim)
- template<>
  basic_istream< char > & **getline** (char_type *__s, streamsize __n, char_type __delim)
- locale getloc () const
- bool good () const
- template<>
  basic_istream< wchar_t > & **ignore** (streamsize __n, int_type __delim)
- template<>
  basic_istream< wchar_t > & **ignore** (streamsize __n)
- template<>
  basic_istream< char > & **ignore** (streamsize __n, int_type __delim)
- template<>
  basic_istream< char > & **ignore** (streamsize __n)
- locale imbue (const locale &__loc)
- long & iword (int __ix)
- char narrow (char_type __c, char __dfault) const
- streamsize precision (streamsize __prec)
- streamsize precision () const
- void *& pword (int __ix)
- basic_streambuf< _CharT, _Traits > * rdbuf (basic_streambuf< _CharT, _Traits > *__sb)

- basic_streambuf< _CharT, _Traits > * rdbuf () const
- iostate rdstate () const
- void register_callback (event_callback __fn, int __index)
- __ostream_type & seekp (off_type, ios_base::seekdir)
- __ostream_type & seekp (pos_type)
- fmtflags setf (fmtflags __fmtfl, fmtflags __mask)
- fmtflags setf (fmtflags __fmtfl)
- void setstate (iostate __state)
- pos_type tellp ()
- basic_ostream< _CharT, _Traits > * tie (basic_ostream< _CharT, _Traits > *__tiestr)
- basic_ostream< _CharT, _Traits > * tie () const
- void unsetf (fmtflags __mask)
- char_type widen (char __c) const
- streamsize width (streamsize __wide)
- streamsize width () const

Unformatted Output Functions

All the unformatted output functions have some common behavior. Each starts by constructing a temporary object of type std::basic_ostream::sentry. This has several effects, concluding with the setting of a status flag; see the sentry documentation for more.

If the sentry status is good, the function tries to generate whatever data is appropriate for the type of the argument.

If an exception is thrown during insertion, ios_base::badbit will be turned on in the stream's error state. If badbit is on in the stream's exceptions mask, the exception will be rethrown without completing its actions.

- void _M_write (const char_type *__s, streamsize __n)
- __ostream_type & put (char_type __c)
- __ostream_type & write (const char_type *__s, streamsize __n)

Unformatted Input Functions

All the unformatted input functions have some common behavior. Each starts by constructing a temporary object of type std::basic_istream::sentry with the second argument (noskipws) set to true. This has several effects, concluding with the setting of a status flag; see the sentry documentation for more.

If the sentry status is good, the function tries to extract whatever data is appropriate for the type of the argument.

The number of characters extracted is stored for later retrieval by gcount().

If an exception is thrown during extraction, ios_base::badbit will be turned on in the stream's error state without causing an ios_base::failure to be thrown. The original exception will then be rethrown.

- __istream_type & get (__streambuf_type &__sb)
- __istream_type & get (__streambuf_type &__sb, char_type __delim)
- __istream_type & get (char_type *__s, streamsize __n)
- __istream_type & get (char_type *__s, streamsize __n, char_type __delim)
- __istream_type & get (char_type &__c)
- int_type get ()
- __istream_type & getline (char_type *__s, streamsize __n)
- __istream_type & getline (char_type *__s, streamsize __n, char_type __delim)
- __istream_type & ignore (streamsize __n, int_type __delim)
- __istream_type & ignore (streamsize __n)
- __istream_type & ignore ()
- int_type peek ()
- __istream_type & putback (char_type __c)
- __istream_type & read (char_type *__s, streamsize __n)
- streamsize readsome (char_type *__s, streamsize __n)
- __istream_type & seekg (off_type, ios_base::seekdir)
- __istream_type & seekg (pos_type)
- int sync ()
- pos_type tellg ()
- __istream_type & unget ()

Arithmetic Inserters

All the `operator<<` functions (aka formatted output functions) have some common behavior. Each starts by constructing a temporary object of type std::basic_ostream::sentry. This can have several effects, concluding with the setting of a status flag; see the sentry documentation for more.

If the sentry status is good, the function tries to generate whatever data is appropriate for the type of the argument.

If an exception is thrown during insertion, ios_base::badbit will be turned on in the stream's error state without causing an ios_base::failure to be thrown. The original exception will then be rethrown.

- __ostream_type & operator<< (__streambuf_type *__sb)
- __ostream_type & operator<< (const void *__p)
- __ostream_type & operator<< (long double __f)
- __ostream_type & operator<< (float __f)
- __ostream_type & operator<< (double __f)
- __ostream_type & operator<< (unsigned long long __n)
- __ostream_type & operator<< (long long __n)
- __ostream_type & operator<< (unsigned int __n)
- __ostream_type & operator<< (int __n)
- __ostream_type & operator<< (unsigned short __n)
- __ostream_type & operator<< (short __n)
- __ostream_type & operator<< (bool __n)
- __ostream_type & operator<< (unsigned long __n)
- __ostream_type & operator<< (long __n)

- __ostream_type & operator<< (ios_base &(*__pf)(ios_base &))
- __ostream_type & operator<< (__ios_type &(*__pf)(__ios_type &))
- __ostream_type & operator<< (__ostream_type &(*__pf)(__ostream_type &))

Arithmetic Extractors

All the `operator>>` functions (aka formatted input functions) have some common behavior. Each starts by constructing a temporary object of type std::basic_istream::sentry with the second argument (noskipws) set to false. This has several effects, concluding with the setting of a status flag; see the sentry documentation for more.

If the sentry status is good, the function tries to extract whatever data is appropriate for the type of the argument.

If an exception is thrown during extraction, ios_base::badbit will be turned on in the stream's error state without causing an ios_base::failure to be thrown. The original exception will then be rethrown.

- __istream_type & operator>> (__streambuf_type *__sb)
- __istream_type & operator>> (void *&__p)
- __istream_type & operator>> (long double &__f)
- __istream_type & operator>> (double &__f)
- __istream_type & operator>> (float &__f)
- __istream_type & operator>> (unsigned long long &__n)
- __istream_type & operator>> (long long &__n)
- __istream_type & operator>> (unsigned long &__n)
- __istream_type & operator>> (long &__n)
- __istream_type & operator>> (unsigned int &__n)
- __istream_type & operator>> (int &__n)
- __istream_type & operator>> (unsigned short &__n)
- __istream_type & operator>> (short &__n)
- __istream_type & operator>> (bool &__n)

- __istream_type & operator>> (ios_base &(*__pf)(ios_base &))
- __istream_type & operator>> (__ios_type &(*__pf)(__ios_type &))
- __istream_type & operator>> (__istream_type &(*__pf)(__istream_type &))

Static Public Member Functions

- static bool sync_with_stdio (bool __sync=true)
- static int xalloc () throw ()

Static Public Attributes

- static const fmtflags adjustfield
- static const openmode app
- static const openmode ate
- static const iostate badbit
- static const fmtflags basefield
- static const seekdir beg
- static const openmode binary
- static const fmtflags boolalpha
- static const seekdir cur
- static const fmtflags dec
- static const seekdir end
- static const iostate eofbit
- static const iostate failbit
- static const fmtflags fixed
- static const fmtflags floatfield
- static const iostate goodbit
- static const fmtflags hex
- static const openmode in
- static const fmtflags internal
- static const fmtflags left
- static const fmtflags oct
- static const openmode out
- static const fmtflags right
- static const fmtflags scientific
- static const fmtflags showbase
- static const fmtflags showpoint
- static const fmtflags showpos
- static const fmtflags skipws
- static const openmode trunc
- static const fmtflags unitbuf
- static const fmtflags uppercase

Protected Types

- enum { **_S_local_word_size** }

Protected Member Functions

- void **_M_cache_locale** (const locale &__loc)
- void **_M_call_callbacks** (event __ev) throw ()
- void **_M_dispose_callbacks** (void) throw ()
- template<typename _ValueT >
  __istream_type & **_M_extract** (_ValueT &__v)
- _Words & **_M_grow_words** (int __index, bool __iword)
- void **_M_init** () throw ()
- template<typename _ValueT >
  __ostream_type & **_M_insert** (_ValueT __v)
- void init (basic_streambuf< _CharT, _Traits > *__sb)

Protected Attributes

- _Callback_list * **_M_callbacks**
- const __ctype_type * **_M_ctype**
- iostate **_M_exception**
- char_type **_M_fill**
- bool **_M_fill_init**
- fmtflags **_M_flags**
- streamsize _M_gcount
- locale **_M_ios_locale**
- _Words **_M_local_word** [_S_local_word_size]
- const __num_get_type * **_M_num_get**
- const __num_put_type * **_M_num_put**
- streamsize **_M_precision**
- basic_streambuf< _CharT, _Traits > * **_M_streambuf**
- iostate **_M_streambuf_state**
- basic_ostream< _CharT, _Traits > * **_M_tie**
- streamsize **_M_width**
- _Words * **_M_word**
- int **_M_word_size**
- _Words **_M_word_zero**

Friends

- class **sentry**
- class **sentry**

- typedef num_put< _CharT, ostreambuf_iterator< _CharT, _Traits > > __num_put_type
- operator void * () const
- bool operator! () const

5.375.1 Detailed Description

template<typename _CharT, typename _Traits> class std::basic_iostream< _CharT, _Traits >

Merging istream and ostream capabilities.

This class multiply inherits from the input and output stream classes simply to provide a single interface.

Definition at line 769 of file istream.

5.375.2 Member Typedef Documentation

5.375.2.1 template<typename _CharT, typename _Traits> typedef ctype<_CharT> std::basic_ostream< _CharT, _Traits >::__ctype_type [inherited]

These are non-standard types.

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 71 of file ostream.

5.375.2.2 template<typename _CharT, typename _Traits> typedef ctype<_CharT> std::basic_istream< _CharT, _Traits >::__ctype_type [inherited]

These are non-standard types.

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 71 of file istream.

5.375.2.3 template<typename _CharT, typename _Traits> typedef num_get<_CharT, istreambuf_iterator<_CharT, _Traits> > std::basic_istream< _CharT, _Traits >::__num_get_type [inherited]

These are non-standard types.

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 70 of file istream.

5.375.2.4 template<typename _CharT, typename _Traits> typedef num_put<_CharT, ostreambuf_iterator<_CharT, _Traits> > std::basic_ostream< _CharT, _Traits >::__num_put_type [inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 70 of file ostream.

5.375.2.5 template<typename _CharT, typename _Traits> typedef num_put<_CharT, ostreambuf_iterator<_CharT, _Traits> > std::basic_ios< _CharT, _Traits >::__num_put_type [inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Reimplemented in std::basic_ostream< _CharT, _Traits >, std::basic_ostream< char, _Traits >, and std::basic_ostream< char >.

Definition at line 84 of file basic_ios.h.

5.375.2.6 template<typename _CharT, typename _Traits> typedef _CharT std::basic_iostream< _CharT, _Traits >::char_type

These are standard types. They permit a standardized way of referring to names of (or names dependant on) the template parameters, which are specific to the implementation.

Reimplemented from std::basic_istream< _CharT, _Traits >.

Reimplemented in std::basic_fstream< _CharT, _Traits >, and std::basic_stringstream< _CharT, _Traits, _Alloc >.

Definition at line 777 of file istream.

5.375.2.7 typedef void(* std::ios_base::event_callback)(event, ios_base &, int) [inherited]

The type of an event callback function.

Parameters:

event One of the members of the event enum.

ios_base Reference to the ios_base object.

int The integer provided when the callback was registered.

Event callbacks are user defined functions that get called during several ios_base and basic_ios functions, specifically imbue(), copyfmt(), and ~ios().

Definition at line 444 of file ios_base.h.

5.375.2.8 typedef _Ios_Fmtflags std::ios_base::fmtflags [inherited]

This is a bitmask type. *_Ios_Fmtflags* is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type fmtflags are:

- boolalpha
- dec
- fixed
- hex
- internal
- left
- oct
- right
- scientific
- showbase
- showpoint
- showpos
- skipws
- unitbuf
- uppercase
- adjustfield
- basefield
- floatfield

Definition at line 263 of file ios_base.h.

5.375.2.9 template<typename _CharT, typename _Traits> typedef _Traits::int_type std::basic_iostream< _CharT, _Traits >::int_type

These are non-standard types.

Reimplemented from std::basic_istream< _CharT, _Traits >.

Reimplemented in std::basic_fstream< _CharT, _Traits >, and std::basic_stringstream< _CharT, _Traits, _Alloc >.

Definition at line 778 of file istream.

5.375.2.10 typedef _Ios_Iostate std::ios_base::iostate [inherited]

This is a bitmask type. *_Ios_Iostate* is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type iostate are:

- badbit
- eofbit
- failbit
- goodbit

Definition at line 338 of file ios_base.h.

5.375.2.11 template<typename _CharT, typename _Traits> typedef _Traits::off_type std::basic_iostream< _CharT, _Traits >::off_type

These are non-standard types.

Reimplemented from std::basic_istream< _CharT, _Traits >.

Reimplemented in std::basic_fstream< _CharT, _Traits >, and std::basic_stringstream< _CharT, _Traits, _Alloc >.

Definition at line 780 of file istream.

5.375.2.12 typedef _Ios_Openmode std::ios_base::openmode [inherited]

This is a bitmask type. *_Ios_Openmode* is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type openmode are:

- app

- ate
- binary
- in
- out
- trunc

Definition at line 369 of file ios_base.h.

5.375.2.13 template<typename _CharT, typename _Traits> typedef _Traits::pos_type std::basic_iostream< _CharT, _Traits >::pos_type

These are non-standard types.

Reimplemented from std::basic_istream< _CharT, _Traits >.

Reimplemented in std::basic_fstream< _CharT, _Traits >, and std::basic_stringstream< _CharT, _Traits, _Alloc >.

Definition at line 779 of file istream.

5.375.2.14 typedef _Ios_Seekdir std::ios_base::seekdir [inherited]

This is an enumerated type. `_Ios_Seekdir` is implementation-defined. Defined values of type seekdir are:

- beg
- cur, equivalent to `SEEK_CUR` in the C standard library.
- end, equivalent to `SEEK_END` in the C standard library.

Definition at line 401 of file ios_base.h.

5.375.2.15 template<typename _CharT, typename _Traits> typedef _Traits std::basic_iostream< _CharT, _Traits >::traits_type

These are non-standard types.

Reimplemented from std::basic_istream< _CharT, _Traits >.

Reimplemented in std::basic_fstream< _CharT, _Traits >, and std::basic_stringstream< _CharT, _Traits, _Alloc >.

Definition at line 781 of file istream.

5.375.3 Member Enumeration Documentation

5.375.3.1 enum std::ios_base::event [inherited]

The set of events that may be passed to an event callback. erase_event is used during ~ios() and copyfmt(). imbue_event is used during imbue(). copyfmt_event is used during copyfmt().

Definition at line 427 of file ios_base.h.

5.375.4 Constructor & Destructor Documentation

5.375.4.1 template<typename _CharT, typename _Traits> std::basic_iostream< _CharT, _Traits >::basic_iostream (basic_streambuf< _CharT, _Traits > * *__sb*) [inline, explicit]

Constructor does nothing. Both of the parent classes are initialized with the same streambuf pointer passed to this constructor.

Definition at line 794 of file istream.

5.375.4.2 template<typename _CharT, typename _Traits> virtual std::basic_iostream< _CharT, _Traits >::~basic_iostream () [inline, virtual]

Destructor does nothing.

Definition at line 801 of file istream.

5.375.5 Member Function Documentation

5.375.5.1 const locale& std::ios_base::_M_getloc () const [inline, inherited]

Locale access.

Returns:

A reference to the current locale.

Like getloc above, but returns a reference instead of generating a copy.

Definition at line 705 of file ios_base.h.

Referenced by std::money_get< _CharT, _InIter >::do_get(), std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_date(), std::time_get<

_CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_time(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::time_put< _CharT, _OutIter >::do_put(), std::num_put< _CharT, _OutIter >::do_put(), and std::time_put< _CharT, _OutIter >::put().

5.375.5.2 template<typename _CharT, typename _Traits> void std::basic_ostream< _CharT, _Traits >::_M_write (const char_type * __s, streamsize __n) [inline, inherited]

Simple insertion.

Parameters:

c The character to insert.

Returns:

*this

Tries to insert *c*.

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 287 of file ostream.

Referenced by std::basic_ostream< _CharT, _Traits >::write().

5.375.5.3 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::bad () const [inline, inherited]

Fast error checking.

Returns:

True if the badbit is set.

Note that other iostate flags may also be set.

Definition at line 201 of file basic_ios.h.

5.375.5.4 template<typename _CharT , typename _Traits > void std::basic_ios< _CharT, _Traits >::clear (iostate __state = goodbit) [inline, inherited]

[Re]sets the error state.

Parameters:

state The new state flag(s) to set.

See std::ios_base::iostate for the possible bit values. Most users will not need to pass an argument.

Definition at line 40 of file basic_ios.tcc.

Referenced by std::basic_ios< _CharT, _Traits >::rdbuf().

5.375.5.5 template<typename _CharT , typename _Traits > basic_ios< _CharT, _Traits > & std::basic_ios< _CharT, _Traits >::copyfmt (const basic_ios< _CharT, _Traits > & *__rhs*) [inline, inherited]

Copies fields of __rhs into this.

Parameters:

__rhs The source values for the copies.

Returns:

Reference to this object.

All fields of __rhs are copied into this object except that rdbuf() and rdstate() remain unchanged. All values in the pword and iword arrays are copied. Before copying, each callback is invoked with erase_event. After copying, each (new) callback is invoked with copyfmt_event. The final step is to copy exceptions().

Definition at line 62 of file basic_ios.tcc.

References std::basic_ios< _CharT, _Traits >::exceptions(), std::basic_ios< _CharT, _Traits >::fill(), std::ios_base::flags(), std::ios_base::getloc(), std::ios_base::precision(), std::basic_ios< _CharT, _Traits >::tie(), and std::ios_base::width().

5.375.5.6 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::eof () const [inline, inherited]

Fast error checking.

Returns:

True if the eofbit is set.

Note that other iostate flags may also be set.

Definition at line 180 of file basic_ios.h.

Referenced by std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_istream< _CharT, _Traits >::putback(), and std::basic_istream< _CharT, _Traits >::unget().

5.375.5.7 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::exceptions (iostate __*except*) [inline, inherited]

Throwing exceptions on errors.

Parameters:

except The new exceptions mask.

By default, error flags are set silently. You can set an exceptions mask for each stream; if a bit in the mask becomes set in the error flags, then an exception of type std::ios_base::failure is thrown.

If the error flag is already set when the exceptions mask is added, the exception is immediately thrown. Try running the following under GCC 3.1 or later:

```
#include <iostream>
#include <fstream>
#include <exception>

int main()
{
    std::set_terminate (__gnu_cxx::__verbose_terminate_handler);

    std::ifstream f ("/etc/motd");

    std::cerr << "Setting badbit\n";
    f.setstate (std::ios_base::badbit);

    std::cerr << "Setting exception mask\n";
    f.exceptions (std::ios_base::badbit);
}
```

Definition at line 247 of file basic_ios.h.

5.375.5.8 template<typename _CharT, typename _Traits> iostate std::basic_ios< _CharT, _Traits >::exceptions () const [inline, inherited]

Throwing exceptions on errors.

Returns:

The current exceptions mask.

This changes nothing in the stream. See the one-argument version of exceptions(iostate) for the meaning of the return value.

Definition at line 212 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.375.5.9 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::fail () const [inline, inherited]

Fast error checking.

Returns:

True if either the badbit or the failbit is set.

Checking the badbit in fail() is historical practice. Note that other iostate flags may also be set.

Definition at line 191 of file basic_ios.h.

Referenced by std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_ostream< _CharT, _Traits >::tellp(), and std::regex_traits< _Ch_type >::value().

5.375.5.10 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::fill (char_type __*ch*) [inline, inherited]

Sets a new *empty* character.

Parameters:

ch The new character.

Returns:

The previous fill character.

The fill character is used to fill out space when P+ characters have been requested (e.g., via setw), Q characters are actually used, and Q<P. It defaults to a space (' ') in the current locale.

Definition at line 380 of file basic_ios.h.

5.375.5.11 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::fill () const [inline, inherited]

Retrieves the *empty* character.

Returns:

The current fill character.

It defaults to a space (' ') in the current locale.

Definition at line 360 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.375.5.12 fmtflags std::ios_base::flags (fmtflags *__fmtfl*) [inline, inherited]

Setting new format flags all at once.

Parameters:

fmtfl The new flags to set.

Returns:

The previous format control flags.

This function overwrites all the format flags with *fmtfl*.

Definition at line 561 of file ios_base.h.

5.375.5.13 fmtflags std::ios_base::flags () const [inline, inherited]

Access to format flags.

Returns:

The format control flags for both input and output.

Definition at line 550 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::num_get< _CharT, _InIter >::do_get(), std::num_put< _CharT, _OutIter >::do_put(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator<<(), and std::operator>>().

5.375.5.14 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::flush () [inline, inherited]

Synchronizing the stream buffer.

Returns:

∗this

If `rdbuf()` is a null pointer, changes nothing.

Otherwise, calls `rdbuf()->pubsync()`, and if that returns -1, sets badbit.

Definition at line 211 of file ostream.tcc.

References std::ios_base::badbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

Referenced by std::flush().

5.375.5.15 template<typename _CharT, typename _Traits> streamsize std::basic_istream< _CharT, _Traits >::gcount () const [inline, inherited]

Character counting.

Returns:

The number of characters extracted by the previous unformatted input function dispatched for this stream.

Definition at line 249 of file istream.

5.375.5.16 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::get (__streambuf_type & *__sb*) [inline, inherited]

Extraction into another streambuf.

Parameters:

sb A streambuf in which to store data.

Returns:

∗this

Returns `get`(sb,widen('\n')).

Definition at line 366 of file istream.

5.375.5.17 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::get (__streambuf_type & __*sb*, char_type __*delim*) [inline, inherited]

Extraction into another streambuf.

Parameters:

sb A streambuf in which to store data.

delim A "stop" character.

Returns:

∗this

Characters are extracted and inserted into *sb* until one of the following happens:

- the input sequence reaches EOF
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted)
- the next character equals *delim* (in this case, the character is not extracted)
- an exception occurs (and in this case is caught)

If no characters are stored, failbit is set in the stream's error state.

Definition at line 356 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), std::basic_streambuf< _CharT, _Traits >::snextc(), and std::basic_streambuf< _CharT, _Traits >::sputc().

5.375.5.18 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::get (char_type ∗ __*s*, streamsize __*n*) [inline, inherited]

Simple multiple-character extraction.

Parameters:

s Pointer to an array.

n Maximum number of characters to store in *s*.

Returns:

*this

Returns `get`(s,n,widen('\n')).

Definition at line 333 of file istream.

5.375.5.19 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::get (char_type * *__s*, streamsize *__n*, char_type *__delim*) [inline, inherited]

Simple multiple-character extraction.

Parameters:

s Pointer to an array.

n Maximum number of characters to store in *s*.

delim A "stop" character.

Returns:

*this

Characters are extracted and stored into *s* until one of the following happens:

- `n-1` characters are stored
- the input sequence reaches EOF
- the next character equals *delim*, in which case the character is not extracted

If no characters are stored, failbit is set in the stream's error state.

In any case, a null character is stored into the next location in the array.

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 309 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), and std::basic_streambuf< _CharT, _Traits >::snextc().

5.375.5.20 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::get (char_type & __c) [inline, inherited]

Simple extraction.

Parameters:

c The character in which to store data.

Returns:

∗this

Tries to extract a character and store it in *c*. If none are available, sets failbit and returns traits::eof().

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 272 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.375.5.21 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits >::int_type std::basic_istream< _CharT, _Traits >::get (void) [inline, inherited]

Simple extraction.

Returns:

A character, or eof().

Tries to extract a character. If none are available, sets failbit and returns traits::eof().

Definition at line 236 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.375.5.22 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::getline (char_type * __s, streamsize __n) [inline, inherited]

String extraction.

Parameters:

s A character array in which to store the data.

n Maximum number of characters to extract.

Returns:

*this

Returns `getline`(s,n,widen('\n')).

Definition at line 406 of file istream.

Referenced by std::basic_istream< char >::getline().

5.375.5.23 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::getline (char_type * __s, streamsize __n, char_type __*delim*) [inline, inherited]

String extraction.

Parameters:

s A character array in which to store the data.

n Maximum number of characters to extract.

delim A "stop" character.

Returns:

*this

Extracts and stores characters into *s* until one of the following happens. Note that these criteria are required to be tested in the order listed here, to allow an input line to exactly fill the *s* array without setting failbit.

1. the input sequence reaches end-of-file, in which case eofbit is set in the stream error state
2. the next character equals `delim`, in which case the character is extracted (and therefore counted in `gcount()`) but not stored

3. `n-1` characters are stored, in which case failbit is set in the stream error state

If no characters are extracted, failbit is set. (An empty line of input should therefore not cause failbit to be set.)

In any case, a null character is stored in the next location in the array.

Definition at line 400 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_streambuf< _CharT, _Traits >::sbumpc(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), and std::basic_streambuf< _CharT, _Traits >::snextc().

5.375.5.24 locale std::ios_base::getloc () const [inline, inherited]

Locale access.

Returns:

A copy of the current locale.

If `imbue(loc)` has previously been called, then this function returns `loc`. Otherwise, it returns a copy of `std::locale()`, the global C++ locale.

Definition at line 694 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::money_put< _CharT, _OutIter >::do_put(), std::basic_ios< _CharT, _Traits >::imbue(), std::operator>>(), and std::ws().

5.375.5.25 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::good () const [inline, inherited]

Fast error checking.

Returns:

True if no error flags are set.

A wrapper around rdstate.

Definition at line 170 of file basic_ios.h.

5.375.5.26 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::ignore (streamsize __n, int_type __delim) [inline, inherited]

Extraction into another streambuf.

Parameters:

sb A streambuf in which to store data.

Returns:

∗this

Returns `get`(sb,widen('\n')).

Definition at line 555 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_streambuf< _CharT, _Traits >::sbumpc(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), and std::basic_streambuf< _CharT, _Traits >::snextc().

5.375.5.27 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::ignore (streamsize __n) [inline, inherited]

Extraction into another streambuf.

Parameters:

sb A streambuf in which to store data.

Returns:

∗this

Returns `get`(sb,widen('\n')).

Definition at line 493 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), and std::basic_streambuf< _CharT, _Traits >::snextc().

5.375.5.28 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::ignore (void) [inline, inherited]

Discarding characters.

Parameters:

n Number of characters to discard.

delim A "stop" character.

Returns:

*this

Extracts characters and throws them away until one of the following happens:

- if *n* != std::numeric_limits<int>::max(), *n* characters are extracted
- the input sequence reaches end-of-file
- the next character equals *delim* (in this case, the character is extracted); note that this condition will never occur if *delim* equals traits::eof().

NB: Provide three overloads, instead of the single function (with defaults) mandated by the Standard: this leads to a better performing implementation, while still conforming to the Standard.

Definition at line 460 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_streambuf< _CharT, _Traits >::sbumpc(), and std::basic_ios< _CharT, _Traits >::setstate().

5.375.5.29 template<typename _CharT , typename _Traits > locale std::basic_ios< _CharT, _Traits >::imbue (const locale & *__loc*) [inline, inherited]

Moves to a new locale.

Parameters:

loc The new locale.

Returns:

The previous locale.

Calls `ios_base::imbue(loc)`, and if a stream buffer is associated with this stream, calls that buffer's `pubimbue(loc)`.

Additional l10n notes are at `http://gcc.gnu.org/onlinedocs/libstdc++/manual/localizati`

Reimplemented from std::ios_base.

Definition at line 113 of file basic_ios.tcc.

References std::ios_base::getloc(), and std::basic_ios< _CharT, _Traits >::rdbuf().

Referenced by std::operator<<().

5.375.5.30 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::init (basic_streambuf< _CharT, _Traits > * *__sb*) [inline, protected, inherited]

All setup is performed here. This is called from the public constructor. It is not virtual and cannot be redefined.

Definition at line 125 of file basic_ios.tcc.

References std::ios_base::badbit, and std::ios_base::goodbit.

5.375.5.31 long& std::ios_base::iword (int *__ix*) [inline, inherited]

Access to integer array.

Parameters:

__ix Index into the array.

Returns:

A reference to an integer associated with the index.

The iword function provides access to an array of integers that can be used for any purpose. The array grows as required to hold the supplied index. All integers in the array are initialized to 0.

The implementation reserves several indices. You should use xalloc to obtain an index that is safe to use. Also note that since the array can grow dynamically, it is not safe to hold onto the reference.

Definition at line 740 of file ios_base.h.

5.375.5.32 template<typename _CharT, typename _Traits> char std::basic_ios< _CharT, _Traits >::narrow (char_type *__c*, char *__dfault*) const [inline, inherited]

Squeezes characters.

Parameters:

c The character to narrow.

dfault The character to narrow.

Returns:

The narrowed character.

Maps a character of `char_type` to a character of `char`, if possible.
Returns the result of

```
std::use_facet<ctype<char_type> >(getloc()).narrow(c,dfault)
```

Additional l10n notes are at http://gcc.gnu.org/onlinedocs/libstdc++/manual/localization.html

Definition at line 420 of file basic_ios.h.

5.375.5.33 template<typename _CharT, typename _Traits> std::basic_ios< _CharT, _Traits >::operator void * () const [inline, inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Definition at line 111 of file basic_ios.h.

5.375.5.34 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::operator! () const [inline, inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Definition at line 115 of file basic_ios.h.

5.375.5.35 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::operator<< (__streambuf_type * *__sb*) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 120 of file ostream.tcc.

References std::ios_base::badbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.375.5.36 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (const void * *__p*) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 225 of file ostream.

5.375.5.37 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (long double __f) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 221 of file ostream.

5.375.5.38 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (float __f) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 213 of file ostream.

5.375.5.39 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (double __f) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,

- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 209 of file ostream.

5.375.5.40 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (unsigned long long __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 204 of file ostream.

5.375.5.41 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (long long __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 200 of file ostream.

5.375.5.42 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (unsigned int __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 191 of file ostream.

5.375.5.43 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::operator<< (int __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 106 of file ostream.tcc.

References std::ios_base::basefield, std::ios_base::flags(), std::ios_base::hex, and std::ios_base::oct.

5.375.5.44 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (unsigned short __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 180 of file ostream.

5.375.5.45 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::operator<< (short __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 92 of file ostream.tcc.

References std::ios_base::basefield, std::ios_base::flags(), std::ios_base::hex, and std::ios_base::oct.

5.375.5.46 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (bool __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 173 of file ostream.

5.375.5.47 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (unsigned long __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 169 of file ostream.

5.375.5.48 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (long __n) [inline, inherited]

Basic arithmetic inserters.

Parameters:

A variable of builtin type.

Returns:

`*this` if successful

These functions use the stream's current locale (specifically, the `num_get` facet) to perform numeric formatting.

Definition at line 165 of file ostream.

5.375.5.49 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (ios_base &(*)(ios_base &) __pf) [inline, inherited]

Interface for manipulators. Manipulators such as `std::endl` and `std::hex` use these functions in constructs like "std::cout << std::endl". For more information, see the iomanip header.

Definition at line 127 of file ostream.

5.375.5.50 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (__ios_type &(*)(__ios_type &) __pf) [inline, inherited]

Interface for manipulators. Manipulators such as `std::endl` and `std::hex` use these functions in constructs like "std::cout << std::endl". For more information, see the iomanip header.

Definition at line 117 of file ostream.

5.375.5.51 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (__ostream_type &(*)(__ostream_type &) *__pf*) [inline, inherited]

Interface for manipulators. Manipulators such as `std::endl` and `std::hex` use these functions in constructs like "std::cout << std::endl". For more information, see the iomanip header.

Definition at line 108 of file ostream.

5.375.5.52 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::operator>> (__streambuf_type * *__sb*) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 204 of file istream.tcc.

References std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.375.5.53 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (void *& __p) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 215 of file istream.

5.375.5.54 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (long double & __f) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,

- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 211 of file istream.

5.375.5.55 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (double & __f) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 207 of file istream.

5.375.5.56 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (float & __f) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 203 of file istream.

5.375.5.57 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (unsigned long long & *__n*) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 198 of file istream.

5.375.5.58 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (long long & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 194 of file istream.

5.375.5.59 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (unsigned long & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,

- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 189 of file istream.

5.375.5.60 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (long & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 185 of file istream.

5.375.5.61 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (unsigned int & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 181 of file istream.

5.375.5.62 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::operator>> (int & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 159 of file istream.tcc.

References std::ios_base::badbit, std::ios_base::failbit, std::num_get< _CharT, _InIter >::get(), std::ios_base::goodbit, and std::basic_ios< _CharT, _Traits >::setstate().

5.375.5.63 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (unsigned short & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 174 of file istream.

5.375.5.64 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::operator>> (short & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,

- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 114 of file istream.tcc.

References std::ios_base::badbit, std::ios_base::failbit, std::num_get< _CharT, _InIter >::get(), std::ios_base::goodbit, and std::basic_ios< _CharT, _Traits >::setstate().

5.375.5.65 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (bool & __n) [inline, inherited]

Basic arithmetic extractors.

Parameters:

A variable of builtin type.

Returns:

`*this` if successful

These functions use the stream's current locale (specifically, the `num_get` facet) to parse the input data.

Definition at line 167 of file istream.

5.375.5.66 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (ios_base &(*)(ios_base &) __pf) [inline, inherited]

Interface for manipulators. Manipulators such as `std::ws` and `std::dec` use these functions in constructs like `std::cin >> std::ws`. For more information, see the iomanip header.

Definition at line 131 of file istream.

5.375.5.67 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (__ios_type &(*)(__ios_type &) __pf) [inline, inherited]

Interface for manipulators. Manipulators such as `std::ws` and `std::dec` use these functions in constructs like `std::cin >> std::ws`. For more information, see the iomanip header.

Definition at line 124 of file istream.

5.375.5.68 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (__istream_type &(*)(__istream_type &) *__pf*) [inline, inherited]

Interface for manipulators. Manipulators such as `std::ws` and `std::dec` use these functions in constructs like `std::cin >> std::ws`. For more information, see the iomanip header.

Definition at line 120 of file istream.

5.375.5.69 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits >::int_type std::basic_istream< _CharT, _Traits >::peek (void) [inline, inherited]

Looking ahead in the stream.

Returns:

The next character, or eof().

If, after constructing the sentry object, `good()` is false, returns `traits::eof()`. Otherwise reads but does not extract the next input character.

Definition at line 620 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.375.5.70 streamsize std::ios_base::precision (streamsize *__prec*) [inline, inherited]

Changing flags.

Parameters:

prec The new precision value.

Returns:

The previous value of precision().

Definition at line 629 of file ios_base.h.

5.375.5.71 streamsize std::ios_base::precision () const [inline, inherited]

Flags access.

Returns:

The precision to generate on certain output operations.

Be careful if you try to give a definition of *precision* here; see DR 189.

Definition at line 620 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), and std::operator<<().

5.375.5.72 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::put (char_type __c) [inline, inherited]

Simple insertion.

Parameters:

c The character to insert.

Returns:

∗this

Tries to insert *c*.

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 149 of file ostream.tcc.

References std::ios_base::badbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

Referenced by std::endl(), and std::ends().

5.375.5.73 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::putback (char_type __c) [inline, inherited]

Unextracting a single character.

Parameters:

c The character to push back into the input stream.

Returns:

∗this

If `rdbuf()` is not null, calls `rdbuf()->sputbackc(c)`.

If `rdbuf()` is null or if `sputbackc()` fails, sets badbit in the error state.

Note:

Since no characters are extracted, the next call to `gcount()` will return 0, as required by DR 60.

Definition at line 711 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), and std::basic_streambuf< _CharT, _Traits >::sputbackc().

Referenced by std::operator>>().

5.375.5.74 void∗& std::ios_base::pword (int *__ix*) [inline, inherited]

Access to void pointer array.

Parameters:

__ix Index into the array.

Returns:

A reference to a void∗ associated with the index.

The pword function provides access to an array of pointers that can be used for any purpose. The array grows as required to hold the supplied index. All pointers in the array are initialized to 0.

The implementation reserves several indices. You should use xalloc to obtain an index that is safe to use. Also note that since the array can grow dynamically, it is not safe to hold onto the reference.

Definition at line 761 of file ios_base.h.

5.375.5.75 template<typename _CharT, typename _Traits> basic_streambuf< _CharT, _Traits > * std::basic_ios< _CharT, _Traits >::rdbuf (basic_streambuf< _CharT, _Traits > * *__sb*) [inline, inherited]

Changing the underlying buffer.

Parameters:

sb The new stream buffer.

Returns:

The previous stream buffer.

Associates a new buffer with the current stream, and clears the error state.

Due to historical accidents which the LWG refuses to correct, the I/O library suffers from a design error: this function is hidden in derived classes by overrides of the zero-argument `rdbuf()`, which is non-virtual for hysterical raisins. As a result, you must use explicit qualifications to access this function via any derived class. For example:

```
std::fstream     foo;          // or some other derived type
std::streambuf*  p = .....;

foo.ios::rdbuf(p);             // ios == basic_ios<char>
```

Definition at line 52 of file basic_ios.tcc.

References std::basic_ios< _CharT, _Traits >::clear().

5.375.5.76 template<typename _CharT, typename _Traits> basic_streambuf<_CharT, _Traits>* std::basic_ios< _CharT, _Traits >::rdbuf () const [inline, inherited]

Accessing the underlying buffer.

Returns:

The current stream buffer.

This does not change the state of the stream.

Reimplemented in std::basic_ifstream< _CharT, _Traits >, std::basic_ofstream< _CharT, _Traits >, std::basic_fstream< _CharT, _Traits >, std::basic_istringstream< _CharT, _Traits, _Alloc >, std::basic_ostringstream< _CharT, _Traits, _Alloc >, and std::basic_stringstream< _CharT, _Traits, _Alloc >.

Definition at line 311 of file basic_ios.h.

Referenced by std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ios< _CharT, _Traits >::imbue(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::basic_istream< _CharT, _Traits >::operator>>(), std::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_ostream< _CharT, _Traits >::tellp(), std::basic_istream< _CharT, _Traits >::unget(), and std::ws().

5.375.5.77 template<typename _CharT, typename _Traits> iostate std::basic_ios< _CharT, _Traits >::rdstate () const [inline, inherited]

Returns the error state of the stream buffer.

Returns:

A bit pattern (well, isn't everything?)

See std::ios_base::iostate for the possible bit values. Most users will call one of the interpreting wrappers, e.g., good().

Definition at line 127 of file basic_ios.h.

5.375.5.78 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::read (char_type * __s, streamsize __n) [inline, inherited]

Extraction without delimiters.

Parameters:

s A character array.

n Maximum number of characters to store.

Returns:

*this

If the stream state is `good()`, extracts characters and stores them into *s* until one of the following happens:

- *n* characters are stored

- the input sequence reaches end-of-file, in which case the error state is set to `failbit|eofbit`.

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 650 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.375.5.79 template<typename _CharT , typename _Traits > streamsize std::basic_istream< _CharT, _Traits >::readsome (char_type * __s, streamsize __n) [inline, inherited]

Extraction until the buffer is exhausted, but no more.

Parameters:

s A character array.

n Maximum number of characters to store.

Returns:

The number of characters extracted.

Extracts characters and stores them into *s* depending on the number of characters remaining in the streambuf's buffer, `rdbuf()->in_avail()`, called `A` here:

- if `A == -1`, sets eofbit and extracts no characters
- if `A == 0`, extracts no characters
- if `A > 0`, extracts `min(A,n)`

The goal is to empty the current buffer, and to not request any more from the external input sequence controlled by the streambuf.

Definition at line 679 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::ios_base::eofbit, std::ios_base::goodbit, std::min(), std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.375.5.80 void std::ios_base::register_callback (event_callback *__fn*, int *__index*) [inherited]

Add the callback __fn with parameter __index.

Parameters:

__fn The function to add.

__index The integer to pass to the function when invoked.

Registers a function as an event callback with an integer parameter to be passed to the function when invoked. Multiple copies of the function are allowed. If there are multiple callbacks, they are invoked in the order they were registered.

5.375.5.81 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::seekg (off_type *__off*, ios_base::seekdir *__dir*) [inline, inherited]

Changing the current read position.

Parameters:

off A file offset object.

dir The direction in which to seek.

Returns:

*this

If `fail()` is not true, calls `rdbuf()->pubseekoff(off,dir)`. If that function fails, sets failbit.

Note:

This function does not count the number of characters extracted, if any, and therefore does not affect the next call to `gcount()`.

Definition at line 870 of file istream.tcc.

References std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::failbit, std::ios_base::goodbit, std::ios_base::in, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.375.5.82 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::seekg (pos_type *__pos*) [inline, inherited]

Changing the current read position.

Parameters:

pos A file position object.

Returns:

*this

If `fail()` is not true, calls `rdbuf()->pubseekpos(pos)`. If that function fails, sets failbit.

Note:

This function does not count the number of characters extracted, if any, and therefore does not affect the next call to `gcount()`.

Definition at line 837 of file istream.tcc.

References std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::failbit, std::ios_base::goodbit, std::ios_base::in, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.375.5.83 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::seekp (off_type *__off*, ios_base::seekdir *__dir*) [inline, inherited]

Changing the current write position.

Parameters:

off A file offset object.

dir The direction in which to seek.

Returns:

*this

If `fail()` is not true, calls `rdbuf()->pubseekoff(off,dir)`. If that function fails, sets failbit.

Definition at line 290 of file ostream.tcc.

References std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::failbit, std::ios_base::goodbit, std::ios_base::out, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.375.5.84 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::seekp (pos_type *__pos*) [inline, inherited]

Changing the current write position.

Parameters:

pos A file position object.

Returns:

∗this

If `fail()` is not true, calls `rdbuf()->pubseekpos(pos)`. If that function fails, sets failbit.

Definition at line 258 of file ostream.tcc.

References std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::failbit, std::ios_base::goodbit, std::ios_base::out, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.375.5.85 fmtflags std::ios_base::setf (fmtflags *__fmtfl*, fmtflags *__mask*) [inline, inherited]

Setting new format flags.

Parameters:

fmtfl Additional flags to set.

mask The flags mask for *fmtfl*.

Returns:

The previous format control flags.

This function clears *mask* in the format flags, then sets *fmtfl* & *mask*. An example mask is `ios_base::adjustfield`.

Definition at line 594 of file ios_base.h.

5.375.5.86 fmtflags std::ios_base::setf (fmtflags *__fmtfl*) [inline, inherited]

Setting new format flags.

Parameters:

fmtfl Additional flags to set.

Returns:

The previous format control flags.

This function sets additional flags in format control. Flags that were previously set remain set.

Definition at line 577 of file ios_base.h.

Referenced by std::boolalpha(), std::dec(), std::fixed(), std::hex(), std::internal(), std::left(), std::oct(), std::right(), std::scientific(), std::showbase(), std::showpoint(), std::showpos(), std::skipws(), std::unitbuf(), and std::uppercase().

5.375.5.87 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::setstate (iostate *__state*) [inline, inherited]

Sets additional flags in the error state.

Parameters:

state The additional state flag(s) to set.

See std::ios_base::iostate for the possible bit values.

Definition at line 147 of file basic_ios.h.

Referenced by std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::basic_istream< _CharT, _Traits >::operator>>(), std::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), std::basic_istream< _CharT, _Traits >::unget(), and std::ws().

5.375.5.88 template<typename _CharT , typename _Traits > int std::basic_istream< _CharT, _Traits >::sync (void) [inline, inherited]

Synchronizing the stream buffer.

Returns:

0 on success, -1 on failure

If `rdbuf()` is a null pointer, returns -1.

Otherwise, calls `rdbuf()->pubsync()`, and if that returns -1, sets badbit and returns -1.

Otherwise, returns 0.

Note:

This function does not count the number of characters extracted, if any, and therefore does not affect the next call to `gcount()`.

Definition at line 777 of file istream.tcc.

References std::ios_base::badbit, std::ios_base::goodbit, std::basic_streambuf< _CharT, _Traits >::pubsync(), std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.375.5.89 static bool std::ios_base::sync_with_stdio (bool *__sync* = `true`) `[static, inherited]`

Interaction with the standard C I/O objects.

Parameters:

sync Whether to synchronize or not.

Returns:

True if the standard streams were previously synchronized.

The synchronization referred to is *only* that between the standard C facilities (e.g., stdout) and the standard C++ objects (e.g., cout). User-declared streams are unaffected. See http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch28s02.html

5.375.5.90 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits >::pos_type std::basic_istream< _CharT, _Traits >::tellg (void) `[inline, inherited]`

Getting the current read position.

Returns:

A file position object.

If `fail()` is not false, returns `pos_type`(-1) to indicate failure. Otherwise returns `rdbuf()->pubseekoff(0,cur,in)`.

Note:

This function does not count the number of characters extracted, if any, and therefore does not affect the next call to `gcount()`.

Definition at line 813 of file istream.tcc.

References std::ios_base::badbit, std::ios_base::cur, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::in, and std::basic_ios< _CharT, _Traits >::rdbuf().

5.375.5.91 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits >::pos_type std::basic_ostream< _CharT, _Traits >::tellp () [inline, inherited]

Getting the current write position.

Returns:

A file position object.

If `fail()` is not false, returns `pos_type`(-1) to indicate failure. Otherwise returns `rdbuf()->pubseekoff(0,cur,out)`.

Definition at line 237 of file ostream.tcc.

References std::ios_base::badbit, std::ios_base::cur, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::out, and std::basic_ios< _CharT, _Traits >::rdbuf().

5.375.5.92 template<typename _CharT, typename _Traits> basic_ostream<_CharT, _Traits>* std::basic_ios< _CharT, _Traits >::tie (basic_ostream< _CharT, _Traits > * *__tiestr*) [inline, inherited]

Ties this stream to an output stream.

Parameters:

tiestr The output stream.

Returns:

The previously tied output stream, or NULL if the stream was not tied.

This sets up a new tie; see tie() for more.

Definition at line 297 of file basic_ios.h.

5.375.5.93 template<typename _CharT, typename _Traits> basic_ostream<_CharT, _Traits>* std::basic_ios< _CharT, _Traits >::tie () const [inline, inherited]

Fetches the current *tied* stream.

Returns:

A pointer to the tied stream, or NULL if the stream is not tied.

A stream may be *tied* (or synchronized) to a second output stream. When this stream performs any I/O, the tied stream is first flushed. For example, `std::cin` is tied to `std::cout`.

Definition at line 285 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.375.5.94 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::unget (void) [inline, inherited]

Unextracting the previous character.

Returns:

*this

If `rdbuf()` is not null, calls `rdbuf()->sungetc(c)`.

If `rdbuf()` is null or if `sungetc()` fails, sets badbit in the error state.

Note:

Since no characters are extracted, the next call to `gcount()` will return 0, as required by DR 60.

Definition at line 744 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), and std::basic_streambuf< _CharT, _Traits >::sungetc().

5.375.5.95 void std::ios_base::unsetf (fmtflags __*mask*) [inline, inherited]

Clearing format flags.

Parameters:

mask The flags to unset.

This function clears *mask* in the format flags.

Definition at line 609 of file ios_base.h.

Referenced by std::noboolalpha(), std::noshowbase(), std::noshowpoint(), std::noshowpos(), std::noskipws(), std::nounitbuf(), and std::nouppercase().

5.375.5.96 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::widen (char __*c*) const [inline, inherited]

Widens characters.

Parameters:

c The character to widen.

Returns:

The widened character.

Maps a character of `char` to a character of `char_type`.

Returns the result of

```
std::use_facet<ctype<char_type> >(getloc()).widen(c)
```

Additional l10n notes are at http://gcc.gnu.org/onlinedocs/libstdc++/manual/localization.html

Definition at line 439 of file basic_ios.h.

Referenced by std::endl(), std::getline(), and std::operator>>().

5.375.5.97 streamsize std::ios_base::width (streamsize __*wide*) [inline, inherited]

Changing flags.

Parameters:

wide The new width value.

Returns:

The previous value of width().

Definition at line 652 of file ios_base.h.

5.375.5.98 streamsize std::ios_base::width () const [inline, inherited]

Flags access.

Returns:

The minimum field width to generate on output operations.

Minimum field width refers to the number of characters.

Definition at line 643 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::num_put< _CharT, _OutIter >::do_put(), and std::operator>>().

5.375.5.99 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::write (const char_type * __s, streamsize __n) [inline, inherited]

Character string insertion.

Parameters:

s The array to insert.

n Maximum number of characters to insert.

Returns:

*this

Characters are copied from *s* and inserted into the stream until one of the following happens:

- *n* characters are inserted
- inserting into the output sequence fails (in this case, badbit will be set in the stream's error state)

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 183 of file ostream.tcc.

References std::basic_ostream< _CharT, _Traits >::_M_write(), and std::ios_base::badbit.

5.375.5.100 static int std::ios_base::xalloc () throw () [static, inherited]

Access to unique indices.

Returns:

An integer different from all previous calls.

This function returns a unique integer every time it is called. It can be used for any purpose, but is primarily intended to be a unique index for the iword and pword functions. The expectation is that an application calls xalloc in order to obtain an index in the iword and pword arrays that can be used without fear of conflict.

The implementation maintains a static variable that is incremented and returned on each invocation. xalloc is guaranteed to return an index that is safe to use in the iword and pword arrays.

5.375.6 Member Data Documentation

5.375.6.1 template<typename _CharT, typename _Traits> streamsize std::basic_istream< _CharT, _Traits >::_M_gcount [protected, inherited]

The number of characters extracted in the previous unformatted function; see gcount().

Definition at line 79 of file istream.

Referenced by std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), and std::basic_istream< _CharT, _Traits >::unget().

5.375.6.2 const fmtflags std::ios_base::adjustfield [static, inherited]

A mask of left|right|internal. Useful for the 2-arg form of `setf`.

Definition at line 318 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

5.375.6.3 const openmode std::ios_base::app [static, inherited]

Seek to end before each write.

Definition at line 372 of file ios_base.h.

5.375.6.4 const openmode std::ios_base::ate [static, inherited]

Open and seek to end immediately after opening.

Definition at line 375 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::open().

5.375.6.5 const iostate std::ios_base::badbit [static, inherited]

Indicates a loss of integrity in an input or output sequence (such as an irrecoverable read error from a file).

Definition at line 342 of file ios_base.h.

Referenced by std::basic_ostream< _CharT, _Traits >::flush(), std::basic_-istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ios< _CharT, _Traits >::init(), std::operator<<(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_-istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_-istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_ostream< _CharT, _Traits >::tellp(), std::basic_istream< _CharT, _Traits >::unget(), and std::basic_ostream< _CharT, _Traits >::write().

5.375.6.6 const fmtflags std::ios_base::basefield [static, inherited]

A mask of dec|oct|hex. Useful for the 2-arg form of `setf`.

Definition at line 321 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), and std::basic_ostream< _CharT, _Traits >::operator<<().

5.375.6.7 const seekdir std::ios_base::beg [static, inherited]

Request a seek relative to the beginning of the stream.

Definition at line 404 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::seekpos().

5.375.6.8 const openmode std::ios_base::binary [static, inherited]

Perform input and output in binary mode (as opposed to text mode). This is probably not what you think it is; see http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch27s02.html.

Definition at line 380 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::showmanyc().

5.375.6.9 const fmtflags std::ios_base::boolalpha [static, inherited]

Insert/extract `bool` in alphabetic rather than numeric format.

Definition at line 266 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), and std::num_put< _CharT, _OutIter >::do_put().

5.375.6.10 const seekdir std::ios_base::cur [static, inherited]

Request a seek relative to the current position within the sequence.

Definition at line 407 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_istream< _CharT, _Traits >::tellg(), and std::basic_ostream< _CharT, _Traits >::tellp().

5.375.6.11 const fmtflags std::ios_base::dec [static, inherited]

Converts integer input or generates integer output in decimal base.

Definition at line 269 of file ios_base.h.

5.375.6.12 const seekdir std::ios_base::end [static, inherited]

Request a seek relative to the current end of the sequence.

Definition at line 410 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::open(), and std::basic_-stringbuf< _CharT, _Traits, _Alloc >::seekoff().

5.375.6.13 const iostate std::ios_base::eofbit [static, inherited]

Indicates that an input operation reached the end of an input sequence.

Definition at line 345 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_date(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_time(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_-istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::operator>>(), std::basic_-istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _-CharT, _Traits >::readsome(), and std::ws().

5.375.6.14 const iostate std::ios_base::failbit [static, inherited]

Indicates that an input operation failed to read the expected characters, or that an output operation failed to generate the desired characters.

Definition at line 350 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _-CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_-weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_istream< _-CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_-ostream< _CharT, _Traits >::operator<<(), std::basic_istream< _CharT, _Traits >::operator>>(), std::operator>>(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::seekg(), and std::basic_ostream< _CharT, _-Traits >::seekp().

5.375.6.15 const fmtflags std::ios_base::fixed [static, inherited]

Generate floating-point output in fixed-point notation.

Definition at line 272 of file ios_base.h.

5.375.6.16 const fmtflags std::ios_base::floatfield [static, inherited]

A mask of scientific|fixed. Useful for the 2-arg form of `setf`.

Definition at line 324 of file ios_base.h.

5.375.6.17 const iostate std::ios_base::goodbit [static, inherited]

Indicates all is well.

Definition at line 353 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ios< _CharT, _Traits >::init(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), and std::basic_istream< _CharT, _Traits >::unget().

5.375.6.18 const fmtflags std::ios_base::hex [static, inherited]

Converts integer input or generates integer output in hexadecimal base.

Definition at line 275 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::num_put< _CharT, _OutIter >::do_put(), and std::basic_ostream< _CharT, _Traits >::operator<<().

5.375.6.19 const openmode std::ios_base::in [static, inherited]

Open for input. Default for `ifstream` and fstream.

Definition at line 383 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::showmanyc(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::underflow(), std::basic_filebuf< _CharT, _Traits >::underflow(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.375.6.20 const fmtflags std::ios_base::internal [static, inherited]

Adds fill characters at a designated internal point in certain generated output, or identical to `right` if no such point is designated.

Definition at line 280 of file ios_base.h.

5.375.6.21 const fmtflags std::ios_base::left [static, inherited]

Adds fill characters on the right (final positions) of certain generated output. (I.e., the thing you print is flush left.).

Definition at line 284 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

5.375.6.22 const fmtflags std::ios_base::oct [static, inherited]

Converts integer input or generates integer output in octal base.

Definition at line 287 of file ios_base.h.

Referenced by std::basic_ostream< _CharT, _Traits >::operator<<().

5.375.6.23 const openmode std::ios_base::out [static, inherited]

Open for output. Default for `ofstream` and fstream.

Definition at line 386 of file ios_base.h.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_ostream< _CharT, _Traits >::tellp(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.375.6.24 const fmtflags std::ios_base::right [static, inherited]

Adds fill characters on the left (initial positions) of certain generated output. (I.e., the thing you print is flush right.).

Definition at line 291 of file ios_base.h.

5.375.6.25 const fmtflags std::ios_base::scientific [static, inherited]

Generates floating-point output in scientific notation.

Definition at line 294 of file ios_base.h.

5.375.6.26 const fmtflags std::ios_base::showbase [static, inherited]

Generates a prefix indicating the numeric base of generated integer output.

Definition at line 298 of file ios_base.h.

5.375.6.27 const fmtflags std::ios_base::showpoint [static, inherited]

Generates a decimal-point character unconditionally in generated floating-point output.

Definition at line 302 of file ios_base.h.

5.375.6.28 const fmtflags std::ios_base::showpos [static, inherited]

Generates a + sign in non-negative generated numeric output.

Definition at line 305 of file ios_base.h.

5.375.6.29 const fmtflags std::ios_base::skipws [static, inherited]

Skips leading white space before certain input operations.

Definition at line 308 of file ios_base.h.

5.375.6.30 const openmode std::ios_base::trunc [static, inherited]

Open for input. Default for `ofstream`.

Definition at line 389 of file ios_base.h.

5.375.6.31 const fmtflags std::ios_base::unitbuf [static, inherited]

Flushes output after each output operation.

Definition at line 311 of file ios_base.h.

5.375.6.32 const fmtflags std::ios_base::uppercase [static, inherited]

Replaces certain lowercase letters with their uppercase equivalents in generated output.

Definition at line 315 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

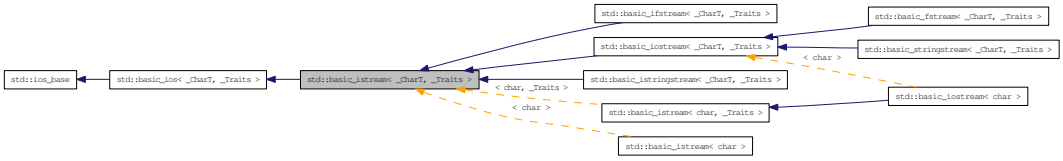
The documentation for this class was generated from the following file:

- istream

5.376 std::basic_istream< _CharT, _Traits > Class Template Reference

Controlling input.

This is the base class for all input streams. It provides text formatting of all builtin types, and communicates with any class derived from basic_streambuf to do the actual input. Inheritance diagram for std::basic_istream< _CharT, _Traits >:



Classes

- class sentry

  Performs setup work for input streams.

Public Types

- typedef ctype< _CharT > __ctype_type
- typedef basic_ios< _CharT, _Traits > **__ios_type**
- typedef basic_istream< _CharT, _Traits > **__istream_type**
- typedef num_get< _CharT, istreambuf_iterator< _CharT, _Traits > > __num_get_type
- typedef basic_streambuf< _CharT, _Traits > **__streambuf_type**
- typedef _CharT char_type
- enum event { **erase_event**, **imbue_event**, **copyfmt_event** }
- typedef void(* event_callback)(event, ios_base &, int)
- typedef _Ios_Fmtflags fmtflags
- typedef _Traits::int_type int_type
- typedef int **io_state**
- typedef _Ios_Iostate iostate
- typedef _Traits::off_type off_type
- typedef int **open_mode**
- typedef _Ios_Openmode openmode
- typedef _Traits::pos_type pos_type
- typedef int **seek_dir**

- typedef _Ios_Seekdir seekdir
- typedef std::streamoff **streamoff**
- typedef std::streampos **streampos**
- typedef _Traits traits_type

Public Member Functions

- basic_istream (__streambuf_type *__sb)
- virtual ~basic_istream ()
- const locale & _M_getloc () const
- void **_M_setstate** (iostate __state)
- bool bad () const
- void clear (iostate __state=goodbit)
- basic_ios & copyfmt (const basic_ios &__rhs)
- bool eof () const
- void exceptions (iostate __except)
- iostate exceptions () const
- bool fail () const
- char_type fill (char_type __ch)
- char_type fill () const
- fmtflags flags (fmtflags __fmtfl)
- fmtflags flags () const
- streamsize gcount () const
- template<>
  basic_istream< wchar_t > & **getline** (char_type *__s, streamsize __n, char_type __delim)
- template<>
  basic_istream< char > & **getline** (char_type *__s, streamsize __n, char_type __delim)
- locale getloc () const
- bool good () const
- template<>
  basic_istream< wchar_t > & **ignore** (streamsize __n, int_type __delim)
- template<>
  basic_istream< wchar_t > & **ignore** (streamsize __n)
- template<>
  basic_istream< char > & **ignore** (streamsize __n, int_type __delim)
- template<>
  basic_istream< char > & **ignore** (streamsize __n)
- locale imbue (const locale &__loc)
- long & iword (int __ix)
- char narrow (char_type __c, char __dfault) const
- streamsize precision (streamsize __prec)

- streamsize precision () const
- void *& pword (int __ix)
- basic_streambuf< _CharT, _Traits > * rdbuf (basic_streambuf< _CharT, _Traits > *__sb)
- basic_streambuf< _CharT, _Traits > * rdbuf () const
- iostate rdstate () const
- void register_callback (event_callback __fn, int __index)
- fmtflags setf (fmtflags __fmtfl, fmtflags __mask)
- fmtflags setf (fmtflags __fmtfl)
- void setstate (iostate __state)
- basic_ostream< _CharT, _Traits > * tie (basic_ostream< _CharT, _Traits > *__tiestr)
- basic_ostream< _CharT, _Traits > * tie () const
- void unsetf (fmtflags __mask)
- char_type widen (char __c) const
- streamsize width (streamsize __wide)
- streamsize width () const

Unformatted Input Functions

All the unformatted input functions have some common behavior. Each starts by constructing a temporary object of type std::basic_istream::sentry with the second argument (noskipws) set to true. This has several effects, concluding with the setting of a status flag; see the sentry documentation for more.

If the sentry status is good, the function tries to extract whatever data is appropriate for the type of the argument.

The number of characters extracted is stored for later retrieval by gcount().

If an exception is thrown during extraction, ios_base::badbit will be turned on in the stream's error state without causing an ios_base::failure to be thrown. The original exception will then be rethrown.

- __istream_type & get (__streambuf_type &__sb)
- __istream_type & get (__streambuf_type &__sb, char_type __delim)
- __istream_type & get (char_type *__s, streamsize __n)
- __istream_type & get (char_type *__s, streamsize __n, char_type __delim)
- __istream_type & get (char_type &__c)
- int_type get ()
- __istream_type & getline (char_type *__s, streamsize __n)
- __istream_type & getline (char_type *__s, streamsize __n, char_type __delim)
- __istream_type & ignore (streamsize __n, int_type __delim)
- __istream_type & ignore (streamsize __n)
- __istream_type & ignore ()
- int_type peek ()
- __istream_type & putback (char_type __c)
- __istream_type & read (char_type *__s, streamsize __n)

- streamsize readsome (char_type *__s, streamsize __n)
- __istream_type & seekg (off_type, ios_base::seekdir)
- __istream_type & seekg (pos_type)
- int sync ()
- pos_type tellg ()
- __istream_type & unget ()

Arithmetic Extractors

All the `operator>>` functions (aka formatted input functions) have some common behavior. Each starts by constructing a temporary object of type std::basic_istream::sentry with the second argument (noskipws) set to false. This has several effects, concluding with the setting of a status flag; see the sentry documentation for more.

If the sentry status is good, the function tries to extract whatever data is appropriate for the type of the argument.

If an exception is thrown during extraction, ios_base::badbit will be turned on in the stream's error state without causing an ios_base::failure to be thrown. The original exception will then be rethrown.

- __istream_type & operator>> (__streambuf_type *__sb)
- __istream_type & operator>> (void *&__p)
- __istream_type & operator>> (long double &__f)
- __istream_type & operator>> (double &__f)
- __istream_type & operator>> (float &__f)
- __istream_type & operator>> (unsigned long long &__n)
- __istream_type & operator>> (long long &__n)
- __istream_type & operator>> (unsigned long &__n)
- __istream_type & operator>> (long &__n)
- __istream_type & operator>> (unsigned int &__n)
- __istream_type & operator>> (int &__n)
- __istream_type & operator>> (unsigned short &__n)
- __istream_type & operator>> (short &__n)
- __istream_type & operator>> (bool &__n)

- __istream_type & operator>> (ios_base &(*__pf)(ios_base &))
- __istream_type & operator>> (__ios_type &(*__pf)(__ios_type &))
- __istream_type & operator>> (__istream_type &(*__pf)(__istream_type &))

Static Public Member Functions

- static bool sync_with_stdio (bool __sync=true)
- static int xalloc () throw ()

Static Public Attributes

- static const fmtflags adjustfield
- static const openmode app
- static const openmode ate
- static const iostate badbit
- static const fmtflags basefield
- static const seekdir beg
- static const openmode binary
- static const fmtflags boolalpha
- static const seekdir cur
- static const fmtflags dec
- static const seekdir end
- static const iostate eofbit
- static const iostate failbit
- static const fmtflags fixed
- static const fmtflags floatfield
- static const iostate goodbit
- static const fmtflags hex
- static const openmode in
- static const fmtflags internal
- static const fmtflags left
- static const fmtflags oct
- static const openmode out
- static const fmtflags right
- static const fmtflags scientific
- static const fmtflags showbase
- static const fmtflags showpoint
- static const fmtflags showpos
- static const fmtflags skipws
- static const openmode trunc
- static const fmtflags unitbuf
- static const fmtflags uppercase

Protected Types

- enum { **_S_local_word_size** }

Protected Member Functions

- void **_M_cache_locale** (const locale &__loc)
- void **_M_call_callbacks** (event __ev) throw ()
- void **_M_dispose_callbacks** (void) throw ()
- template<typename _ValueT >
  __istream_type & **_M_extract** (_ValueT &__v)
- _Words & **_M_grow_words** (int __index, bool __iword)
- void **_M_init** () throw ()
- void init (basic_streambuf< _CharT, _Traits > *__sb)

Protected Attributes

- _Callback_list * **_M_callbacks**
- const __ctype_type * **_M_ctype**
- iostate **_M_exception**
- char_type **_M_fill**
- bool **_M_fill_init**
- fmtflags **_M_flags**
- streamsize _M_gcount
- locale **_M_ios_locale**
- _Words **_M_local_word** [_S_local_word_size]
- const __num_get_type * **_M_num_get**
- const __num_put_type * **_M_num_put**
- streamsize **_M_precision**
- basic_streambuf< _CharT, _Traits > * **_M_streambuf**
- iostate **_M_streambuf_state**
- basic_ostream< _CharT, _Traits > * **_M_tie**
- streamsize **_M_width**
- _Words * **_M_word**
- int **_M_word_size**
- _Words **_M_word_zero**

Friends

- class **sentry**

- typedef num_put< _CharT, ostreambuf_iterator< _CharT, _Traits > > __num_put_type
- operator void * () const
- bool operator! () const

5.376.1 Detailed Description

template<typename _CharT, typename _Traits> class std::basic_istream< _CharT, _Traits >

Controlling input.

This is the base class for all input streams. It provides text formatting of all builtin types, and communicates with any class derived from basic_streambuf to do the actual input.

Definition at line 55 of file istream.

5.376.2 Member Typedef Documentation

5.376.2.1 template<typename _CharT, typename _Traits> typedef ctype<_CharT> std::basic_istream< _CharT, _Traits >::__ctype_type

These are non-standard types.

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 71 of file istream.

5.376.2.2 template<typename _CharT, typename _Traits> typedef num_get<_CharT, istreambuf_iterator<_CharT, _Traits> > std::basic_istream< _CharT, _Traits >::__num_get_type

These are non-standard types.

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 70 of file istream.

5.376.2.3 template<typename _CharT, typename _Traits> typedef num_put<_CharT, ostreambuf_iterator<_CharT, _Traits> > std::basic_ios< _CharT, _Traits >::__num_put_type [inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Reimplemented in std::basic_ostream< _CharT, _Traits >, std::basic_ostream< char, _Traits >, and std::basic_ostream< char >.

Definition at line 84 of file basic_ios.h.

5.376.2.4 template<typename _CharT, typename _Traits> typedef _CharT std::basic_istream< _CharT, _Traits >::char_type

These are standard types. They permit a standardized way of referring to names of (or names dependant on) the template parameters, which are specific to the implementation.

Reimplemented from std::basic_ios< _CharT, _Traits >.

Reimplemented in std::basic_ifstream< _CharT, _Traits >, std::basic_fstream< _CharT, _Traits >, std::basic_iostream< _CharT, _Traits >, std::basic_istringstream< _CharT, _Traits, _Alloc >, std::basic_stringstream< _CharT, _Traits, _Alloc >, and std::basic_iostream< char >.

Definition at line 59 of file istream.

5.376.2.5 typedef void(* std::ios_base::event_callback)(event, ios_base &, int) [inherited]

The type of an event callback function.

Parameters:

event One of the members of the event enum.

ios_base Reference to the ios_base object.

int The integer provided when the callback was registered.

Event callbacks are user defined functions that get called during several ios_base and basic_ios functions, specifically imbue(), copyfmt(), and ~ios().

Definition at line 444 of file ios_base.h.

5.376.2.6 typedef _Ios_Fmtflags std::ios_base::fmtflags [inherited]

This is a bitmask type. *_Ios_Fmtflags* is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type fmtflags are:

- boolalpha
- dec
- fixed
- hex
- internal

- left
- oct
- right
- scientific
- showbase
- showpoint
- showpos
- skipws
- unitbuf
- uppercase
- adjustfield
- basefield
- floatfield

Definition at line 263 of file ios_base.h.

5.376.2.7 template<typename _CharT, typename _Traits> typedef _Traits::int_type std::basic_istream< _CharT, _Traits >::int_type

These are non-standard types.

Reimplemented from std::basic_ios< _CharT, _Traits >.

Reimplemented in std::basic_ifstream< _CharT, _Traits >, std::basic_fstream< _CharT, _Traits >, std::basic_iostream< _CharT, _Traits >, std::basic_istringstream< _CharT, _Traits, _Alloc >, std::basic_stringstream< _CharT, _Traits, _Alloc >, and std::basic_iostream< char >.

Definition at line 60 of file istream.

5.376.2.8 typedef _Ios_Iostate std::ios_base::iostate [inherited]

This is a bitmask type. `_Ios_Iostate` is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type iostate are:

- badbit

- eofbit
- failbit
- goodbit

Definition at line 338 of file ios_base.h.

5.376.2.9 template<typename _CharT, typename _Traits> typedef _Traits::off_type std::basic_istream< _CharT, _Traits >::off_type

These are non-standard types.

Reimplemented from std::basic_ios< _CharT, _Traits >.

Reimplemented in std::basic_ifstream< _CharT, _Traits >, std::basic_fstream< _CharT, _Traits >, std::basic_iostream< _CharT, _Traits >, std::basic_istringstream< _CharT, _Traits, _Alloc >, std::basic_stringstream< _CharT, _Traits, _Alloc >, and std::basic_iostream< char >.

Definition at line 62 of file istream.

5.376.2.10 typedef _Ios_Openmode std::ios_base::openmode [inherited]

This is a bitmask type. *_Ios_Openmode* is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type openmode are:

- app
- ate
- binary
- in
- out
- trunc

Definition at line 369 of file ios_base.h.

5.376.2.11 template<typename _CharT, typename _Traits> typedef _Traits::pos_type std::basic_istream< _CharT, _Traits >::pos_type

These are non-standard types.

Reimplemented from std::basic_ios< _CharT, _Traits >.

Reimplemented in std::basic_ifstream< _CharT, _Traits >, std::basic_fstream< _CharT, _Traits >, std::basic_iostream< _CharT, _Traits >, std::basic_istringstream< _CharT, _Traits, _Alloc >, std::basic_stringstream< _CharT, _Traits, _Alloc >, and std::basic_iostream< char >.

Definition at line 61 of file istream.

5.376.2.12 typedef _Ios_Seekdir std::ios_base::seekdir [inherited]

This is an enumerated type. *_Ios_Seekdir* is implementation-defined. Defined values of type seekdir are:

- beg
- cur, equivalent to SEEK_CUR in the C standard library.
- end, equivalent to SEEK_END in the C standard library.

Definition at line 401 of file ios_base.h.

5.376.2.13 template<typename _CharT, typename _Traits> typedef _Traits std::basic_istream< _CharT, _Traits >::traits_type

These are non-standard types.

Reimplemented from std::basic_ios< _CharT, _Traits >.

Reimplemented in std::basic_ifstream< _CharT, _Traits >, std::basic_fstream< _CharT, _Traits >, std::basic_iostream< _CharT, _Traits >, std::basic_istringstream< _CharT, _Traits, _Alloc >, std::basic_stringstream< _CharT, _Traits, _Alloc >, and std::basic_iostream< char >.

Definition at line 63 of file istream.

5.376.3 Member Enumeration Documentation

5.376.3.1 enum std::ios_base::event [inherited]

The set of events that may be passed to an event callback. erase_event is used during ~ios() and copyfmt(). imbue_event is used during imbue(). copyfmt_event is used during copyfmt().

Definition at line 427 of file ios_base.h.

5.376.4 Constructor & Destructor Documentation

5.376.4.1 template<typename _CharT, typename _Traits> std::basic_istream< _CharT, _Traits >::basic_istream (__streambuf_type * __sb) [inline, explicit]

Base constructor. This ctor is almost never called by the user directly, rather from derived classes' initialization lists, which pass a pointer to their own stream buffer.

Definition at line 91 of file istream.

5.376.4.2 template<typename _CharT, typename _Traits> virtual std::basic_istream< _CharT, _Traits >::~basic_istream () [inline, virtual]

Base destructor. This does very little apart from providing a virtual base dtor.

Definition at line 101 of file istream.

5.376.5 Member Function Documentation

5.376.5.1 const locale& std::ios_base::_M_getloc () const [inline, inherited]

Locale access.

Returns:

A reference to the current locale.

Like getloc above, but returns a reference instead of generating a copy.

Definition at line 705 of file ios_base.h.

Referenced by std::money_get< _CharT, _InIter >::do_get(), std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_date(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_time(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::time_put< _CharT, _OutIter >::do_put(), std::num_put< _CharT, _OutIter >::do_put(), and std::time_put< _CharT, _OutIter >::put().

5.376.5.2 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::bad () const [inline, inherited]

Fast error checking.

Returns:

True if the badbit is set.

Note that other iostate flags may also be set.

Definition at line 201 of file basic_ios.h.

5.376.5.3 template<typename _CharT , typename _Traits > void std::basic_ios< _CharT, _Traits >::clear (iostate *__state* = goodbit) [inline, inherited]

[Re]sets the error state.

Parameters:

state The new state flag(s) to set.

See std::ios_base::iostate for the possible bit values. Most users will not need to pass an argument.

Definition at line 40 of file basic_ios.tcc.

Referenced by std::basic_ios< _CharT, _Traits >::rdbuf().

5.376.5.4 template<typename _CharT , typename _Traits > basic_ios< _CharT, _Traits > & std::basic_ios< _CharT, _Traits >::copyfmt (const basic_ios< _CharT, _Traits > & *__rhs*) [inline, inherited]

Copies fields of __rhs into this.

Parameters:

__rhs The source values for the copies.

Returns:

Reference to this object.

All fields of __rhs are copied into this object except that rdbuf() and rdstate() remain unchanged. All values in the pword and iword arrays are copied. Before copying, each callback is invoked with erase_event. After copying, each (new) callback is invoked with copyfmt_event. The final step is to copy exceptions().

Definition at line 62 of file basic_ios.tcc.

References std::basic_ios< _CharT, _Traits >::exceptions(), std::basic_ios< _CharT, _Traits >::fill(), std::ios_base::flags(), std::ios_base::getloc(), std::ios_base::precision(), std::basic_ios< _CharT, _Traits >::tie(), and std::ios_base::width().

5.376.5.5 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::eof () const [inline, inherited]

Fast error checking.

Returns:

True if the eofbit is set.

Note that other iostate flags may also be set.

Definition at line 180 of file basic_ios.h.

Referenced by std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_istream< _CharT, _Traits >::putback(), and std::basic_istream< _CharT, _Traits >::unget().

5.376.5.6 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::exceptions (iostate *__except*) [inline, inherited]

Throwing exceptions on errors.

Parameters:

except The new exceptions mask.

By default, error flags are set silently. You can set an exceptions mask for each stream; if a bit in the mask becomes set in the error flags, then an exception of type std::ios_base::failure is thrown.

If the error flag is already set when the exceptions mask is added, the exception is immediately thrown. Try running the following under GCC 3.1 or later:

```
#include <iostream>
#include <fstream>
#include <exception>

int main()
{
    std::set_terminate (__gnu_cxx::__verbose_terminate_handler);

    std::ifstream f ("/etc/motd");

    std::cerr << "Setting badbit\n";
    f.setstate (std::ios_base::badbit);

    std::cerr << "Setting exception mask\n";
    f.exceptions (std::ios_base::badbit);
}
```

Definition at line 247 of file basic_ios.h.

5.376.5.7 template<typename _CharT, typename _Traits> iostate std::basic_ios< _CharT, _Traits >::exceptions () const [inline, inherited]

Throwing exceptions on errors.

Returns:

The current exceptions mask.

This changes nothing in the stream. See the one-argument version of exceptions(iostate) for the meaning of the return value.

Definition at line 212 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.376.5.8 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::fail () const [inline, inherited]

Fast error checking.

Returns:

True if either the badbit or the failbit is set.

Checking the badbit in fail() is historical practice. Note that other iostate flags may also be set.

Definition at line 191 of file basic_ios.h.

Referenced by std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_ostream< _CharT, _Traits >::tellp(), and std::regex_traits< _Ch_type >::value().

5.376.5.9 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::fill (char_type __ch) [inline, inherited]

Sets a new *empty* character.

Parameters:

ch The new character.

Returns:

The previous fill character.

The fill character is used to fill out space when P+ characters have been requested (e.g., via setw), Q characters are actually used, and Q<P. It defaults to a space (' ') in the current locale.

Definition at line 380 of file basic_ios.h.

5.376.5.10 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::fill () const [inline, inherited]

Retrieves the *empty* character.

Returns:

The current fill character.

It defaults to a space (' ') in the current locale.

Definition at line 360 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.376.5.11 fmtflags std::ios_base::flags (fmtflags *__fmtfl*) [inline, inherited]

Setting new format flags all at once.

Parameters:

fmtfl The new flags to set.

Returns:

The previous format control flags.

This function overwrites all the format flags with *fmtfl*.

Definition at line 561 of file ios_base.h.

5.376.5.12 fmtflags std::ios_base::flags () const [inline, inherited]

Access to format flags.

Returns:

The format control flags for both input and output.

Definition at line 550 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::num_get< _CharT, _InIter >::do_get(), std::num_put< _CharT, _OutIter >::do_put(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator<<(), and std::operator>>().

5.376.5.13 template<typename _CharT, typename _Traits> streamsize std::basic_istream< _CharT, _Traits >::gcount () const [inline]

Character counting.

Returns:

The number of characters extracted by the previous unformatted input function dispatched for this stream.

Definition at line 249 of file istream.

5.376.5.14 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::get (__streambuf_type & *__sb*) [inline]

Extraction into another streambuf.

Parameters:

sb A streambuf in which to store data.

Returns:

∗this

Returns `get`(sb,widen('\n')).

Definition at line 366 of file istream.

5.376.5.15 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::get (__streambuf_type & *__sb*, char_type *__delim*) [inline]

Extraction into another streambuf.

Parameters:

sb A streambuf in which to store data.

delim A "stop" character.

Returns:

∗this

Characters are extracted and inserted into *sb* until one of the following happens:

- the input sequence reaches EOF
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted)
- the next character equals *delim* (in this case, the character is not extracted)
- an exception occurs (and in this case is caught)

If no characters are stored, failbit is set in the stream's error state.

Definition at line 356 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), std::basic_streambuf< _CharT, _Traits >::snextc(), and std::basic_streambuf< _CharT, _Traits >::sputc().

5.376.5.16 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::get (char_type ∗ __s, streamsize __n) [inline]

Simple multiple-character extraction.

Parameters:

s Pointer to an array.

n Maximum number of characters to store in *s*.

Returns:

∗this

Returns `get`(s,n,widen('\n')).

Definition at line 333 of file istream.

5.376.5.17 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::get (char_type * __s, streamsize __n, char_type __delim) [inline]

Simple multiple-character extraction.

Parameters:

s Pointer to an array.

n Maximum number of characters to store in *s*.

delim A "stop" character.

Returns:

*this

Characters are extracted and stored into *s* until one of the following happens:

- `n-1` characters are stored
- the input sequence reaches EOF
- the next character equals *delim*, in which case the character is not extracted

If no characters are stored, failbit is set in the stream's error state.

In any case, a null character is stored into the next location in the array.

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 309 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), and std::basic_streambuf< _CharT, _Traits >::snextc().

5.376.5.18 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::get (char_type & __c) [inline]

Simple extraction.

Parameters:

c The character in which to store data.

Returns:

∗this

Tries to extract a character and store it in *c*. If none are available, sets failbit and returns traits::eof().

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 272 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.376.5.19 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits >::int_type std::basic_istream< _CharT, _Traits >::get (void) [inline]

Simple extraction.

Returns:

A character, or eof().

Tries to extract a character. If none are available, sets failbit and returns traits::eof().

Definition at line 236 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.376.5.20 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::getline (char_type ∗ __s, streamsize __n) [inline]

String extraction.

Parameters:

s A character array in which to store the data.

n Maximum number of characters to extract.

Returns:

*this

Returns `getline`(s,n,widen('\n')).

Definition at line 406 of file istream.

Referenced by std::basic_istream< char >::getline().

5.376.5.21 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::getline (char_type * *__s*, streamsize *__n*, char_type *__delim*) [inline]

String extraction.

Parameters:

s A character array in which to store the data.

n Maximum number of characters to extract.

delim A "stop" character.

Returns:

*this

Extracts and stores characters into *s* until one of the following happens. Note that these criteria are required to be tested in the order listed here, to allow an input line to exactly fill the *s* array without setting failbit.

1. the input sequence reaches end-of-file, in which case eofbit is set in the stream error state
2. the next character equals `delim`, in which case the character is extracted (and therefore counted in `gcount()`) but not stored
3. `n-1` characters are stored, in which case failbit is set in the stream error state

If no characters are extracted, failbit is set. (An empty line of input should therefore not cause failbit to be set.)

In any case, a null character is stored in the next location in the array.

Definition at line 400 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_streambuf< _CharT, _Traits >::sbumpc(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), and std::basic_streambuf< _CharT, _Traits >::snextc().

5.376.5.22 locale std::ios_base::getloc () const [inline, inherited]

Locale access.

Returns:

A copy of the current locale.

If `imbue(loc)` has previously been called, then this function returns `loc`. Otherwise, it returns a copy of `std::locale()`, the global C++ locale.

Definition at line 694 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::money_put< _CharT, _OutIter >::do_put(), std::basic_ios< _CharT, _Traits >::imbue(), std::operator>>(), and std::ws().

5.376.5.23 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::good () const [inline, inherited]

Fast error checking.

Returns:

True if no error flags are set.

A wrapper around rdstate.

Definition at line 170 of file basic_ios.h.

5.376.5.24 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::ignore (streamsize __n, int_type __delim) [inline]

Extraction into another streambuf.

Parameters:

sb A streambuf in which to store data.

Returns:

∗this

Returns `get`(sb,widen('\n')).

Definition at line 555 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_streambuf< _CharT, _Traits >::sbumpc(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), and std::basic_streambuf< _CharT, _Traits >::snextc().

5.376.5.25 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::ignore (streamsize __n) [inline]

Extraction into another streambuf.

Parameters:

sb A streambuf in which to store data.

Returns:

∗this

Returns `get`(sb,widen('\n')).

Definition at line 493 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), and std::basic_streambuf< _CharT, _Traits >::snextc().

5.376.5.26 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::ignore (void) [inline]

Discarding characters.

Parameters:

n Number of characters to discard.

delim A "stop" character.

Returns:

*this

Extracts characters and throws them away until one of the following happens:

- if *n* != std::numeric_limits<int>::max(), *n* characters are extracted
- the input sequence reaches end-of-file
- the next character equals *delim* (in this case, the character is extracted); note that this condition will never occur if *delim* equals traits::eof().

NB: Provide three overloads, instead of the single function (with defaults) mandated by the Standard: this leads to a better performing implementation, while still conforming to the Standard.

Definition at line 460 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_streambuf< _CharT, _Traits >::sbumpc(), and std::basic_ios< _CharT, _Traits >::setstate().

5.376.5.27 template<typename _CharT , typename _Traits > locale std::basic_ios< _CharT, _Traits >::imbue (const locale & *__loc*) [inline, inherited]

Moves to a new locale.

Parameters:

loc The new locale.

Returns:

The previous locale.

Calls ios_base::imbue(loc), and if a stream buffer is associated with this stream, calls that buffer's pubimbue(loc).

Additional l10n notes are at http://gcc.gnu.org/onlinedocs/libstdc++/manual/localizati

Reimplemented from std::ios_base.

Definition at line 113 of file basic_ios.tcc.

References std::ios_base::getloc(), and std::basic_ios< _CharT, _Traits >::rdbuf().

Referenced by std::operator<<().

5.376.5.28 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::init (basic_streambuf< _CharT, _Traits > * *__sb*) [inline, protected, inherited]

All setup is performed here. This is called from the public constructor. It is not virtual and cannot be redefined.

Definition at line 125 of file basic_ios.tcc.

References std::ios_base::badbit, and std::ios_base::goodbit.

5.376.5.29 long& std::ios_base::iword (int *__ix*) [inline, inherited]

Access to integer array.

Parameters:

__ix Index into the array.

Returns:

A reference to an integer associated with the index.

The iword function provides access to an array of integers that can be used for any purpose. The array grows as required to hold the supplied index. All integers in the array are initialized to 0.

The implementation reserves several indices. You should use xalloc to obtain an index that is safe to use. Also note that since the array can grow dynamically, it is not safe to hold onto the reference.

Definition at line 740 of file ios_base.h.

5.376.5.30 template<typename _CharT, typename _Traits> char std::basic_ios< _CharT, _Traits >::narrow (char_type *__c*, char *__dfault*) const [inline, inherited]

Squeezes characters.

Parameters:

c The character to narrow.

dfault The character to narrow.

Returns:

The narrowed character.

Maps a character of `char_type` to a character of `char`, if possible.

Returns the result of

```
std::use_facet<ctype<char_type> >(getloc()).narrow(c,dfault)
```

Additional l10n notes are at http://gcc.gnu.org/onlinedocs/libstdc++/manual/localizati

Definition at line 420 of file basic_ios.h.

5.376.5.31 template<typename _CharT, typename _Traits> std::basic_ios< _CharT, _Traits >::operator void * () const [inline, inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Definition at line 111 of file basic_ios.h.

5.376.5.32 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::operator! () const [inline, inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Definition at line 115 of file basic_ios.h.

5.376.5.33 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::operator>> (__streambuf_type * *__sb*) [inline]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,

- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 204 of file istream.tcc.

References std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.376.5.34 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (void *& __p) [inline]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 215 of file istream.

5.376.5.35 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (long double & __f) [inline]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 211 of file istream.

5.376.5.36 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (double & __f) [inline]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 207 of file istream.

5.376.5.37 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (float & __f) [inline]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 203 of file istream.

5.376.5.38 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (unsigned long long & __n) [inline]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,

- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 198 of file istream.

5.376.5.39 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (long long & __n) [inline]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 194 of file istream.

5.376.5.40 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (unsigned long & __n) [inline]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 189 of file istream.

5.376.5.41 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (long & __n) [inline]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 185 of file istream.

5.376.5.42 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (unsigned int & __n) [inline]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 181 of file istream.

5.376.5.43 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::operator>> (int & __n) [inline]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,

- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 159 of file istream.tcc.

References std::ios_base::badbit, std::ios_base::failbit, std::num_get< _CharT, _InIter >::get(), std::ios_base::goodbit, and std::basic_ios< _CharT, _Traits >::setstate().

5.376.5.44 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (unsigned short & __n) [inline]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 174 of file istream.

5.376.5.45 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::operator>> (short & __n) [inline]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 114 of file istream.tcc.

References std::ios_base::badbit, std::ios_base::failbit, std::num_get< _CharT, _InIter >::get(), std::ios_base::goodbit, and std::basic_ios< _CharT, _Traits >::setstate().

5.376.5.46 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (bool & __n) [inline]

Basic arithmetic extractors.

Parameters:

A variable of builtin type.

Returns:

`*this` if successful

These functions use the stream's current locale (specifically, the `num_get` facet) to parse the input data.

Definition at line 167 of file istream.

5.376.5.47 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (ios_base &(*)(ios_base &) __pf) [inline]

Interface for manipulators. Manipulators such as `std::ws` and `std::dec` use these functions in constructs like `std::cin >> std::ws`. For more information, see

the iomanip header.

Definition at line 131 of file istream.

5.376.5.48 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (__ios_type &(*)(__ios_type &) *__pf*) [inline]

Interface for manipulators. Manipulators such as `std::ws` and `std::dec` use these functions in constructs like `std::cin >> std::ws`. For more information, see the iomanip header.

Definition at line 124 of file istream.

5.376.5.49 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (__istream_type &(*)(__istream_type &) *__pf*) [inline]

Interface for manipulators. Manipulators such as `std::ws` and `std::dec` use these functions in constructs like `std::cin >> std::ws`. For more information, see the iomanip header.

Definition at line 120 of file istream.

5.376.5.50 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits >::int_type std::basic_istream< _CharT, _Traits >::peek (void) [inline]

Looking ahead in the stream.

Returns:

The next character, or eof().

If, after constructing the sentry object, `good()` is false, returns `traits::eof()`. Otherwise reads but does not extract the next input character.

Definition at line 620 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.376.5.51 streamsize std::ios_base::precision (streamsize *__prec*) [inline, inherited]

Changing flags.

Parameters:

prec The new precision value.

Returns:

The previous value of precision().

Definition at line 629 of file ios_base.h.

5.376.5.52 streamsize std::ios_base::precision () const [inline, inherited]

Flags access.

Returns:

The precision to generate on certain output operations.

Be careful if you try to give a definition of *precision* here; see DR 189.

Definition at line 620 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), and std::operator<<().

5.376.5.53 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::putback (char_type *__c*) [inline]

Unextracting a single character.

Parameters:

c The character to push back into the input stream.

Returns:

*this

If `rdbuf()` is not null, calls `rdbuf()->sputbackc(c)`.

If `rdbuf()` is null or if `sputbackc()` fails, sets badbit in the error state.

Note:

Since no characters are extracted, the next call to `gcount()` will return 0, as required by DR 60.

Definition at line 711 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), and std::basic_streambuf< _CharT, _Traits >::sputbackc().

Referenced by std::operator>>().

5.376.5.54 void*& std::ios_base::pword (int __ix) [inline, inherited]

Access to void pointer array.

Parameters:

__ix Index into the array.

Returns:

A reference to a void* associated with the index.

The pword function provides access to an array of pointers that can be used for any purpose. The array grows as required to hold the supplied index. All pointers in the array are initialized to 0.

The implementation reserves several indices. You should use xalloc to obtain an index that is safe to use. Also note that since the array can grow dynamically, it is not safe to hold onto the reference.

Definition at line 761 of file ios_base.h.

5.376.5.55 template<typename _CharT, typename _Traits> basic_streambuf< _CharT, _Traits > * std::basic_ios< _CharT, _Traits >::rdbuf (basic_streambuf< _CharT, _Traits > * __sb) [inline, inherited]

Changing the underlying buffer.

Parameters:

sb The new stream buffer.

Returns:

The previous stream buffer.

Associates a new buffer with the current stream, and clears the error state.

Due to historical accidents which the LWG refuses to correct, the I/O library suffers from a design error: this function is hidden in derived classes by overrides of the zero-argument rdbuf(), which is non-virtual for hysterical raisins. As a result, you must use explicit qualifications to access this function via any derived class. For example:

```
std::fstream     foo;          // or some other derived type
std::streambuf*  p = .....;

foo.ios::rdbuf(p);             // ios == basic_ios<char>
```

Definition at line 52 of file basic_ios.tcc.

References std::basic_ios< _CharT, _Traits >::clear().

5.376.5.56 template<typename _CharT, typename _Traits> basic_streambuf<_CharT, _Traits>* std::basic_ios< _CharT, _Traits >::rdbuf () const [inline, inherited]

Accessing the underlying buffer.

Returns:

The current stream buffer.

This does not change the state of the stream.

Reimplemented in std::basic_ifstream< _CharT, _Traits >, std::basic_ofstream< _CharT, _Traits >, std::basic_fstream< _CharT, _Traits >, std::basic_istringstream< _CharT, _Traits, _Alloc >, std::basic_ostringstream< _CharT, _Traits, _Alloc >, and std::basic_stringstream< _CharT, _Traits, _Alloc >.

Definition at line 311 of file basic_ios.h.

Referenced by std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ios< _CharT, _Traits >::imbue(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::basic_istream< _CharT, _Traits >::operator>>(), std::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_ostream< _CharT, _Traits >::tellp(), std::basic_istream< _CharT, _Traits >::unget(), and std::ws().

5.376.5.57 template<typename _CharT, typename _Traits> iostate std::basic_ios< _CharT, _Traits >::rdstate () const [inline, inherited]

Returns the error state of the stream buffer.

Returns:

A bit pattern (well, isn't everything?)

See std::ios_base::iostate for the possible bit values. Most users will call one of the interpreting wrappers, e.g., good().

Definition at line 127 of file basic_ios.h.

5.376.5.58 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::read (char_type * __s, streamsize __n) [inline]

Extraction without delimiters.

Parameters:

s A character array.

n Maximum number of characters to store.

Returns:

*this

If the stream state is `good()`, extracts characters and stores them into *s* until one of the following happens:

- *n* characters are stored
- the input sequence reaches end-of-file, in which case the error state is set to `failbit|eofbit`.

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 650 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.376.5.59 template<typename _CharT , typename _Traits > streamsize std::basic_istream< _CharT, _Traits >::readsome (char_type * __s, streamsize __n) [inline]

Extraction until the buffer is exhausted, but no more.

Parameters:

s A character array.

n Maximum number of characters to store.

Returns:

The number of characters extracted.

Extracts characters and stores them into *s* depending on the number of characters remaining in the streambuf's buffer, `rdbuf()->in_avail()`, called `A` here:

- if `A == -1`, sets eofbit and extracts no characters
- if `A == 0`, extracts no characters
- if `A > 0`, extracts `min(A,n)`

The goal is to empty the current buffer, and to not request any more from the external input sequence controlled by the streambuf.

Definition at line 679 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::ios_base::eofbit, std::ios_base::goodbit, std::min(), std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.376.5.60 void std::ios_base::register_callback (event_callback __fn, int __index) [inherited]

Add the callback __fn with parameter __index.

Parameters:

__fn The function to add.

__index The integer to pass to the function when invoked.

Registers a function as an event callback with an integer parameter to be passed to the function when invoked. Multiple copies of the function are allowed. If there are multiple callbacks, they are invoked in the order they were registered.

5.376.5.61 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::seekg (off_type *__off*, ios_base::seekdir *__dir*) [inline]

Changing the current read position.

Parameters:

off A file offset object.

dir The direction in which to seek.

Returns:

*this

If `fail()` is not true, calls `rdbuf()->pubseekoff(off,dir)`. If that function fails, sets failbit.

Note:

This function does not count the number of characters extracted, if any, and therefore does not affect the next call to `gcount()`.

Definition at line 870 of file istream.tcc.

References std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::failbit, std::ios_base::goodbit, std::ios_base::in, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.376.5.62 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::seekg (pos_type *__pos*) [inline]

Changing the current read position.

Parameters:

pos A file position object.

Returns:

*this

If `fail()` is not true, calls `rdbuf()->pubseekpos(pos)`. If that function fails, sets failbit.

Note:

This function does not count the number of characters extracted, if any, and therefore does not affect the next call to `gcount()`.

Definition at line 837 of file istream.tcc.

References std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::failbit, std::ios_base::goodbit, std::ios_base::in, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.376.5.63 fmtflags std::ios_base::setf (fmtflags *__fmtfl*, fmtflags *__mask*) [inline, inherited]

Setting new format flags.

Parameters:

fmtfl Additional flags to set.

mask The flags mask for *fmtfl*.

Returns:

The previous format control flags.

This function clears *mask* in the format flags, then sets *fmtfl* & *mask*. An example mask is `ios_base::adjustfield`.

Definition at line 594 of file ios_base.h.

5.376.5.64 fmtflags std::ios_base::setf (fmtflags *__fmtfl*) [inline, inherited]

Setting new format flags.

Parameters:

fmtfl Additional flags to set.

Returns:

The previous format control flags.

This function sets additional flags in format control. Flags that were previously set remain set.

Definition at line 577 of file ios_base.h.

Referenced by std::boolalpha(), std::dec(), std::fixed(), std::hex(), std::internal(), std::left(), std::oct(), std::right(), std::scientific(), std::showbase(), std::showpoint(), std::showpos(), std::skipws(), std::unitbuf(), and std::uppercase().

5.376.5.65 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::setstate (iostate *__state*) [inline, inherited]

Sets additional flags in the error state.

Parameters:

state The additional state flag(s) to set.

See std::ios_base::iostate for the possible bit values.

Definition at line 147 of file basic_ios.h.

Referenced by std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::basic_istream< _CharT, _Traits >::operator>>(), std::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), std::basic_istream< _CharT, _Traits >::unget(), and std::ws().

5.376.5.66 template<typename _CharT , typename _Traits > int std::basic_istream< _CharT, _Traits >::sync (void) [inline]

Synchronizing the stream buffer.

Returns:

0 on success, -1 on failure

If `rdbuf()` is a null pointer, returns -1.

Otherwise, calls `rdbuf()->pubsync()`, and if that returns -1, sets badbit and returns -1.

Otherwise, returns 0.

Note:

This function does not count the number of characters extracted, if any, and therefore does not affect the next call to `gcount()`.

Definition at line 777 of file istream.tcc.

References std::ios_base::badbit, std::ios_base::goodbit, std::basic_streambuf< _CharT, _Traits >::pubsync(), std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.376.5.67 static bool std::ios_base::sync_with_stdio (bool *__sync* = `true`) `[static, inherited]`

Interaction with the standard C I/O objects.

Parameters:

sync Whether to synchronize or not.

Returns:

True if the standard streams were previously synchronized.

The synchronization referred to is *only* that between the standard C facilities (e.g., stdout) and the standard C++ objects (e.g., cout). User-declared streams are unaffected. See http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch28s02.html

5.376.5.68 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits >::pos_type std::basic_istream< _CharT, _Traits >::tellg (void) `[inline]`

Getting the current read position.

Returns:

A file position object.

If `fail()` is not false, returns `pos_type(-1)` to indicate failure. Otherwise returns `rdbuf()->pubseekoff(0,cur,in)`.

Note:

This function does not count the number of characters extracted, if any, and therefore does not affect the next call to `gcount()`.

Definition at line 813 of file istream.tcc.

References std::ios_base::badbit, std::ios_base::cur, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::in, and std::basic_ios< _CharT, _Traits >::rdbuf().

5.376.5.69 template<typename _CharT, typename _Traits> basic_ostream<_CharT, _Traits>* std::basic_ios< _CharT, _Traits >::tie (basic_ostream< _CharT, _Traits > * *__tiestr*) [inline, inherited]

Ties this stream to an output stream.

Parameters:

tiestr The output stream.

Returns:

The previously tied output stream, or NULL if the stream was not tied.

This sets up a new tie; see tie() for more.

Definition at line 297 of file basic_ios.h.

5.376.5.70 template<typename _CharT, typename _Traits> basic_ostream<_CharT, _Traits>* std::basic_ios< _CharT, _Traits >::tie () const [inline, inherited]

Fetches the current *tied* stream.

Returns:

A pointer to the tied stream, or NULL if the stream is not tied.

A stream may be *tied* (or synchronized) to a second output stream. When this stream performs any I/O, the tied stream is first flushed. For example, `std::cin` is tied to `std::cout`.

Definition at line 285 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.376.5.71 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::unget (void) [inline]

Unextracting the previous character.

Returns:

*this

If `rdbuf()` is not null, calls `rdbuf()->sungetc(c)`.

If `rdbuf()` is null or if `sungetc()` fails, sets badbit in the error state.

Note:

Since no characters are extracted, the next call to `gcount()` will return 0, as required by DR 60.

Definition at line 744 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), and std::basic_streambuf< _CharT, _Traits >::sungetc().

5.376.5.72 void std::ios_base::unsetf (fmtflags *__mask*) [inline, inherited]

Clearing format flags.

Parameters:

mask The flags to unset.

This function clears *mask* in the format flags.

Definition at line 609 of file ios_base.h.

Referenced by std::noboolalpha(), std::noshowbase(), std::noshowpoint(), std::noshowpos(), std::noskipws(), std::nounitbuf(), and std::nouppercase().

5.376.5.73 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::widen (char *__c*) const [inline, inherited]

Widens characters.

Parameters:

c The character to widen.

Returns:

The widened character.

Maps a character of `char` to a character of `char_type`.

Returns the result of

```
std::use_facet<ctype<char_type> >(getloc()).widen(c)
```

Additional l10n notes are at http://gcc.gnu.org/onlinedocs/libstdc++/manual/localization.html

Definition at line 439 of file basic_ios.h.

Referenced by std::endl(), std::getline(), and std::operator>>().

5.376.5.74 streamsize std::ios_base::width (streamsize __*wide*) [inline, inherited]

Changing flags.

Parameters:

wide The new width value.

Returns:

The previous value of width().

Definition at line 652 of file ios_base.h.

5.376.5.75 streamsize std::ios_base::width () const [inline, inherited]

Flags access.

Returns:

The minimum field width to generate on output operations.

Minimum field width refers to the number of characters.

Definition at line 643 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::num_put< _CharT, _OutIter >::do_put(), and std::operator>>().

5.376.5.76 static int std::ios_base::xalloc () throw () [static, inherited]

Access to unique indices.

Returns:

An integer different from all previous calls.

This function returns a unique integer every time it is called. It can be used for any purpose, but is primarily intended to be a unique index for the iword and pword functions. The expectation is that an application calls xalloc in order to obtain an index in the iword and pword arrays that can be used without fear of conflict.

The implementation maintains a static variable that is incremented and returned on each invocation. xalloc is guaranteed to return an index that is safe to use in the iword and pword arrays.

5.376.6 Member Data Documentation

5.376.6.1 template<typename _CharT, typename _Traits> streamsize std::basic_istream< _CharT, _Traits >::_M_gcount [protected]

The number of characters extracted in the previous unformatted function; see gcount().

Definition at line 79 of file istream.

Referenced by std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), and std::basic_istream< _CharT, _Traits >::unget().

5.376.6.2 const fmtflags std::ios_base::adjustfield [static, inherited]

A mask of left|right|internal. Useful for the 2-arg form of `setf`.

Definition at line 318 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

5.376.6.3 const openmode std::ios_base::app [static, inherited]

Seek to end before each write.

Definition at line 372 of file ios_base.h.

5.376.6.4 const openmode std::ios_base::ate [static, inherited]

Open and seek to end immediately after opening.

Definition at line 375 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::open().

5.376.6.5 const iostate std::ios_base::badbit [static, inherited]

Indicates a loss of integrity in an input or output sequence (such as an irrecoverable read error from a file).

Definition at line 342 of file ios_base.h.

Referenced by std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ios< _CharT, _Traits >::init(), std::operator<<(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_ostream< _CharT, _Traits >::tellp(), std::basic_istream< _CharT, _Traits >::unget(), and std::basic_ostream< _CharT, _Traits >::write().

5.376.6.6 const fmtflags std::ios_base::basefield [static, inherited]

A mask of dec|oct|hex. Useful for the 2-arg form of `setf`.

Definition at line 321 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), and std::basic_ostream< _CharT, _Traits >::operator<<().

5.376.6.7 const seekdir std::ios_base::beg [static, inherited]

Request a seek relative to the beginning of the stream.

Definition at line 404 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::seekpos().

5.376.6.8 const openmode std::ios_base::binary [static, inherited]

Perform input and output in binary mode (as opposed to text mode). This is probably not what you think it is; see http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch27s02.html.

Definition at line 380 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::showmanyc().

5.376.6.9 const fmtflags std::ios_base::boolalpha [static, inherited]

Insert/extract `bool` in alphabetic rather than numeric format.

Definition at line 266 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), and std::num_put< _CharT, _OutIter >::do_put().

5.376.6.10 const seekdir std::ios_base::cur [static, inherited]

Request a seek relative to the current position within the sequence.

Definition at line 407 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_istream< _CharT, _Traits >::tellg(), and std::basic_ostream< _CharT, _Traits >::tellp().

5.376.6.11 const fmtflags std::ios_base::dec [static, inherited]

Converts integer input or generates integer output in decimal base.

Definition at line 269 of file ios_base.h.

5.376.6.12 const seekdir std::ios_base::end [static, inherited]

Request a seek relative to the current end of the sequence.

Definition at line 410 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::open(), and std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff().

5.376.6.13 const iostate std::ios_base::eofbit [static, inherited]

Indicates that an input operation reached the end of an input sequence.

Definition at line 345 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_date(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_time(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), and std::ws().

5.376.6.14 const iostate std::ios_base::failbit [static, inherited]

Indicates that an input operation failed to read the expected characters, or that an output operation failed to generate the desired characters.

Definition at line 350 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::basic_istream< _CharT, _Traits >::operator>>(), std::operator>>(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::seekg(), and std::basic_ostream< _CharT, _Traits >::seekp().

5.376.6.15 const fmtflags std::ios_base::fixed [static, inherited]

Generate floating-point output in fixed-point notation.

Definition at line 272 of file ios_base.h.

5.376.6.16 const fmtflags std::ios_base::floatfield [static, inherited]

A mask of scientific|fixed. Useful for the 2-arg form of `setf`.

Definition at line 324 of file ios_base.h.

5.376.6.17 const iostate std::ios_base::goodbit [static, inherited]

Indicates all is well.

Definition at line 353 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ios< _CharT, _Traits >::init(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), and std::basic_istream< _CharT, _Traits >::unget().

5.376.6.18 const fmtflags std::ios_base::hex [static, inherited]

Converts integer input or generates integer output in hexadecimal base.

Definition at line 275 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::num_put< _CharT, _OutIter >::do_put(), and std::basic_ostream< _CharT, _Traits >::operator<<().

5.376.6.19 const openmode std::ios_base::in [static, inherited]

Open for input. Default for `ifstream` and fstream.

Definition at line 383 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::showmanyc(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::underflow(), std::basic_filebuf< _CharT, _Traits >::underflow(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.376.6.20 const fmtflags std::ios_base::internal [static, inherited]

Adds fill characters at a designated internal point in certain generated output, or identical to `right` if no such point is designated.

Definition at line 280 of file ios_base.h.

5.376.6.21 const fmtflags std::ios_base::left [static, inherited]

Adds fill characters on the right (final positions) of certain generated output. (I.e., the thing you print is flush left.).

Definition at line 284 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

5.376.6.22 const fmtflags std::ios_base::oct [static, inherited]

Converts integer input or generates integer output in octal base.

Definition at line 287 of file ios_base.h.

Referenced by std::basic_ostream< _CharT, _Traits >::operator<<().

5.376.6.23 const openmode std::ios_base::out [static, inherited]

Open for output. Default for `ofstream` and fstream.

Definition at line 386 of file ios_base.h.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_ostream< _CharT, _Traits >::tellp(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.376.6.24 const fmtflags std::ios_base::right [static, inherited]

Adds fill characters on the left (initial positions) of certain generated output. (I.e., the thing you print is flush right.).

Definition at line 291 of file ios_base.h.

5.376.6.25 const fmtflags std::ios_base::scientific [static, inherited]

Generates floating-point output in scientific notation.

Definition at line 294 of file ios_base.h.

5.376.6.26 const fmtflags std::ios_base::showbase [static, inherited]

Generates a prefix indicating the numeric base of generated integer output.

Definition at line 298 of file ios_base.h.

5.376.6.27 const fmtflags std::ios_base::showpoint [static, inherited]

Generates a decimal-point character unconditionally in generated floating-point output.

Definition at line 302 of file ios_base.h.

5.376.6.28 const fmtflags std::ios_base::showpos [static, inherited]

Generates a + sign in non-negative generated numeric output.

Definition at line 305 of file ios_base.h.

5.376.6.29 const fmtflags std::ios_base::skipws [static, inherited]

Skips leading white space before certain input operations.

Definition at line 308 of file ios_base.h.

5.376.6.30 const openmode std::ios_base::trunc [static, inherited]

Open for input. Default for `ofstream`.

Definition at line 389 of file ios_base.h.

5.376.6.31 const fmtflags std::ios_base::unitbuf [static, inherited]

Flushes output after each output operation.

Definition at line 311 of file ios_base.h.

5.376.6.32 const fmtflags std::ios_base::uppercase [static, inherited]

Replaces certain lowercase letters with their uppercase equivalents in generated output.

Definition at line 315 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

The documentation for this class was generated from the following files:

- istream
- istream.tcc

5.377 std::basic_istream< _CharT, _Traits >::sentry Class Reference

Performs setup work for input streams.

Public Types

- typedef __istream_type::__ctype_type **__ctype_type**
- typedef _Traits::int_type **__int_type**
- typedef basic_istream< _CharT, _Traits > **__istream_type**
- typedef basic_streambuf< _CharT, _Traits > **__streambuf_type**
- typedef _Traits traits_type

Public Member Functions

- sentry (basic_istream< _CharT, _Traits > &__is, bool __noskipws=false)
- operator bool () const

5.377.1 Detailed Description

template<typename _CharT, typename _Traits> class std::basic_istream< _CharT, _Traits >::sentry

Performs setup work for input streams. Objects of this class are created before all of the standard extractors are run. It is responsible for *exception-safe prefix and suffix operations,* although only prefix actions are currently required by the standard.

Definition at line 633 of file istream.

5.377.2 Member Typedef Documentation

5.377.2.1 template<typename _CharT, typename _Traits> typedef _Traits std::basic_istream< _CharT, _Traits >::sentry::traits_type

Easy access to dependant types.

Definition at line 640 of file istream.

5.377.3 Constructor & Destructor Documentation

5.377.3.1 template<typename _CharT, typename _Traits> std::basic_istream< _CharT, _Traits >::sentry::sentry (basic_istream< _CharT, _Traits > & *__is*, bool *__noskipws* = false) [inline, explicit]

The constructor performs all the work.

Parameters:

is The input stream to guard.

noskipws Whether to consume whitespace or not.

If the stream state is good (*is.good()* is true), then the following actions are performed, otherwise the sentry state is false (*not okay*) and failbit is set in the stream state.

The sentry's preparatory actions are:

1. if the stream is tied to an output stream, `is.tie()->flush()` is called to synchronize the output sequence
2. if *noskipws* is false, and `ios_base::skipws` is set in `is.flags()`, the sentry extracts and discards whitespace characters from the stream. The currently imbued locale is used to determine whether each character is whitespace.

If the stream state is still good, then the sentry state becomes true (*okay*).

Definition at line 47 of file istream.tcc.

References std::__ctype_abstract_base< _CharT >::is(), std::basic_streambuf< _CharT, _Traits >::sgetc(), std::skipws(), and std::basic_streambuf< _CharT, _Traits >::snextc().

5.377.4 Member Function Documentation

5.377.4.1 template<typename _CharT, typename _Traits> std::basic_istream< _CharT, _Traits >::sentry::operator bool () const [inline, explicit]

Quick status checking.

Returns:

The sentry state.

For ease of use, sentries may be converted to booleans. The return value is that of the sentry state (true == okay).

Definition at line 681 of file istream.

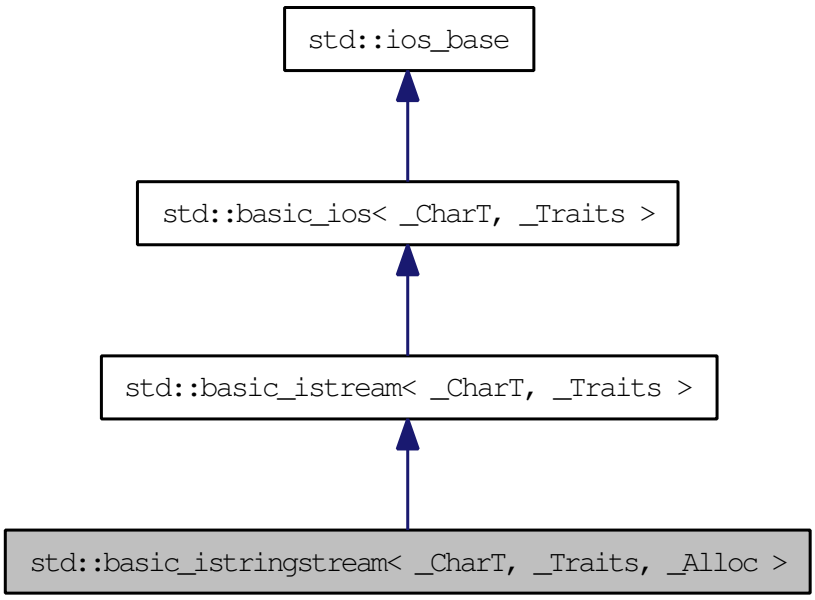
The documentation for this class was generated from the following files:

- istream
- istream.tcc

5.378 std::basic_istringstream< _CharT, _Traits, _Alloc > Class Template Reference

Controlling input for std::string.

This class supports reading from objects of type std::basic_string, using the inherited functions from std::basic_istream. To control the associated sequence, an instance of std::basic_stringbuf is used, which this page refers to as `sb`. Inheritance diagram for std::basic_istringstream< _CharT, _Traits, _Alloc >:



Public Types

- typedef ctype< _CharT > __ctype_type
- typedef basic_ios< _CharT, _Traits > **__ios_type**
- typedef basic_istream< char_type, traits_type > **__istream_type**
- typedef num_get< _CharT, istreambuf_iterator< _CharT, _Traits > > __num_get_type
- typedef basic_streambuf< _CharT, _Traits > **__streambuf_type**
- typedef basic_string< _CharT, _Traits, _Alloc > **__string_type**
- typedef basic_stringbuf< _CharT, _Traits, _Alloc > **__stringbuf_type**
- typedef _Alloc **allocator_type**
- typedef _CharT char_type
- enum event { **erase_event**, **imbue_event**, **copyfmt_event** }

- typedef void(∗ event_callback)(event, ios_base &, int)
- typedef _Ios_Fmtflags fmtflags
- typedef traits_type::int_type int_type
- typedef int **io_state**
- typedef _Ios_Iostate iostate
- typedef traits_type::off_type off_type
- typedef int **open_mode**
- typedef _Ios_Openmode openmode
- typedef traits_type::pos_type pos_type
- typedef int **seek_dir**
- typedef _Ios_Seekdir seekdir
- typedef std::streamoff **streamoff**
- typedef std::streampos **streampos**
- typedef _Traits traits_type

Public Member Functions

- basic_istringstream (const __string_type &__str, ios_base::openmode __mode=ios_base::in)
- basic_istringstream (ios_base::openmode __mode=ios_base::in)
- ∼basic_istringstream ()
- const locale & _M_getloc () const
- void **_M_setstate** (iostate __state)
- bool bad () const
- void clear (iostate __state=goodbit)
- basic_ios & copyfmt (const basic_ios &__rhs)
- bool eof () const
- void exceptions (iostate __except)
- iostate exceptions () const
- bool fail () const
- char_type fill (char_type __ch)
- char_type fill () const
- fmtflags flags (fmtflags __fmtfl)
- fmtflags flags () const
- streamsize gcount () const
- template<>
  basic_istream< wchar_t > & **getline** (char_type ∗__s, streamsize __n, char_type __delim)
- template<>
  basic_istream< char > & **getline** (char_type ∗__s, streamsize __n, char_type __delim)
- locale getloc () const

- bool good () const
- template<>
  basic_istream< wchar_t > & **ignore** (streamsize __n, int_type __delim)
- template<>
  basic_istream< wchar_t > & **ignore** (streamsize __n)
- template<>
  basic_istream< char > & **ignore** (streamsize __n, int_type __delim)
- template<>
  basic_istream< char > & **ignore** (streamsize __n)
- locale imbue (const locale &__loc)
- long & iword (int __ix)
- char narrow (char_type __c, char __dfault) const
- streamsize precision (streamsize __prec)
- streamsize precision () const
- void *& pword (int __ix)
- basic_streambuf< _CharT, _Traits > * rdbuf (basic_streambuf< _CharT, _Traits > *__sb)
- __stringbuf_type * rdbuf () const
- iostate rdstate () const
- void register_callback (event_callback __fn, int __index)
- fmtflags setf (fmtflags __fmtfl, fmtflags __mask)
- fmtflags setf (fmtflags __fmtfl)
- void setstate (iostate __state)
- void str (const __string_type &__s)
- __string_type str () const
- basic_ostream< _CharT, _Traits > * tie (basic_ostream< _CharT, _Traits > *_-
  _tiestr)
- basic_ostream< _CharT, _Traits > * tie () const
- void unsetf (fmtflags __mask)
- char_type widen (char __c) const
- streamsize width (streamsize __wide)
- streamsize width () const

Unformatted Input Functions

All the unformatted input functions have some common behavior. Each starts by constructing a temporary object of type std::basic_istream::sentry with the second argument (noskipws) set to true. This has several effects, concluding with the setting of a status flag; see the sentry documentation for more.

If the sentry status is good, the function tries to extract whatever data is appropriate for the type of the argument.

The number of characters extracted is stored for later retrieval by gcount().

If an exception is thrown during extraction, ios_base::badbit will be turned on in the stream's error state without causing an ios_base::failure to be thrown. The original exception will then be rethrown.

- __istream_type & get (__streambuf_type &__sb)
- __istream_type & get (__streambuf_type &__sb, char_type __delim)
- __istream_type & get (char_type *__s, streamsize __n)
- __istream_type & get (char_type *__s, streamsize __n, char_type __delim)
- __istream_type & get (char_type &__c)
- int_type get ()
- __istream_type & getline (char_type *__s, streamsize __n)
- __istream_type & getline (char_type *__s, streamsize __n, char_type __delim)
- __istream_type & ignore (streamsize __n, int_type __delim)
- __istream_type & ignore (streamsize __n)
- __istream_type & ignore ()
- int_type peek ()
- __istream_type & putback (char_type __c)
- __istream_type & read (char_type *__s, streamsize __n)
- streamsize readsome (char_type *__s, streamsize __n)
- __istream_type & seekg (off_type, ios_base::seekdir)
- __istream_type & seekg (pos_type)
- int sync ()
- pos_type tellg ()
- __istream_type & unget ()

Arithmetic Extractors

All the `operator>>` functions (aka formatted input functions) have some common behavior. Each starts by constructing a temporary object of type std::basic_istream::sentry with the second argument (noskipws) set to false. This has several effects, concluding with the setting of a status flag; see the sentry documentation for more.

If the sentry status is good, the function tries to extract whatever data is appropriate for the type of the argument.

If an exception is thrown during extraction, ios_base::badbit will be turned on in the stream's error state without causing an ios_base::failure to be thrown. The original exception will then be rethrown.

- __istream_type & operator>> (__streambuf_type *__sb)
- __istream_type & operator>> (void *&__p)
- __istream_type & operator>> (long double &__f)
- __istream_type & operator>> (double &__f)
- __istream_type & operator>> (float &__f)
- __istream_type & operator>> (unsigned long long &__n)
- __istream_type & operator>> (long long &__n)
- __istream_type & operator>> (unsigned long &__n)
- __istream_type & operator>> (long &__n)
- __istream_type & operator>> (unsigned int &__n)
- __istream_type & operator>> (int &__n)
- __istream_type & operator>> (unsigned short &__n)
- __istream_type & operator>> (short &__n)
- __istream_type & operator>> (bool &__n)

- __istream_type & operator>> (ios_base &(*__pf)(ios_base &))
- __istream_type & operator>> (__ios_type &(*__pf)(__ios_type &))
- __istream_type & operator>> (__istream_type &(*__pf)(__istream_type &))

Static Public Member Functions

- static bool sync_with_stdio (bool __sync=true)
- static int xalloc () throw ()

Static Public Attributes

- static const fmtflags adjustfield
- static const openmode app
- static const openmode ate
- static const iostate badbit
- static const fmtflags basefield
- static const seekdir beg
- static const openmode binary
- static const fmtflags boolalpha
- static const seekdir cur
- static const fmtflags dec
- static const seekdir end
- static const iostate eofbit
- static const iostate failbit
- static const fmtflags fixed
- static const fmtflags floatfield
- static const iostate goodbit
- static const fmtflags hex
- static const openmode in
- static const fmtflags internal
- static const fmtflags left
- static const fmtflags oct
- static const openmode out
- static const fmtflags right
- static const fmtflags scientific
- static const fmtflags showbase
- static const fmtflags showpoint
- static const fmtflags showpos
- static const fmtflags skipws
- static const openmode trunc
- static const fmtflags unitbuf
- static const fmtflags uppercase

Protected Types

- enum { **_S_local_word_size** }

Protected Member Functions

- void **_M_cache_locale** (const locale &__loc)
- void **_M_call_callbacks** (event __ev) throw ()
- void **_M_dispose_callbacks** (void) throw ()
- template<typename _ValueT >
  __istream_type & **_M_extract** (_ValueT &__v)
- _Words & **_M_grow_words** (int __index, bool __iword)
- void **_M_init** () throw ()
- void init (basic_streambuf< _CharT, _Traits > *__sb)

Protected Attributes

- _Callback_list * **_M_callbacks**
- const __ctype_type * **_M_ctype**
- iostate **_M_exception**
- char_type **_M_fill**
- bool **_M_fill_init**
- fmtflags **_M_flags**
- streamsize _M_gcount
- locale **_M_ios_locale**
- _Words **_M_local_word** [_S_local_word_size]
- const __num_get_type * **_M_num_get**
- const __num_put_type * **_M_num_put**
- streamsize **_M_precision**
- basic_streambuf< _CharT, _Traits > * **_M_streambuf**
- iostate **_M_streambuf_state**
- basic_ostream< _CharT, _Traits > * **_M_tie**
- streamsize **_M_width**
- _Words * **_M_word**
- int **_M_word_size**
- _Words **_M_word_zero**

Friends

- class **sentry**

- typedef num_put< _CharT, ostreambuf_iterator< _CharT, _Traits > > __num_put_type
- operator void * () const
- bool operator! () const

5.378.1 Detailed Description

template<typename _CharT, typename _Traits, typename _Alloc> class std::basic_istringstream< _CharT, _Traits, _Alloc >

Controlling input for std::string.

This class supports reading from objects of type std::basic_string, using the inherited functions from std::basic_istream. To control the associated sequence, an instance of std::basic_stringbuf is used, which this page refers to as `sb`.

Definition at line 256 of file sstream.

5.378.2 Member Typedef Documentation

5.378.2.1 template<typename _CharT, typename _Traits> typedef ctype<_CharT> std::basic_istream< _CharT, _Traits >::__ctype_type [inherited]

These are non-standard types.

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 71 of file istream.

5.378.2.2 template<typename _CharT, typename _Traits> typedef num_get<_CharT, istreambuf_iterator<_CharT, _Traits> > std::basic_istream< _CharT, _Traits >::__num_get_type [inherited]

These are non-standard types.

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 70 of file istream.

5.378.2.3 template<typename _CharT, typename _Traits> typedef num_put<_CharT, ostreambuf_iterator<_CharT, _Traits> > std::basic_ios< _CharT, _Traits >::__num_put_type [inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Reimplemented in std::basic_ostream< _CharT, _Traits >, std::basic_ostream< char, _Traits >, and std::basic_ostream< char >.

Definition at line 84 of file basic_ios.h.

5.378.2.4 template<typename _CharT, typename _Traits, typename _Alloc> typedef _CharT std::basic_istringstream< _CharT, _Traits, _Alloc >::char_type

These are standard types. They permit a standardized way of referring to names of (or names dependant on) the template parameters, which are specific to the implementation.

Reimplemented from std::basic_istream< _CharT, _Traits >.

Definition at line 260 of file sstream.

5.378.2.5 typedef void(* std::ios_base::event_callback)(event, ios_base &, int) [inherited]

The type of an event callback function.

Parameters:

event One of the members of the event enum.

ios_base Reference to the ios_base object.

int The integer provided when the callback was registered.

Event callbacks are user defined functions that get called during several ios_base and basic_ios functions, specifically imbue(), copyfmt(), and ~ios().

Definition at line 444 of file ios_base.h.

5.378.2.6 typedef _Ios_Fmtflags std::ios_base::fmtflags [inherited]

This is a bitmask type. `_Ios_Fmtflags` is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type fmtflags are:

- boolalpha
- dec
- fixed
- hex
- internal
- left
- oct
- right
- scientific
- showbase
- showpoint
- showpos
- skipws
- unitbuf
- uppercase
- adjustfield
- basefield
- floatfield

Definition at line 263 of file ios_base.h.

5.378.2.7 template<typename _CharT, typename _Traits, typename _Alloc> typedef traits_type::int_type std::basic_istringstream< _CharT, _Traits, _Alloc >::int_type

These are non-standard types.

Reimplemented from std::basic_istream< _CharT, _Traits >.

Definition at line 265 of file sstream.

5.378.2.8 typedef _Ios_Iostate std::ios_base::iostate [inherited]

This is a bitmask type. *_Ios_Iostate* is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type iostate are:

- badbit
- eofbit
- failbit
- goodbit

Definition at line 338 of file ios_base.h.

5.378.2.9 template<typename _CharT, typename _Traits, typename _Alloc> typedef traits_type::off_type std::basic_istringstream< _CharT, _Traits, _Alloc >::off_type

These are non-standard types.

Reimplemented from std::basic_istream< _CharT, _Traits >.

Definition at line 267 of file sstream.

5.378.2.10 typedef _Ios_Openmode std::ios_base::openmode [inherited]

This is a bitmask type. *_Ios_Openmode* is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type openmode are:

- app
- ate
- binary
- in
- out
- trunc

Definition at line 369 of file ios_base.h.

5.378.2.11 template<typename _CharT, typename _Traits, typename _Alloc> typedef traits_type::pos_type std::basic_istringstream< _CharT, _Traits, _Alloc >::pos_type

These are non-standard types.

Reimplemented from std::basic_istream< _CharT, _Traits >.

Definition at line 266 of file sstream.

5.378.2.12 typedef _Ios_Seekdir std::ios_base::seekdir [inherited]

This is an enumerated type. *_Ios_Seekdir* is implementation-defined. Defined values of type seekdir are:

- beg
- cur, equivalent to SEEK_CUR in the C standard library.
- end, equivalent to SEEK_END in the C standard library.

Definition at line 401 of file ios_base.h.

5.378.2.13 template<typename _CharT, typename _Traits, typename _Alloc> typedef _Traits std::basic_istringstream< _CharT, _Traits, _Alloc >::traits_type

These are non-standard types.

Reimplemented from std::basic_istream< _CharT, _Traits >.

Definition at line 261 of file sstream.

5.378.3 Member Enumeration Documentation

5.378.3.1 enum std::ios_base::event [inherited]

The set of events that may be passed to an event callback. erase_event is used during ~ios() and copyfmt(). imbue_event is used during imbue(). copyfmt_event is used during copyfmt().

Definition at line 427 of file ios_base.h.

5.378.4 Constructor & Destructor Documentation

5.378.4.1 template<typename _CharT, typename _Traits, typename _Alloc> std::basic_istringstream< _CharT, _Traits, _Alloc >::basic_istringstream (ios_base::openmode *__mode* = ios_base::in) [inline, explicit]

Default constructor starts with an empty string buffer.

Parameters:

mode Whether the buffer can read, or write, or both.

`ios_base::in` is automatically included in *mode*.

Initializes `sb` using `mode|in`, and passes `&sb` to the base class initializer. Does not allocate any buffer.

That's a lie. We initialize the base class with NULL, because the string class does its own memory management.

Definition at line 292 of file sstream.

5.378.4.2 template<typename _CharT, typename _Traits, typename _Alloc> std::basic_istringstream< _CharT, _Traits, _Alloc >::basic_istringstream (const __string_type & *__str*, ios_base::openmode *__mode* = ios_base::in) [inline, explicit]

Starts with an existing string buffer.

Parameters:

str A string to copy as a starting buffer.

mode Whether the buffer can read, or write, or both.

`ios_base::in` is automatically included in *mode*.

Initializes `sb` using *str* and `mode|in`, and passes `&sb` to the base class initializer.

That's a lie. We initialize the base class with NULL, because the string class does its own memory management.

Definition at line 310 of file sstream.

5.378.4.3 template<typename _CharT, typename _Traits, typename _Alloc> std::basic_istringstream< _CharT, _Traits, _Alloc >::~basic_istringstream () [inline]

The destructor does nothing. The buffer is deallocated by the stringbuf object, not the formatting stream.

Definition at line 321 of file sstream.

5.378.5 Member Function Documentation

5.378.5.1 const locale& std::ios_base::_M_getloc () const [inline, inherited]

Locale access.

Returns:

A reference to the current locale.

Like getloc above, but returns a reference instead of generating a copy.

Definition at line 705 of file ios_base.h.

Referenced by std::money_get< _CharT, _InIter >::do_get(), std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_date(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_time(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::time_put< _CharT, _OutIter >::do_put(), std::num_put< _CharT, _OutIter >::do_put(), and std::time_put< _CharT, _OutIter >::put().

5.378.5.2 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::bad () const [inline, inherited]

Fast error checking.

Returns:

True if the badbit is set.

Note that other iostate flags may also be set.

Definition at line 201 of file basic_ios.h.

5.378.5.3 template<typename _CharT , typename _Traits > void std::basic_ios< _CharT, _Traits >::clear (iostate *__state* = goodbit) [inline, inherited]

[Re]sets the error state.

Parameters:

state The new state flag(s) to set.

See std::ios_base::iostate for the possible bit values. Most users will not need to pass an argument.

Definition at line 40 of file basic_ios.tcc.

Referenced by std::basic_ios< _CharT, _Traits >::rdbuf().

5.378.5.4 template<typename _CharT , typename _Traits > basic_ios< _CharT, _Traits > & std::basic_ios< _CharT, _Traits >::copyfmt (const basic_ios< _CharT, _Traits > & *__rhs*) [inline, inherited]

Copies fields of __rhs into this.

Parameters:

__rhs The source values for the copies.

Returns:

Reference to this object.

All fields of __rhs are copied into this object except that rdbuf() and rdstate() remain unchanged. All values in the pword and iword arrays are copied. Before copying, each callback is invoked with erase_event. After copying, each (new) callback is invoked with copyfmt_event. The final step is to copy exceptions().

Definition at line 62 of file basic_ios.tcc.

References std::basic_ios< _CharT, _Traits >::exceptions(), std::basic_ios< _CharT, _Traits >::fill(), std::ios_base::flags(), std::ios_base::getloc(), std::ios_base::precision(), std::basic_ios< _CharT, _Traits >::tie(), and std::ios_base::width().

5.378.5.5 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::eof () const [inline, inherited]

Fast error checking.

Returns:

True if the eofbit is set.

Note that other iostate flags may also be set.

Definition at line 180 of file basic_ios.h.

Referenced by std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_istream< _CharT, _Traits >::putback(), and std::basic_istream< _CharT, _Traits >::unget().

5.378.5.6 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::exceptions (iostate *__except*) [inline, inherited]

Throwing exceptions on errors.

Parameters:

except The new exceptions mask.

By default, error flags are set silently. You can set an exceptions mask for each stream; if a bit in the mask becomes set in the error flags, then an exception of type std::ios_base::failure is thrown.

If the error flag is already set when the exceptions mask is added, the exception is immediately thrown. Try running the following under GCC 3.1 or later:

```
#include <iostream>
#include <fstream>
#include <exception>

int main()
{
    std::set_terminate (__gnu_cxx::__verbose_terminate_handler);

    std::ifstream f ("/etc/motd");

    std::cerr << "Setting badbit\n";
    f.setstate (std::ios_base::badbit);

    std::cerr << "Setting exception mask\n";
    f.exceptions (std::ios_base::badbit);
}
```

Definition at line 247 of file basic_ios.h.

5.378.5.7 template<typename _CharT, typename _Traits> iostate std::basic_ios< _CharT, _Traits >::exceptions () const [inline, inherited]

Throwing exceptions on errors.

Returns:

The current exceptions mask.

This changes nothing in the stream. See the one-argument version of exceptions(iostate) for the meaning of the return value.

Definition at line 212 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.378.5.8 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::fail () const [inline, inherited]

Fast error checking.

Returns:

True if either the badbit or the failbit is set.

Checking the badbit in fail() is historical practice. Note that other iostate flags may also be set.

Definition at line 191 of file basic_ios.h.

Referenced by std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_ostream< _CharT, _Traits >::tellp(), and std::regex_traits< _Ch_type >::value().

5.378.5.9 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::fill (char_type __ch) [inline, inherited]

Sets a new *empty* character.

Parameters:

ch The new character.

Returns:

The previous fill character.

The fill character is used to fill out space when P+ characters have been requested (e.g., via setw), Q characters are actually used, and Q<P. It defaults to a space (' ') in the current locale.

Definition at line 380 of file basic_ios.h.

5.378.5.10 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::fill () const [inline, inherited]

Retrieves the *empty* character.

Returns:

The current fill character.

It defaults to a space (' ') in the current locale.

Definition at line 360 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.378.5.11 fmtflags std::ios_base::flags (fmtflags *__fmtfl*) [inline, inherited]

Setting new format flags all at once.

Parameters:

fmtfl The new flags to set.

Returns:

The previous format control flags.

This function overwrites all the format flags with *fmtfl*.

Definition at line 561 of file ios_base.h.

5.378.5.12 fmtflags std::ios_base::flags () const [inline, inherited]

Access to format flags.

Returns:

The format control flags for both input and output.

Definition at line 550 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::num_get< _CharT, _InIter >::do_get(), std::num_put< _CharT, _OutIter >::do_put(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator<<(), and std::operator>>().

5.378.5.13 template<typename _CharT, typename _Traits> streamsize std::basic_istream< _CharT, _Traits >::gcount () const [inline, inherited]

Character counting.

Returns:

The number of characters extracted by the previous unformatted input function dispatched for this stream.

Definition at line 249 of file istream.

5.378.5.14 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::get (__streambuf_type & *__sb*) [inline, inherited]

Extraction into another streambuf.

Parameters:

sb A streambuf in which to store data.

Returns:

∗this

Returns `get`(sb,widen('\n')).

Definition at line 366 of file istream.

5.378.5.15 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::get (__streambuf_type & *__sb*, char_type *__delim*) [inline, inherited]

Extraction into another streambuf.

Parameters:

sb A streambuf in which to store data.

delim A "stop" character.

Returns:

∗this

Characters are extracted and inserted into *sb* until one of the following happens:

- the input sequence reaches EOF
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted)
- the next character equals *delim* (in this case, the character is not extracted)
- an exception occurs (and in this case is caught)

If no characters are stored, failbit is set in the stream's error state.

Definition at line 356 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), std::basic_streambuf< _CharT, _Traits >::snextc(), and std::basic_streambuf< _CharT, _Traits >::sputc().

5.378.5.16 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::get (char_type ∗ __s, streamsize __n) [inline, inherited]

Simple multiple-character extraction.

Parameters:

s Pointer to an array.

n Maximum number of characters to store in *s*.

Returns:

∗this

Returns `get`(s,n,widen('\n')).

Definition at line 333 of file istream.

5.378.5.17 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::get (char_type * __s, streamsize __n, char_type __delim) [inline, inherited]

Simple multiple-character extraction.

Parameters:

s Pointer to an array.

n Maximum number of characters to store in *s*.

delim A "stop" character.

Returns:

*this

Characters are extracted and stored into *s* until one of the following happens:

- `n-1` characters are stored
- the input sequence reaches EOF
- the next character equals *delim*, in which case the character is not extracted

If no characters are stored, failbit is set in the stream's error state.

In any case, a null character is stored into the next location in the array.

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 309 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), and std::basic_streambuf< _CharT, _Traits >::snextc().

5.378.5.18 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::get (char_type & __c) [inline, inherited]

Simple extraction.

Parameters:

c The character in which to store data.

Returns:

∗this

Tries to extract a character and store it in *c*. If none are available, sets failbit and returns traits::eof().

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 272 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.378.5.19 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits >::int_type std::basic_istream< _CharT, _Traits >::get (void) [inline, inherited]

Simple extraction.

Returns:

A character, or eof().

Tries to extract a character. If none are available, sets failbit and returns traits::eof().

Definition at line 236 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.378.5.20 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::getline (char_type ∗ __s, streamsize __n) [inline, inherited]

String extraction.

Parameters:

s A character array in which to store the data.

n Maximum number of characters to extract.

Returns:

∗this

Returns `getline`(s,n,widen('\n')).

Definition at line 406 of file istream.

Referenced by std::basic_istream< char >::getline().

5.378.5.21 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::getline (char_type ∗ *__s*, streamsize *__n*, char_type *__delim*) [inline, inherited]

String extraction.

Parameters:

s A character array in which to store the data.

n Maximum number of characters to extract.

delim A "stop" character.

Returns:

∗this

Extracts and stores characters into *s* until one of the following happens. Note that these criteria are required to be tested in the order listed here, to allow an input line to exactly fill the *s* array without setting failbit.

1. the input sequence reaches end-of-file, in which case eofbit is set in the stream error state
2. the next character equals `delim`, in which case the character is extracted (and therefore counted in `gcount()`) but not stored
3. `n-1` characters are stored, in which case failbit is set in the stream error state

If no characters are extracted, failbit is set. (An empty line of input should therefore not cause failbit to be set.)

In any case, a null character is stored in the next location in the array.

Definition at line 400 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_streambuf< _CharT, _Traits >::sbumpc(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), and std::basic_streambuf< _CharT, _Traits >::snextc().

5.378.5.22 locale std::ios_base::getloc () const [inline, inherited]

Locale access.

Returns:

A copy of the current locale.

If `imbue(loc)` has previously been called, then this function returns `loc`. Otherwise, it returns a copy of `std::locale()`, the global C++ locale.

Definition at line 694 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::money_put< _CharT, _OutIter >::do_put(), std::basic_ios< _CharT, _Traits >::imbue(), std::operator>>(), and std::ws().

5.378.5.23 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::good () const [inline, inherited]

Fast error checking.

Returns:

True if no error flags are set.

A wrapper around rdstate.

Definition at line 170 of file basic_ios.h.

5.378.5.24 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::ignore (streamsize __n, int_type __delim) [inline, inherited]

Extraction into another streambuf.

Parameters:

sb A streambuf in which to store data.

Returns:

∗this

Returns `get`(sb,widen('\n')).

Definition at line 555 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_streambuf< _CharT, _Traits >::sbumpc(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), and std::basic_streambuf< _CharT, _Traits >::snextc().

5.378.5.25 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::ignore (streamsize __n) [inline, inherited]

Extraction into another streambuf.

Parameters:

sb A streambuf in which to store data.

Returns:

∗this

Returns `get`(sb,widen('\n')).

Definition at line 493 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), and std::basic_streambuf< _CharT, _Traits >::snextc().

5.378.5.26 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::ignore (void) [inline, inherited]

Discarding characters.

Parameters:

n Number of characters to discard.

delim A "stop" character.

Returns:

*this

Extracts characters and throws them away until one of the following happens:

- if *n* != std::numeric_limits<int>::max(), *n* characters are extracted
- the input sequence reaches end-of-file
- the next character equals *delim* (in this case, the character is extracted); note that this condition will never occur if *delim* equals traits::eof().

NB: Provide three overloads, instead of the single function (with defaults) mandated by the Standard: this leads to a better performing implementation, while still conforming to the Standard.

Definition at line 460 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_streambuf< _CharT, _Traits >::sbumpc(), and std::basic_ios< _CharT, _Traits >::setstate().

5.378.5.27 template<typename _CharT , typename _Traits > locale std::basic_ios< _CharT, _Traits >::imbue (const locale & *__loc*) [inline, inherited]

Moves to a new locale.

Parameters:

loc The new locale.

Returns:

The previous locale.

Calls ios_base::imbue(loc), and if a stream buffer is associated with this stream, calls that buffer's pubimbue(loc).

Additional l10n notes are at http://gcc.gnu.org/onlinedocs/libstdc++/manual/localizati

Reimplemented from std::ios_base.

Definition at line 113 of file basic_ios.tcc.

References std::ios_base::getloc(), and std::basic_ios< _CharT, _Traits >::rdbuf().

Referenced by std::operator<<().

5.378.5.28 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::init (basic_streambuf< _CharT, _Traits > * *__sb*) [inline, protected, inherited]

All setup is performed here. This is called from the public constructor. It is not virtual and cannot be redefined.

Definition at line 125 of file basic_ios.tcc.

References std::ios_base::badbit, and std::ios_base::goodbit.

5.378.5.29 long& std::ios_base::iword (int *__ix*) [inline, inherited]

Access to integer array.

Parameters:

__ix Index into the array.

Returns:

A reference to an integer associated with the index.

The iword function provides access to an array of integers that can be used for any purpose. The array grows as required to hold the supplied index. All integers in the array are initialized to 0.

The implementation reserves several indices. You should use xalloc to obtain an index that is safe to use. Also note that since the array can grow dynamically, it is not safe to hold onto the reference.

Definition at line 740 of file ios_base.h.

5.378.5.30 template<typename _CharT, typename _Traits> char std::basic_ios< _CharT, _Traits >::narrow (char_type *__c*, char *__dfault*) const [inline, inherited]

Squeezes characters.

Parameters:

c The character to narrow.

dfault The character to narrow.

Returns:

The narrowed character.

Maps a character of `char_type` to a character of `char`, if possible.

Returns the result of

```
std::use_facet<ctype<char_type> >(getloc()).narrow(c,dfault)
```

Additional l10n notes are at http://gcc.gnu.org/onlinedocs/libstdc++/manual/localizati

Definition at line 420 of file basic_ios.h.

5.378.5.31 template<typename _CharT, typename _Traits> std::basic_ios< _CharT, _Traits >::operator void * () const [inline, inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Definition at line 111 of file basic_ios.h.

5.378.5.32 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::operator! () const [inline, inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Definition at line 115 of file basic_ios.h.

5.378.5.33 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::operator>> (__streambuf_type * *__sb*) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,

- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 204 of file istream.tcc.

References std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.378.5.34 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (void *& *__p*) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 215 of file istream.

5.378.5.35 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (long double & *__f*) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 211 of file istream.

5.378.5.36 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (double & __f) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 207 of file istream.

5.378.5.37 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (float & __f) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 203 of file istream.

5.378.5.38 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (unsigned long long & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,

- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 198 of file istream.

5.378.5.39 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (long long & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 194 of file istream.

5.378.5.40 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (unsigned long & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 189 of file istream.

5.378.5.41 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (long & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 185 of file istream.

5.378.5.42 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (unsigned int & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 181 of file istream.

5.378.5.43 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::operator>> (int & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,

- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 159 of file istream.tcc.

References std::ios_base::badbit, std::ios_base::failbit, std::num_get< _CharT, _InIter >::get(), std::ios_base::goodbit, and std::basic_ios< _CharT, _Traits >::setstate().

5.378.5.44 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (unsigned short & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 174 of file istream.

5.378.5.45 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::operator>> (short & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 114 of file istream.tcc.

References std::ios_base::badbit, std::ios_base::failbit, std::num_get< _CharT, _InIter >::get(), std::ios_base::goodbit, and std::basic_ios< _CharT, _Traits >::setstate().

5.378.5.46 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (bool & __n) [inline, inherited]

Basic arithmetic extractors.

Parameters:

A variable of builtin type.

Returns:

`*this` if successful

These functions use the stream's current locale (specifically, the `num_get` facet) to parse the input data.

Definition at line 167 of file istream.

5.378.5.47 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (ios_base &(*)(ios_base &) __pf) [inline, inherited]

Interface for manipulators. Manipulators such as `std::ws` and `std::dec` use these functions in constructs like `std::cin >> std::ws`. For more information, see

the iomanip header.

Definition at line 131 of file istream.

5.378.5.48 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (__ios_type &(*)(__ios_type &) *__pf*) [inline, inherited]

Interface for manipulators. Manipulators such as `std::ws` and `std::dec` use these functions in constructs like `std::cin >> std::ws`. For more information, see the iomanip header.

Definition at line 124 of file istream.

5.378.5.49 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (__istream_type &(*)(__istream_type &) *__pf*) [inline, inherited]

Interface for manipulators. Manipulators such as `std::ws` and `std::dec` use these functions in constructs like `std::cin >> std::ws`. For more information, see the iomanip header.

Definition at line 120 of file istream.

5.378.5.50 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits >::int_type std::basic_istream< _CharT, _Traits >::peek (void) [inline, inherited]

Looking ahead in the stream.

Returns:

The next character, or eof().

If, after constructing the sentry object, `good()` is false, returns `traits::eof()`. Otherwise reads but does not extract the next input character.

Definition at line 620 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.378.5.51 streamsize std::ios_base::precision (streamsize *__prec*) [inline, inherited]

Changing flags.

Parameters:

prec The new precision value.

Returns:

The previous value of precision().

Definition at line 629 of file ios_base.h.

5.378.5.52 streamsize std::ios_base::precision () const [inline, inherited]

Flags access.

Returns:

The precision to generate on certain output operations.

Be careful if you try to give a definition of *precision* here; see DR 189.

Definition at line 620 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), and std::operator<<().

5.378.5.53 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::putback (char_type *__c*) [inline, inherited]

Unextracting a single character.

Parameters:

c The character to push back into the input stream.

Returns:

*this

If `rdbuf()` is not null, calls `rdbuf()->sputbackc(c)`.

If `rdbuf()` is null or if `sputbackc()` fails, sets badbit in the error state.

Note:

Since no characters are extracted, the next call to `gcount()` will return 0, as required by DR 60.

Definition at line 711 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), and std::basic_streambuf< _CharT, _Traits >::sputbackc().

Referenced by std::operator>>().

5.378.5.54 void*& std::ios_base::pword (int *__ix*) [inline, inherited]

Access to void pointer array.

Parameters:

__ix Index into the array.

Returns:

A reference to a void* associated with the index.

The pword function provides access to an array of pointers that can be used for any purpose. The array grows as required to hold the supplied index. All pointers in the array are initialized to 0.

The implementation reserves several indices. You should use xalloc to obtain an index that is safe to use. Also note that since the array can grow dynamically, it is not safe to hold onto the reference.

Definition at line 761 of file ios_base.h.

5.378.5.55 template<typename _CharT, typename _Traits> basic_streambuf< _CharT, _Traits > * std::basic_ios< _CharT, _Traits >::rdbuf (basic_streambuf< _CharT, _Traits > * *__sb*) [inline, inherited]

Changing the underlying buffer.

Parameters:

sb The new stream buffer.

Returns:

The previous stream buffer.

Associates a new buffer with the current stream, and clears the error state.

Due to historical accidents which the LWG refuses to correct, the I/O library suffers from a design error: this function is hidden in derived classes by overrides of the zero-argument rdbuf(), which is non-virtual for hysterical raisins. As a result, you must use explicit qualifications to access this function via any derived class. For example:

```
std::fstream     foo;         // or some other derived type
std::streambuf*  p = .....;

foo.ios::rdbuf(p);            // ios == basic_ios<char>
```

Definition at line 52 of file basic_ios.tcc.

References std::basic_ios< _CharT, _Traits >::clear().

5.378.5.56 template<typename _CharT, typename _Traits, typename _Alloc> __stringbuf_type* std::basic_istringstream< _CharT, _Traits, _Alloc >::rdbuf () const [inline]

Accessing the underlying buffer.

Returns:

The current basic_stringbuf buffer.

This hides both signatures of std::basic_ios::rdbuf().

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 332 of file sstream.

5.378.5.57 template<typename _CharT, typename _Traits> iostate std::basic_ios< _CharT, _Traits >::rdstate () const [inline, inherited]

Returns the error state of the stream buffer.

Returns:

A bit pattern (well, isn't everything?)

See std::ios_base::iostate for the possible bit values. Most users will call one of the interpreting wrappers, e.g., good().

Definition at line 127 of file basic_ios.h.

5.378.5.58 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::read (char_type * __s, streamsize __n) [inline, inherited]

Extraction without delimiters.

Parameters:

s A character array.

n Maximum number of characters to store.

Returns:

*this

If the stream state is `good()`, extracts characters and stores them into *s* until one of the following happens:

- *n* characters are stored
- the input sequence reaches end-of-file, in which case the error state is set to `failbit|eofbit`.

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 650 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.378.5.59 template<typename _CharT , typename _Traits > streamsize std::basic_istream< _CharT, _Traits >::readsome (char_type * __s, streamsize __n) [inline, inherited]

Extraction until the buffer is exhausted, but no more.

Parameters:

s A character array.

n Maximum number of characters to store.

Returns:

The number of characters extracted.

Extracts characters and stores them into *s* depending on the number of characters remaining in the streambuf's buffer, `rdbuf()->in_avail()`, called `A` here:

- if `A == -1`, sets eofbit and extracts no characters
- if `A == 0`, extracts no characters
- if `A > 0`, extracts `min(A,n)`

The goal is to empty the current buffer, and to not request any more from the external input sequence controlled by the streambuf.

Definition at line 679 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::ios_base::eofbit, std::ios_base::goodbit, std::min(), std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.378.5.60 void std::ios_base::register_callback (event_callback *__fn*, int *__index*) [inherited]

Add the callback __fn with parameter __index.

Parameters:

__fn The function to add.

__index The integer to pass to the function when invoked.

Registers a function as an event callback with an integer parameter to be passed to the function when invoked. Multiple copies of the function are allowed. If there are multiple callbacks, they are invoked in the order they were registered.

5.378.5.61 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::seekg (off_type *__off*, ios_base::seekdir *__dir*) [inline, inherited]

Changing the current read position.

Parameters:

off A file offset object.

dir The direction in which to seek.

Returns:

∗this

If `fail()` is not true, calls `rdbuf()->pubseekoff(off,dir)`. If that function fails, sets failbit.

Note:

This function does not count the number of characters extracted, if any, and therefore does not affect the next call to `gcount()`.

Definition at line 870 of file istream.tcc.

References std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::failbit, std::ios_base::goodbit, std::ios_base::in, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.378.5.62 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::seekg (pos_type *__pos*) [inline, inherited]

Changing the current read position.

Parameters:

pos A file position object.

Returns:

*this

If `fail()` is not true, calls `rdbuf()->pubseekpos(pos)`. If that function fails, sets failbit.

Note:

This function does not count the number of characters extracted, if any, and therefore does not affect the next call to `gcount()`.

Definition at line 837 of file istream.tcc.

References std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::failbit, std::ios_base::goodbit, std::ios_base::in, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.378.5.63 fmtflags std::ios_base::setf (fmtflags *__fmtfl*, fmtflags *__mask*) [inline, inherited]

Setting new format flags.

Parameters:

fmtfl Additional flags to set.

mask The flags mask for *fmtfl*.

Returns:

The previous format control flags.

This function clears *mask* in the format flags, then sets *fmtfl* & *mask*. An example mask is `ios_base::adjustfield`.

Definition at line 594 of file ios_base.h.

5.378.5.64 fmtflags std::ios_base::setf (fmtflags *__fmtfl*) [inline, inherited]

Setting new format flags.

Parameters:

fmtfl Additional flags to set.

Returns:

The previous format control flags.

This function sets additional flags in format control. Flags that were previously set remain set.

Definition at line 577 of file ios_base.h.

Referenced by std::boolalpha(), std::dec(), std::fixed(), std::hex(), std::internal(), std::left(), std::oct(), std::right(), std::scientific(), std::showbase(), std::showpoint(), std::showpos(), std::skipws(), std::unitbuf(), and std::uppercase().

5.378.5.65 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::setstate (iostate *__state*) [inline, inherited]

Sets additional flags in the error state.

Parameters:

state The additional state flag(s) to set.

See std::ios_base::iostate for the possible bit values.

Definition at line 147 of file basic_ios.h.

Referenced by std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::basic_istream< _CharT, _Traits >::operator>>(), std::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), std::basic_istream< _CharT, _Traits >::unget(), and std::ws().

5.378.5.66 template<typename _CharT, typename _Traits, typename _Alloc> void std::basic_istringstream< _CharT, _Traits, _Alloc >::str (const __string_type & *__s*) [inline]

Setting a new buffer.

Parameters:

s The string to use as a new sequence.

Calls `rdbuf()->str(s)`.

Definition at line 350 of file sstream.

5.378.5.67 template<typename _CharT, typename _Traits, typename _Alloc> __string_type std::basic_istringstream< _CharT, _Traits, _Alloc >::str () const [inline]

Copying out the string buffer.

Returns:

`rdbuf()->str()`

Definition at line 340 of file sstream.

5.378.5.68 template<typename _CharT , typename _Traits > int std::basic_istream< _CharT, _Traits >::sync (void) [inline, inherited]

Synchronizing the stream buffer.

Returns:

0 on success, -1 on failure

If `rdbuf()` is a null pointer, returns -1.

Otherwise, calls `rdbuf()->pubsync()`, and if that returns -1, sets badbit and returns -1.

Otherwise, returns 0.

Note:

This function does not count the number of characters extracted, if any, and therefore does not affect the next call to `gcount()`.

Definition at line 777 of file istream.tcc.

References std::ios_base::badbit, std::ios_base::goodbit, std::basic_streambuf< _CharT, _Traits >::pubsync(), std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.378.5.69 static bool std::ios_base::sync_with_stdio (bool *__sync* = `true`) `[static, inherited]`

Interaction with the standard C I/O objects.

Parameters:

sync Whether to synchronize or not.

Returns:

True if the standard streams were previously synchronized.

The synchronization referred to is *only* that between the standard C facilities (e.g., stdout) and the standard C++ objects (e.g., cout). User-declared streams are unaffected. See http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch28s02.html

5.378.5.70 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits >::pos_type std::basic_istream< _CharT, _Traits >::tellg (void) `[inline, inherited]`

Getting the current read position.

Returns:

A file position object.

If `fail()` is not false, returns `pos_type`(-1) to indicate failure. Otherwise returns `rdbuf()->pubseekoff(0,cur,in)`.

Note:

This function does not count the number of characters extracted, if any, and therefore does not affect the next call to `gcount()`.

Definition at line 813 of file istream.tcc.

References std::ios_base::badbit, std::ios_base::cur, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::in, and std::basic_ios< _CharT, _Traits >::rdbuf().

5.378.5.71 template<typename _CharT, typename _Traits> basic_ostream<_CharT, _Traits>* std::basic_ios< _CharT, _Traits >::tie (basic_ostream< _CharT, _Traits > * *__tiestr*) [inline, inherited]

Ties this stream to an output stream.

Parameters:

tiestr The output stream.

Returns:

The previously tied output stream, or NULL if the stream was not tied.

This sets up a new tie; see tie() for more.

Definition at line 297 of file basic_ios.h.

5.378.5.72 template<typename _CharT, typename _Traits> basic_ostream<_CharT, _Traits>* std::basic_ios< _CharT, _Traits >::tie () const [inline, inherited]

Fetches the current *tied* stream.

Returns:

A pointer to the tied stream, or NULL if the stream is not tied.

A stream may be *tied* (or synchronized) to a second output stream. When this stream performs any I/O, the tied stream is first flushed. For example, `std::cin` is tied to `std::cout`.

Definition at line 285 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.378.5.73 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::unget (void) [inline, inherited]

Unextracting the previous character.

Returns:

*this

If rdbuf() is not null, calls rdbuf()->sungetc(c).

If rdbuf() is null or if sungetc() fails, sets badbit in the error state.

Note:

Since no characters are extracted, the next call to gcount() will return 0, as required by DR 60.

Definition at line 744 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), and std::basic_streambuf< _CharT, _Traits >::sungetc().

5.378.5.74 void std::ios_base::unsetf (fmtflags *__mask*) [inline, inherited]

Clearing format flags.

Parameters:

mask The flags to unset.

This function clears *mask* in the format flags.

Definition at line 609 of file ios_base.h.

Referenced by std::noboolalpha(), std::noshowbase(), std::noshowpoint(), std::noshowpos(), std::noskipws(), std::nounitbuf(), and std::nouppercase().

5.378.5.75 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::widen (char __*c*) const [inline, inherited]

Widens characters.

Parameters:

c The character to widen.

Returns:

The widened character.

Maps a character of `char` to a character of `char_type`.

Returns the result of

```
std::use_facet<ctype<char_type> >(getloc()).widen(c)
```

Additional l10n notes are at http://gcc.gnu.org/onlinedocs/libstdc++/manual/localization.html

Definition at line 439 of file basic_ios.h.

Referenced by std::endl(), std::getline(), and std::operator>>().

5.378.5.76 streamsize std::ios_base::width (streamsize __*wide*) [inline, inherited]

Changing flags.

Parameters:

wide The new width value.

Returns:

The previous value of width().

Definition at line 652 of file ios_base.h.

5.378.5.77 streamsize std::ios_base::width () const [inline, inherited]

Flags access.

Returns:

The minimum field width to generate on output operations.

Minimum field width refers to the number of characters.

Definition at line 643 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::num_put< _CharT, _OutIter >::do_put(), and std::operator>>().

5.378.5.78 static int std::ios_base::xalloc () throw () [static, inherited]

Access to unique indices.

Returns:

An integer different from all previous calls.

This function returns a unique integer every time it is called. It can be used for any purpose, but is primarily intended to be a unique index for the iword and pword functions. The expectation is that an application calls xalloc in order to obtain an index in the iword and pword arrays that can be used without fear of conflict.

The implementation maintains a static variable that is incremented and returned on each invocation. xalloc is guaranteed to return an index that is safe to use in the iword and pword arrays.

5.378.6 Member Data Documentation

5.378.6.1 template<typename _CharT, typename _Traits> streamsize std::basic_istream< _CharT, _Traits >::_M_gcount [protected, inherited]

The number of characters extracted in the previous unformatted function; see gcount().

Definition at line 79 of file istream.

Referenced by std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), and std::basic_istream< _CharT, _Traits >::unget().

5.378.6.2 const fmtflags std::ios_base::adjustfield [static, inherited]

A mask of left|right|internal. Useful for the 2-arg form of `setf`.

Definition at line 318 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

5.378.6.3 const openmode std::ios_base::app [static, inherited]

Seek to end before each write.

Definition at line 372 of file ios_base.h.

5.378.6.4 const openmode std::ios_base::ate [static, inherited]

Open and seek to end immediately after opening.

Definition at line 375 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::open().

5.378.6.5 const iostate std::ios_base::badbit [static, inherited]

Indicates a loss of integrity in an input or output sequence (such as an irrecoverable read error from a file).

Definition at line 342 of file ios_base.h.

Referenced by std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ios< _CharT, _Traits >::init(), std::operator<<(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_ostream< _CharT, _Traits >::tellp(), std::basic_istream< _CharT, _Traits >::unget(), and std::basic_ostream< _CharT, _Traits >::write().

5.378.6.6 const fmtflags std::ios_base::basefield [static, inherited]

A mask of dec|oct|hex. Useful for the 2-arg form of `setf`.

Definition at line 321 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), and std::basic_ostream< _CharT, _Traits >::operator<<().

5.378.6.7 const seekdir std::ios_base::beg [static, inherited]

Request a seek relative to the beginning of the stream.

Definition at line 404 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::seekpos().

5.378.6.8 const openmode std::ios_base::binary [static, inherited]

Perform input and output in binary mode (as opposed to text mode). This is probably not what you think it is; see http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch27s02.html.

Definition at line 380 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::showmanyc().

5.378.6.9 const fmtflags std::ios_base::boolalpha [static, inherited]

Insert/extract `bool` in alphabetic rather than numeric format.

Definition at line 266 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), and std::num_put< _CharT, _OutIter >::do_put().

5.378.6.10 const seekdir std::ios_base::cur [static, inherited]

Request a seek relative to the current position within the sequence.

Definition at line 407 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_istream< _CharT, _Traits >::tellg(), and std::basic_ostream< _CharT, _Traits >::tellp().

5.378.6.11 const fmtflags std::ios_base::dec [static, inherited]

Converts integer input or generates integer output in decimal base.

Definition at line 269 of file ios_base.h.

5.378.6.12 const seekdir std::ios_base::end [static, inherited]

Request a seek relative to the current end of the sequence.

Definition at line 410 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::open(), and std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff().

5.378.6.13 const iostate std::ios_base::eofbit [static, inherited]

Indicates that an input operation reached the end of an input sequence.

Definition at line 345 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_date(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_time(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), and std::ws().

5.378.6.14 const iostate std::ios_base::failbit [static, inherited]

Indicates that an input operation failed to read the expected characters, or that an output operation failed to generate the desired characters.

Definition at line 350 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::basic_istream< _CharT, _Traits >::operator>>(), std::operator>>(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::seekg(), and std::basic_ostream< _CharT, _Traits >::seekp().

5.378.6.15 const fmtflags std::ios_base::fixed [static, inherited]

Generate floating-point output in fixed-point notation.

Definition at line 272 of file ios_base.h.

5.378.6.16 const fmtflags std::ios_base::floatfield [static, inherited]

A mask of scientific|fixed. Useful for the 2-arg form of `setf`.

Definition at line 324 of file ios_base.h.

5.378.6.17 const iostate std::ios_base::goodbit [static, inherited]

Indicates all is well.

Definition at line 353 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ios< _CharT, _Traits >::init(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), and std::basic_istream< _CharT, _Traits >::unget().

5.378.6.18 const fmtflags std::ios_base::hex [static, inherited]

Converts integer input or generates integer output in hexadecimal base.

Definition at line 275 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::num_put< _CharT, _OutIter >::do_put(), and std::basic_ostream< _CharT, _Traits >::operator<<().

5.378.6.19 const openmode std::ios_base::in [static, inherited]

Open for input. Default for `ifstream` and fstream.

Definition at line 383 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::showmanyc(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::underflow(), std::basic_filebuf< _CharT, _Traits >::underflow(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.378.6.20 const fmtflags std::ios_base::internal [static, inherited]

Adds fill characters at a designated internal point in certain generated output, or identical to `right` if no such point is designated.

Definition at line 280 of file ios_base.h.

5.378.6.21 const fmtflags std::ios_base::left [static, inherited]

Adds fill characters on the right (final positions) of certain generated output. (I.e., the thing you print is flush left.).

Definition at line 284 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

5.378.6.22 const fmtflags std::ios_base::oct [static, inherited]

Converts integer input or generates integer output in octal base.

Definition at line 287 of file ios_base.h.

Referenced by std::basic_ostream< _CharT, _Traits >::operator<<().

5.378.6.23 const openmode std::ios_base::out [static, inherited]

Open for output. Default for `ofstream` and fstream.

Definition at line 386 of file ios_base.h.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_ostream< _CharT, _Traits >::tellp(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.378.6.24 const fmtflags std::ios_base::right [static, inherited]

Adds fill characters on the left (initial positions) of certain generated output. (I.e., the thing you print is flush right.).

Definition at line 291 of file ios_base.h.

5.378.6.25 const fmtflags std::ios_base::scientific [static, inherited]

Generates floating-point output in scientific notation.

Definition at line 294 of file ios_base.h.

5.378.6.26 const fmtflags std::ios_base::showbase [static, inherited]

Generates a prefix indicating the numeric base of generated integer output.

Definition at line 298 of file ios_base.h.

5.378.6.27 const fmtflags std::ios_base::showpoint [static, inherited]

Generates a decimal-point character unconditionally in generated floating-point output.

Definition at line 302 of file ios_base.h.

5.378.6.28 const fmtflags std::ios_base::showpos [static, inherited]

Generates a + sign in non-negative generated numeric output.

Definition at line 305 of file ios_base.h.

5.378.6.29 const fmtflags std::ios_base::skipws [static, inherited]

Skips leading white space before certain input operations.

Definition at line 308 of file ios_base.h.

5.378.6.30 const openmode std::ios_base::trunc [static, inherited]

Open for input. Default for `ofstream`.

Definition at line 389 of file ios_base.h.

5.378.6.31 const fmtflags std::ios_base::unitbuf [static, inherited]

Flushes output after each output operation.

Definition at line 311 of file ios_base.h.

5.378.6.32 const fmtflags std::ios_base::uppercase [static, inherited]

Replaces certain lowercase letters with their uppercase equivalents in generated output.

Definition at line 315 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

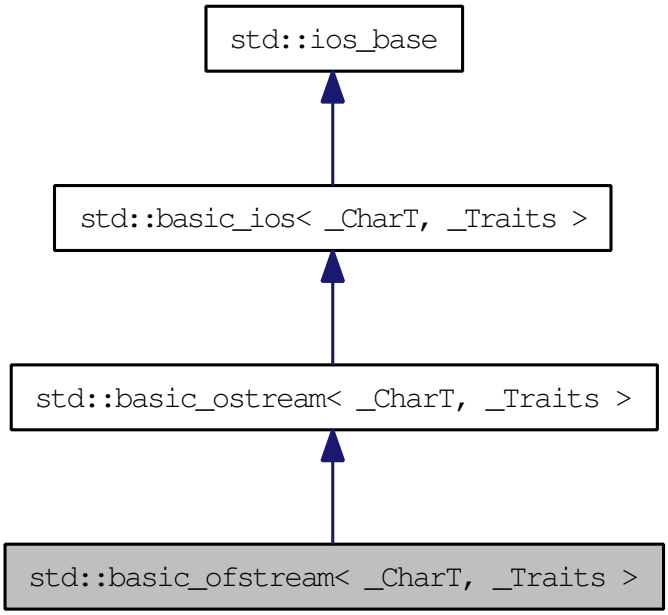
The documentation for this class was generated from the following file:

- sstream

5.379 std::basic_ofstream< _CharT, _Traits > Class Template Reference

Controlling output for files.

This class supports reading from named files, using the inherited functions from std::basic_ostream. To control the associated sequence, an instance of std::basic_filebuf is used, which this page refers to as `sb`. Inheritance diagram for std::basic_ofstream< _CharT, _Traits >:



Public Types

- typedef ctype< _CharT > __ctype_type
- typedef basic_filebuf< char_type, traits_type > **__filebuf_type**
- typedef basic_ios< _CharT, _Traits > **__ios_type**
- typedef num_put< _CharT, ostreambuf_iterator< _CharT, _Traits > > __num_put_type
- typedef basic_ostream< char_type, traits_type > **__ostream_type**
- typedef basic_streambuf< _CharT, _Traits > **__streambuf_type**
- typedef _CharT char_type
- enum event { **erase_event**, **imbue_event**, **copyfmt_event** }
- typedef void(* event_callback)(event, ios_base &, int)

- typedef _Ios_Fmtflags fmtflags
- typedef traits_type::int_type int_type
- typedef int **io_state**
- typedef _Ios_Iostate iostate
- typedef traits_type::off_type off_type
- typedef int **open_mode**
- typedef _Ios_Openmode openmode
- typedef traits_type::pos_type pos_type
- typedef int **seek_dir**
- typedef _Ios_Seekdir seekdir
- typedef std::streamoff **streamoff**
- typedef std::streampos **streampos**
- typedef _Traits traits_type

Public Member Functions

- basic_ofstream (const std::string &__s, ios_base::openmode __mode=ios_base::out|ios_base::trunc)
- basic_ofstream (const char *__s, ios_base::openmode __mode=ios_base::out|ios_base::trunc)
- basic_ofstream ()
- ~basic_ofstream ()
- const locale & _M_getloc () const
- void **_M_setstate** (iostate __state)
- bool bad () const
- void clear (iostate __state=goodbit)
- void close ()
- basic_ios & copyfmt (const basic_ios &__rhs)
- bool eof () const
- void exceptions (iostate __except)
- iostate exceptions () const
- bool fail () const
- char_type fill (char_type __ch)
- char_type fill () const
- fmtflags flags (fmtflags __fmtfl)
- fmtflags flags () const
- __ostream_type & flush ()
- locale getloc () const
- bool good () const
- locale imbue (const locale &__loc)
- bool **is_open** () const
- bool is_open ()

- long & iword (int __ix)
- char narrow (char_type __c, char __dfault) const
- void open (const std::string &__s, ios_base::openmode __mode=ios_base::out|ios_base::trunc)
- void open (const char *__s, ios_base::openmode __mode=ios_base::out|ios_base::trunc)
- streamsize precision (streamsize __prec)
- streamsize precision () const
- void *& pword (int __ix)
- basic_streambuf< _CharT, _Traits > * rdbuf (basic_streambuf< _CharT, _Traits > *__sb)
- __filebuf_type * rdbuf () const
- iostate rdstate () const
- void register_callback (event_callback __fn, int __index)
- __ostream_type & seekp (off_type, ios_base::seekdir)
- __ostream_type & seekp (pos_type)
- fmtflags setf (fmtflags __fmtfl, fmtflags __mask)
- fmtflags setf (fmtflags __fmtfl)
- void setstate (iostate __state)
- pos_type tellp ()
- basic_ostream< _CharT, _Traits > * tie (basic_ostream< _CharT, _Traits > *__tiestr)
- basic_ostream< _CharT, _Traits > * tie () const
- void unsetf (fmtflags __mask)
- char_type widen (char __c) const
- streamsize width (streamsize __wide)
- streamsize width () const

Unformatted Output Functions

All the unformatted output functions have some common behavior. Each starts by constructing a temporary object of type std::basic_ostream::sentry. This has several effects, concluding with the setting of a status flag; see the sentry documentation for more.

If the sentry status is good, the function tries to generate whatever data is appropriate for the type of the argument.

If an exception is thrown during insertion, ios_base::badbit will be turned on in the stream's error state. If badbit is on in the stream's exceptions mask, the exception will be rethrown without completing its actions.

- void _M_write (const char_type *__s, streamsize __n)
- __ostream_type & put (char_type __c)
- __ostream_type & write (const char_type *__s, streamsize __n)

Arithmetic Inserters

All the `operator<<` functions (aka formatted output functions) have some common behavior. Each starts by constructing a temporary object of type std::basic_ostream::sentry. This can have several effects, concluding with the setting of a status flag; see the sentry documentation for more.

If the sentry status is good, the function tries to generate whatever data is appropriate for the type of the argument.

If an exception is thrown during insertion, ios_base::badbit will be turned on in the stream's error state without causing an ios_base::failure to be thrown. The original exception will then be rethrown.

- __ostream_type & operator<< (__streambuf_type *__sb)
- __ostream_type & operator<< (const void *__p)
- __ostream_type & operator<< (long double __f)
- __ostream_type & operator<< (float __f)
- __ostream_type & operator<< (double __f)
- __ostream_type & operator<< (unsigned long long __n)
- __ostream_type & operator<< (long long __n)
- __ostream_type & operator<< (unsigned int __n)
- __ostream_type & operator<< (int __n)
- __ostream_type & operator<< (unsigned short __n)
- __ostream_type & operator<< (short __n)
- __ostream_type & operator<< (bool __n)
- __ostream_type & operator<< (unsigned long __n)
- __ostream_type & operator<< (long __n)

- __ostream_type & operator<< (ios_base &(*__pf)(ios_base &))
- __ostream_type & operator<< (__ios_type &(*__pf)(__ios_type &))
- __ostream_type & operator<< (__ostream_type &(*__pf)(__ostream_type &))

Static Public Member Functions

- static bool sync_with_stdio (bool __sync=true)
- static int xalloc () throw ()

Static Public Attributes

- static const fmtflags adjustfield
- static const openmode app
- static const openmode ate
- static const iostate badbit
- static const fmtflags basefield
- static const seekdir beg

- static const openmode binary
- static const fmtflags boolalpha
- static const seekdir cur
- static const fmtflags dec
- static const seekdir end
- static const iostate eofbit
- static const iostate failbit
- static const fmtflags fixed
- static const fmtflags floatfield
- static const iostate goodbit
- static const fmtflags hex
- static const openmode in
- static const fmtflags internal
- static const fmtflags left
- static const fmtflags oct
- static const openmode out
- static const fmtflags right
- static const fmtflags scientific
- static const fmtflags showbase
- static const fmtflags showpoint
- static const fmtflags showpos
- static const fmtflags skipws
- static const openmode trunc
- static const fmtflags unitbuf
- static const fmtflags uppercase

Protected Types

- enum { **_S_local_word_size** }

Protected Member Functions

- void **_M_cache_locale** (const locale &__loc)
- void **_M_call_callbacks** (event __ev) throw ()
- void **_M_dispose_callbacks** (void) throw ()
- _Words & **_M_grow_words** (int __index, bool __iword)
- void **_M_init** () throw ()
- template<typename _ValueT >
  __ostream_type & **_M_insert** (_ValueT __v)
- void init (basic_streambuf< _CharT, _Traits > *__sb)

Protected Attributes

- _Callback_list * **_M_callbacks**
- const __ctype_type * **_M_ctype**
- iostate **_M_exception**
- char_type **_M_fill**
- bool **_M_fill_init**
- fmtflags **_M_flags**
- locale **_M_ios_locale**
- _Words **_M_local_word** [_S_local_word_size]
- const __num_get_type * **_M_num_get**
- const __num_put_type * **_M_num_put**
- streamsize **_M_precision**
- basic_streambuf< _CharT, _Traits > * **_M_streambuf**
- iostate **_M_streambuf_state**
- basic_ostream< _CharT, _Traits > * **_M_tie**
- streamsize **_M_width**
- _Words * **_M_word**
- int **_M_word_size**
- _Words **_M_word_zero**

Friends

- class **sentry**

- typedef num_get< _CharT, istreambuf_iterator< _CharT, _Traits > > __num_get_type
- operator void * () const
- bool operator! () const

5.379.1 Detailed Description

template<typename _CharT, typename _Traits> class std::basic_ofstream< _CharT, _Traits >

Controlling output for files.

This class supports reading from named files, using the inherited functions from std::basic_ostream. To control the associated sequence, an instance of std::basic_filebuf is used, which this page refers to as `sb`.

Definition at line 583 of file fstream.

5.379.2 Member Typedef Documentation

5.379.2.1 template<typename _CharT, typename _Traits> typedef ctype<_CharT> std::basic_ostream< _CharT, _Traits >::__ctype_type [inherited]

These are non-standard types.

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 71 of file ostream.

5.379.2.2 template<typename _CharT, typename _Traits> typedef num_get<_CharT, istreambuf_iterator<_CharT, _Traits> > std::basic_ios< _CharT, _Traits >::__num_get_type [inherited]

These are non-standard types.

Reimplemented in std::basic_istream< _CharT, _Traits >, std::basic_istream< char, _Traits >, and std::basic_istream< char >.

Definition at line 86 of file basic_ios.h.

5.379.2.3 template<typename _CharT, typename _Traits> typedef num_put<_CharT, ostreambuf_iterator<_CharT, _Traits> > std::basic_ostream< _CharT, _Traits >::__num_put_type [inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 70 of file ostream.

5.379.2.4 template<typename _CharT , typename _Traits > typedef _CharT std::basic_ofstream< _CharT, _Traits >::char_type

These are standard types. They permit a standardized way of referring to names of (or names dependant on) the template parameters, which are specific to the implementation.

Reimplemented from std::basic_ostream< _CharT, _Traits >.

Definition at line 587 of file fstream.

5.379.2.5 typedef void(* std::ios_base::event_callback)(event, ios_base &, int) [inherited]

The type of an event callback function.

Parameters:

event One of the members of the event enum.

ios_base Reference to the ios_base object.

int The integer provided when the callback was registered.

Event callbacks are user defined functions that get called during several ios_base and basic_ios functions, specifically imbue(), copyfmt(), and ~ios().

Definition at line 444 of file ios_base.h.

5.379.2.6 typedef _Ios_Fmtflags std::ios_base::fmtflags [inherited]

This is a bitmask type. *_Ios_Fmtflags* is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type fmtflags are:

- boolalpha
- dec
- fixed
- hex
- internal
- left
- oct
- right
- scientific
- showbase
- showpoint
- showpos
- skipws
- unitbuf

- uppercase
- adjustfield
- basefield
- floatfield

Definition at line 263 of file ios_base.h.

5.379.2.7 template<typename _CharT , typename _Traits > typedef traits_type::int_type std::basic_ofstream< _CharT, _Traits >::int_type

These are non-standard types.

Reimplemented from std::basic_ostream< _CharT, _Traits >.

Definition at line 589 of file fstream.

5.379.2.8 typedef _Ios_Iostate std::ios_base::iostate [inherited]

This is a bitmask type. *_Ios_Iostate* is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type iostate are:

- badbit
- eofbit
- failbit
- goodbit

Definition at line 338 of file ios_base.h.

5.379.2.9 template<typename _CharT , typename _Traits > typedef traits_type::off_type std::basic_ofstream< _CharT, _Traits >::off_type

These are non-standard types.

Reimplemented from std::basic_ostream< _CharT, _Traits >.

Definition at line 591 of file fstream.

5.379.2.10 typedef _Ios_Openmode std::ios_base::openmode [inherited]

This is a bitmask type. *_Ios_Openmode* is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type openmode are:

- app
- ate
- binary
- in
- out
- trunc

Definition at line 369 of file ios_base.h.

5.379.2.11 template<typename _CharT , typename _Traits > typedef traits_type::pos_type std::basic_ofstream< _CharT, _Traits >::pos_type

These are non-standard types.

Reimplemented from std::basic_ostream< _CharT, _Traits >.

Definition at line 590 of file fstream.

5.379.2.12 typedef _Ios_Seekdir std::ios_base::seekdir [inherited]

This is an enumerated type. *_Ios_Seekdir* is implementation-defined. Defined values of type seekdir are:

- beg
- cur, equivalent to SEEK_CUR in the C standard library.
- end, equivalent to SEEK_END in the C standard library.

Definition at line 401 of file ios_base.h.

5.379.2.13 template<typename _CharT , typename _Traits > typedef _Traits std::basic_ofstream< _CharT, _Traits >::traits_type

These are non-standard types.

Reimplemented from std::basic_ostream< _CharT, _Traits >.

Definition at line 588 of file fstream.

5.379.3 Member Enumeration Documentation

5.379.3.1 enum std::ios_base::event [inherited]

The set of events that may be passed to an event callback. erase_event is used during ~ios() and copyfmt(). imbue_event is used during imbue(). copyfmt_event is used during copyfmt().

Definition at line 427 of file ios_base.h.

5.379.4 Constructor & Destructor Documentation

5.379.4.1 template<typename _CharT , typename _Traits > std::basic_ofstream< _CharT, _Traits >::basic_ofstream () [inline]

Default constructor. Initializes `sb` using its default constructor, and passes `&sb` to the base class initializer. Does not open any files (you haven't given it a filename to open).

Definition at line 609 of file fstream.

5.379.4.2 template<typename _CharT , typename _Traits > std::basic_ofstream< _CharT, _Traits >::basic_ofstream (const char * __s, ios_base::openmode __mode = ios_base::out|ios_base::trunc) [inline, explicit]

Create an output file stream.

Parameters:

s Null terminated string specifying the filename.

mode Open file in specified mode (see std::ios_base).

`ios_base::out|ios_basetrunc` is automatically included in *mode*.

Tip: When using std::string to hold the filename, you must use .c_str() before passing it to this constructor.

Definition at line 624 of file fstream.

5.379.4.3 template<typename _CharT , typename _Traits > std::basic_ofstream< _CharT, _Traits >::basic_ofstream (const std::string & __s, ios_base::openmode __mode = ios_base::out|ios_base::trunc) [inline, explicit]

Create an output file stream.

Parameters:

s std::string specifying the filename.

mode Open file in specified mode (see std::ios_base).

`ios_base::out`|`ios_basetrunc` is automatically included in *mode*.

Definition at line 642 of file fstream.

5.379.4.4 template<typename _CharT , typename _Traits > std::basic_ofstream< _CharT, _Traits >::~basic_ofstream () [inline]

The destructor does nothing. The file is closed by the filebuf object, not the formatting stream.

Definition at line 657 of file fstream.

5.379.5 Member Function Documentation

5.379.5.1 const locale& std::ios_base::_M_getloc () const [inline, inherited]

Locale access.

Returns:

A reference to the current locale.

Like getloc above, but returns a reference instead of generating a copy.

Definition at line 705 of file ios_base.h.

Referenced by std::money_get< _CharT, _InIter >::do_get(), std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_date(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_time(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::time_put< _CharT, _OutIter >::do_put(), std::num_put< _CharT, _OutIter >::do_put(), and std::time_put< _CharT, _OutIter >::put().

5.379.5.2 template<typename _CharT, typename _Traits> void std::basic_ostream< _CharT, _Traits >::_M_write (const char_type * __s, streamsize __n) [inline, inherited]

Simple insertion.

Parameters:

c The character to insert.

Returns:

*this

Tries to insert *c*.

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 287 of file ostream.

Referenced by std::basic_ostream< _CharT, _Traits >::write().

5.379.5.3 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::bad () const [inline, inherited]

Fast error checking.

Returns:

True if the badbit is set.

Note that other iostate flags may also be set.

Definition at line 201 of file basic_ios.h.

5.379.5.4 template<typename _CharT , typename _Traits > void std::basic_ios< _CharT, _Traits >::clear (iostate __state = goodbit) [inline, inherited]

[Re]sets the error state.

Parameters:

state The new state flag(s) to set.

See std::ios_base::iostate for the possible bit values. Most users will not need to pass an argument.

Definition at line 40 of file basic_ios.tcc.

Referenced by std::basic_ios< _CharT, _Traits >::rdbuf().

5.379.5.5 template<typename _CharT , typename _Traits > void std::basic_ofstream< _CharT, _Traits >::close () [inline]

Close the file. Calls `std::basic_filebuf::close()`. If that function fails, `failbit` is set in the stream's error state.

Definition at line 737 of file fstream.

5.379.5.6 template<typename _CharT , typename _Traits > basic_ios< _CharT, _Traits > & std::basic_ios< _CharT, _Traits >::copyfmt (const basic_ios< _CharT, _Traits > & *__rhs*) [inline, inherited]

Copies fields of __rhs into this.

Parameters:

__rhs The source values for the copies.

Returns:

Reference to this object.

All fields of __rhs are copied into this object except that rdbuf() and rdstate() remain unchanged. All values in the pword and iword arrays are copied. Before copying, each callback is invoked with erase_event. After copying, each (new) callback is invoked with copyfmt_event. The final step is to copy exceptions().

Definition at line 62 of file basic_ios.tcc.

References std::basic_ios< _CharT, _Traits >::exceptions(), std::basic_ios< _CharT, _Traits >::fill(), std::ios_base::flags(), std::ios_base::getloc(), std::ios_base::precision(), std::basic_ios< _CharT, _Traits >::tie(), and std::ios_base::width().

5.379.5.7 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::eof () const [inline, inherited]

Fast error checking.

Returns:

True if the eofbit is set.

Note that other iostate flags may also be set.

Definition at line 180 of file basic_ios.h.

Referenced by std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_istream< _CharT, _Traits >::putback(), and std::basic_istream< _CharT, _Traits >::unget().

5.379.5.8 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::exceptions (iostate __*except*) [inline, inherited]

Throwing exceptions on errors.

Parameters:

except The new exceptions mask.

By default, error flags are set silently. You can set an exceptions mask for each stream; if a bit in the mask becomes set in the error flags, then an exception of type std::ios_base::failure is thrown.

If the error flag is already set when the exceptions mask is added, the exception is immediately thrown. Try running the following under GCC 3.1 or later:

```
#include <iostream>
#include <fstream>
#include <exception>

int main()
{
    std::set_terminate (__gnu_cxx::__verbose_terminate_handler);

    std::ifstream f ("/etc/motd");

    std::cerr << "Setting badbit\n";
    f.setstate (std::ios_base::badbit);

    std::cerr << "Setting exception mask\n";
    f.exceptions (std::ios_base::badbit);
}
```

Definition at line 247 of file basic_ios.h.

5.379.5.9 template<typename _CharT, typename _Traits> iostate std::basic_ios< _CharT, _Traits >::exceptions () const [inline, inherited]

Throwing exceptions on errors.

Returns:

The current exceptions mask.

This changes nothing in the stream. See the one-argument version of exceptions(iostate) for the meaning of the return value.

Definition at line 212 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.379.5.10 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::fail () const [inline, inherited]

Fast error checking.

Returns:

True if either the badbit or the failbit is set.

Checking the badbit in fail() is historical practice. Note that other iostate flags may also be set.

Definition at line 191 of file basic_ios.h.

Referenced by std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_ostream< _CharT, _Traits >::tellp(), and std::regex_traits< _Ch_type >::value().

5.379.5.11 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::fill (char_type *__ch*) [inline, inherited]

Sets a new *empty* character.

Parameters:

ch The new character.

Returns:

The previous fill character.

The fill character is used to fill out space when P+ characters have been requested (e.g., via setw), Q characters are actually used, and Q<P. It defaults to a space (' ') in the current locale.

Definition at line 380 of file basic_ios.h.

5.379.5.12 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::fill () const [inline, inherited]

Retrieves the *empty* character.

Returns:

The current fill character.

It defaults to a space (' ') in the current locale.

Definition at line 360 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.379.5.13 fmtflags std::ios_base::flags (fmtflags *__fmtfl*) [inline, inherited]

Setting new format flags all at once.

Parameters:

fmtfl The new flags to set.

Returns:

The previous format control flags.

This function overwrites all the format flags with *fmtfl*.

Definition at line 561 of file ios_base.h.

5.379.5.14 fmtflags std::ios_base::flags () const [inline, inherited]

Access to format flags.

Returns:

The format control flags for both input and output.

Definition at line 550 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::num_get< _CharT, _InIter >::do_get(), std::num_put< _CharT, _OutIter >::do_put(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator<<(), and std::operator>>().

5.379.5.15 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::flush () [inline, inherited]

Synchronizing the stream buffer.

Returns:

∗this

If `rdbuf()` is a null pointer, changes nothing.

Otherwise, calls `rdbuf()->pubsync()`, and if that returns -1, sets badbit.

Definition at line 211 of file ostream.tcc.

References std::ios_base::badbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

Referenced by std::flush().

5.379.5.16 locale std::ios_base::getloc () const [inline, inherited]

Locale access.

Returns:

A copy of the current locale.

If `imbue(loc)` has previously been called, then this function returns `loc`. Otherwise, it returns a copy of `std::locale()`, the global C++ locale.

Definition at line 694 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::money_put< _CharT, _OutIter >::do_put(), std::basic_ios< _CharT, _Traits >::imbue(), std::operator>>(), and std::ws().

5.379.5.17 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::good () const [inline, inherited]

Fast error checking.

Returns:

True if no error flags are set.

A wrapper around rdstate.

Definition at line 170 of file basic_ios.h.

5.379.5.18 template<typename _CharT , typename _Traits > locale std::basic_ios< _CharT, _Traits >::imbue (const locale & *__loc*) [inline, inherited]

Moves to a new locale.

Parameters:

loc The new locale.

Returns:

The previous locale.

Calls `ios_base::imbue(loc)`, and if a stream buffer is associated with this stream, calls that buffer's `pubimbue(loc)`.

Additional l10n notes are at `http://gcc.gnu.org/onlinedocs/libstdc++/manual/localizati`

Reimplemented from std::ios_base.

Definition at line 113 of file basic_ios.tcc.

References std::ios_base::getloc(), and std::basic_ios< _CharT, _Traits >::rdbuf().

Referenced by std::operator<<().

5.379.5.19 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::init (basic_streambuf< _CharT, _Traits > * *__sb*) [inline, protected, inherited]

All setup is performed here. This is called from the public constructor. It is not virtual and cannot be redefined.

Definition at line 125 of file basic_ios.tcc.

References std::ios_base::badbit, and std::ios_base::goodbit.

5.379.5.20 template<typename _CharT , typename _Traits > bool std::basic_ofstream< _CharT, _Traits >::is_open () [inline]

Wrapper to test for an open file.

Returns:

`rdbuf()->is_open()`

Definition at line 676 of file fstream.

5.379.5.21 long& std::ios_base::iword (int *__ix*) [inline, inherited]

Access to integer array.

Parameters:

__ix Index into the array.

Returns:

A reference to an integer associated with the index.

The iword function provides access to an array of integers that can be used for any purpose. The array grows as required to hold the supplied index. All integers in the array are initialized to 0.

The implementation reserves several indices. You should use xalloc to obtain an index that is safe to use. Also note that since the array can grow dynamically, it is not safe to hold onto the reference.

Definition at line 740 of file ios_base.h.

5.379.5.22 template<typename _CharT, typename _Traits> char std::basic_ios< _CharT, _Traits >::narrow (char_type *__c*, char *__dfault*) const [inline, inherited]

Squeezes characters.

Parameters:

c The character to narrow.

dfault The character to narrow.

Returns:

The narrowed character.

Maps a character of `char_type` to a character of `char`, if possible.

Returns the result of

```
std::use_facet<ctype<char_type> >(getloc()).narrow(c,dfault)
```

Additional l10n notes are at http://gcc.gnu.org/onlinedocs/libstdc++/manual/localization.html

Definition at line 420 of file basic_ios.h.

5.379.5.23 template<typename _CharT , typename _Traits > void std::basic_ofstream< _CharT, _Traits >::open (const std::string & __s, ios_base::openmode __mode = ios_base::out | ios_base::trunc) [inline]

Opens an external file.

Parameters:

s The name of the file.

mode The open mode flags.

Calls `std::basic_filebuf::open`(s,mode|out|trunc). If that function fails, `failbit` is set in the stream's error state.

Definition at line 718 of file fstream.

5.379.5.24 template<typename _CharT , typename _Traits > void std::basic_ofstream< _CharT, _Traits >::open (const char * __s, ios_base::openmode __mode = ios_base::out | ios_base::trunc) [inline]

Opens an external file.

Parameters:

s The name of the file.

mode The open mode flags.

Calls `std::basic_filebuf::open`(s,mode|out|trunc). If that function fails, `failbit` is set in the stream's error state.

Tip: When using std::string to hold the filename, you must use .c_str() before passing it to this constructor.

Definition at line 697 of file fstream.

5.379.5.25 template<typename _CharT, typename _Traits> std::basic_ios< _CharT, _Traits >::operator void * () const [inline, inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Definition at line 111 of file basic_ios.h.

5.379.5.26 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::operator! () const [inline, inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Definition at line 115 of file basic_ios.h.

5.379.5.27 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::operator<< (__streambuf_type * *__sb*) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 120 of file ostream.tcc.

References std::ios_base::badbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.379.5.28 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (const void * *__p*) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 225 of file ostream.

5.379.5.29 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (long double __f) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 221 of file ostream.

5.379.5.30 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (float __f) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 213 of file ostream.

5.379.5.31 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (double __f) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 209 of file ostream.

5.379.5.32 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (unsigned long long __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 204 of file ostream.

5.379.5.33 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (long long __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 200 of file ostream.

5.379.5.34 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (unsigned int __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,

- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 191 of file ostream.

5.379.5.35 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::operator<< (int __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 106 of file ostream.tcc.

References std::ios_base::basefield, std::ios_base::flags(), std::ios_base::hex, and std::ios_base::oct.

5.379.5.36 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (unsigned short __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 180 of file ostream.

5.379.5.37 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::operator<< (short __*n*) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 92 of file ostream.tcc.

References std::ios_base::basefield, std::ios_base::flags(), std::ios_base::hex, and std::ios_base::oct.

5.379.5.38 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (bool __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 173 of file ostream.

5.379.5.39 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (unsigned long __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 169 of file ostream.

5.379.5.40 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (long __n) [inline, inherited]

Basic arithmetic inserters.

Parameters:

A variable of builtin type.

Returns:

`*this` if successful

These functions use the stream's current locale (specifically, the `num_get` facet) to perform numeric formatting.

Definition at line 165 of file ostream.

5.379.5.41 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (ios_base &(*)(ios_base &) __pf) [inline, inherited]

Interface for manipulators. Manipulators such as `std::endl` and `std::hex` use these functions in constructs like "std::cout << std::endl". For more information, see the iomanip header.

Definition at line 127 of file ostream.

5.379.5.42 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (__ios_type &(*)(__ios_type &) *__pf*) [inline, inherited]

Interface for manipulators. Manipulators such as `std::endl` and `std::hex` use these functions in constructs like "std::cout << std::endl". For more information, see the iomanip header.

Definition at line 117 of file ostream.

5.379.5.43 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (__ostream_type &(*)(__ostream_type &) *__pf*) [inline, inherited]

Interface for manipulators. Manipulators such as `std::endl` and `std::hex` use these functions in constructs like "std::cout << std::endl". For more information, see the iomanip header.

Definition at line 108 of file ostream.

5.379.5.44 streamsize std::ios_base::precision (streamsize *__prec*) [inline, inherited]

Changing flags.

Parameters:

prec The new precision value.

Returns:

The previous value of precision().

Definition at line 629 of file ios_base.h.

5.379.5.45 streamsize std::ios_base::precision () const [inline, inherited]

Flags access.

Returns:

The precision to generate on certain output operations.

Be careful if you try to give a definition of *precision* here; see DR 189.

Definition at line 620 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), and std::operator<<().

5.379.5.46 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::put (char_type __c) [inline, inherited]

Simple insertion.

Parameters:

c The character to insert.

Returns:

∗this

Tries to insert *c*.

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 149 of file ostream.tcc.

References std::ios_base::badbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

Referenced by std::endl(), and std::ends().

5.379.5.47 void∗& std::ios_base::pword (int __ix) [inline, inherited]

Access to void pointer array.

Parameters:

__ix Index into the array.

Returns:

A reference to a void∗ associated with the index.

The pword function provides access to an array of pointers that can be used for any purpose. The array grows as required to hold the supplied index. All pointers in the array are initialized to 0.

The implementation reserves several indices. You should use xalloc to obtain an index that is safe to use. Also note that since the array can grow dynamically, it is not safe to hold onto the reference.

Definition at line 761 of file ios_base.h.

5.379.5.48 template<typename _CharT, typename _Traits> basic_streambuf< _CharT, _Traits > * std::basic_ios< _CharT, _Traits >::rdbuf (basic_streambuf< _CharT, _Traits > * *__sb*) [inline, inherited]

Changing the underlying buffer.

Parameters:

sb The new stream buffer.

Returns:

The previous stream buffer.

Associates a new buffer with the current stream, and clears the error state.

Due to historical accidents which the LWG refuses to correct, the I/O library suffers from a design error: this function is hidden in derived classes by overrides of the zero-argument `rdbuf()`, which is non-virtual for hysterical raisins. As a result, you must use explicit qualifications to access this function via any derived class. For example:

```
std::fstream     foo;         // or some other derived type
std::streambuf*  p = .....;

foo.ios::rdbuf(p);            // ios == basic_ios<char>
```

Definition at line 52 of file basic_ios.tcc.

References std::basic_ios< _CharT, _Traits >::clear().

5.379.5.49 template<typename _CharT , typename _Traits > __filebuf_type* std::basic_ofstream< _CharT, _Traits >::rdbuf () const [inline]

Accessing the underlying buffer.

Returns:

The current basic_filebuf buffer.

This hides both signatures of std::basic_ios::rdbuf().

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 668 of file fstream.

5.379.5.50 template<typename _CharT, typename _Traits> iostate std::basic_ios< _CharT, _Traits >::rdstate () const [inline, inherited]

Returns the error state of the stream buffer.

Returns:

A bit pattern (well, isn't everything?)

See std::ios_base::iostate for the possible bit values. Most users will call one of the interpreting wrappers, e.g., good().

Definition at line 127 of file basic_ios.h.

5.379.5.51 void std::ios_base::register_callback (event_callback *__fn*, int *__index*) [inherited]

Add the callback __fn with parameter __index.

Parameters:

__fn The function to add.

__index The integer to pass to the function when invoked.

Registers a function as an event callback with an integer parameter to be passed to the function when invoked. Multiple copies of the function are allowed. If there are multiple callbacks, they are invoked in the order they were registered.

5.379.5.52 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::seekp (off_type *__off*, ios_base::seekdir *__dir*) [inline, inherited]

Changing the current write position.

Parameters:

off A file offset object.

dir The direction in which to seek.

Returns:

*this

If `fail()` is not true, calls `rdbuf()->pubseekoff(off,dir)`. If that function fails, sets failbit.

Definition at line 290 of file ostream.tcc.

References std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::failbit, std::ios_base::goodbit, std::ios_base::out, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.379.5.53 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::seekp (pos_type *__pos*) [inline, inherited]

Changing the current write position.

Parameters:

pos A file position object.

Returns:

∗this

If `fail()` is not true, calls `rdbuf()->pubseekpos(pos)`. If that function fails, sets failbit.

Definition at line 258 of file ostream.tcc.

References std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::failbit, std::ios_base::goodbit, std::ios_base::out, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.379.5.54 fmtflags std::ios_base::setf (fmtflags *__fmtfl*, fmtflags *__mask*) [inline, inherited]

Setting new format flags.

Parameters:

fmtfl Additional flags to set.

mask The flags mask for *fmtfl*.

Returns:

The previous format control flags.

This function clears *mask* in the format flags, then sets *fmtfl* & *mask*. An example mask is `ios_base::adjustfield`.

Definition at line 594 of file ios_base.h.

5.379.5.55 fmtflags std::ios_base::setf (fmtflags *__fmtfl*) [inline, inherited]

Setting new format flags.

Parameters:

fmtfl Additional flags to set.

Returns:

The previous format control flags.

This function sets additional flags in format control. Flags that were previously set remain set.

Definition at line 577 of file ios_base.h.

Referenced by std::boolalpha(), std::dec(), std::fixed(), std::hex(), std::internal(), std::left(), std::oct(), std::right(), std::scientific(), std::showbase(), std::showpoint(), std::showpos(), std::skipws(), std::unitbuf(), and std::uppercase().

5.379.5.56 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::setstate (iostate *__state*) [inline, inherited]

Sets additional flags in the error state.

Parameters:

state The additional state flag(s) to set.

See std::ios_base::iostate for the possible bit values.

Definition at line 147 of file basic_ios.h.

Referenced by std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::basic_istream< _CharT, _Traits >::operator>>(), std::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), std::basic_istream< _CharT, _Traits >::unget(), and std::ws().

5.379.5.57 static bool std::ios_base::sync_with_stdio (bool *__sync* = `true`) `[static, inherited]`

Interaction with the standard C I/O objects.

Parameters:

sync Whether to synchronize or not.

Returns:

True if the standard streams were previously synchronized.

The synchronization referred to is *only* that between the standard C facilities (e.g., stdout) and the standard C++ objects (e.g., cout). User-declared streams are unaffected. See http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch28s02.html

5.379.5.58 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits >::pos_type std::basic_ostream< _CharT, _Traits >::tellp () `[inline, inherited]`

Getting the current write position.

Returns:

A file position object.

If `fail()` is not false, returns `pos_type`(-1) to indicate failure. Otherwise returns `rdbuf()->pubseekoff(0,cur,out)`.

Definition at line 237 of file ostream.tcc.

References std::ios_base::badbit, std::ios_base::cur, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::out, and std::basic_ios< _CharT, _Traits >::rdbuf().

5.379.5.59 template<typename _CharT, typename _Traits> basic_ostream<_CharT, _Traits>* std::basic_ios< _CharT, _Traits >::tie (basic_ostream< _CharT, _Traits > * *__tiestr*) `[inline, inherited]`

Ties this stream to an output stream.

Parameters:

tiestr The output stream.

Returns:

The previously tied output stream, or NULL if the stream was not tied.

This sets up a new tie; see tie() for more.

Definition at line 297 of file basic_ios.h.

5.379.5.60 template<typename _CharT, typename _Traits> basic_ostream<_CharT, _Traits>* std::basic_ios< _CharT, _Traits >::tie () const [inline, inherited]

Fetches the current *tied* stream.

Returns:

A pointer to the tied stream, or NULL if the stream is not tied.

A stream may be *tied* (or synchronized) to a second output stream. When this stream performs any I/O, the tied stream is first flushed. For example, `std::cin` is tied to `std::cout`.

Definition at line 285 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.379.5.61 void std::ios_base::unsetf (fmtflags *__mask*) [inline, inherited]

Clearing format flags.

Parameters:

mask The flags to unset.

This function clears *mask* in the format flags.

Definition at line 609 of file ios_base.h.

Referenced by std::noboolalpha(), std::noshowbase(), std::noshowpoint(), std::noshowpos(), std::noskipws(), std::nounitbuf(), and std::nouppercase().

5.379.5.62 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::widen (char *__c*) const [inline, inherited]

Widens characters.

Parameters:

c The character to widen.

Returns:

The widened character.

Maps a character of `char` to a character of `char_type`.
Returns the result of

```
std::use_facet<ctype<char_type> >(getloc()).widen(c)
```

Additional l10n notes are at http://gcc.gnu.org/onlinedocs/libstdc++/manual/localizati

Definition at line 439 of file basic_ios.h.

Referenced by std::endl(), std::getline(), and std::operator>>().

5.379.5.63 streamsize std::ios_base::width (streamsize *__wide*) [inline, inherited]

Changing flags.

Parameters:

wide The new width value.

Returns:

The previous value of width().

Definition at line 652 of file ios_base.h.

5.379.5.64 streamsize std::ios_base::width () const [inline, inherited]

Flags access.

Returns:

The minimum field width to generate on output operations.

Minimum field width refers to the number of characters.

Definition at line 643 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::num_put< _CharT, _OutIter >::do_put(), and std::operator>>().

5.379.5.65 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::write (const char_type * __s, streamsize __n) [inline, inherited]

Character string insertion.

Parameters:

s The array to insert.

n Maximum number of characters to insert.

Returns:

*this

Characters are copied from *s* and inserted into the stream until one of the following happens:

- *n* characters are inserted
- inserting into the output sequence fails (in this case, badbit will be set in the stream's error state)

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 183 of file ostream.tcc.

References std::basic_ostream< _CharT, _Traits >::_M_write(), and std::ios_base::badbit.

5.379.5.66 static int std::ios_base::xalloc () throw () [static, inherited]

Access to unique indices.

Returns:

An integer different from all previous calls.

This function returns a unique integer every time it is called. It can be used for any purpose, but is primarily intended to be a unique index for the iword and pword functions. The expectation is that an application calls xalloc in order to obtain an index in the iword and pword arrays that can be used without fear of conflict.

The implementation maintains a static variable that is incremented and returned on each invocation. xalloc is guaranteed to return an index that is safe to use in the iword and pword arrays.

5.379.6 Member Data Documentation

5.379.6.1 const fmtflags std::ios_base::adjustfield [static, inherited]

A mask of left|right|internal. Useful for the 2-arg form of `setf`.

Definition at line 318 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

5.379.6.2 const openmode std::ios_base::app [static, inherited]

Seek to end before each write.

Definition at line 372 of file ios_base.h.

5.379.6.3 const openmode std::ios_base::ate [static, inherited]

Open and seek to end immediately after opening.

Definition at line 375 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::open().

5.379.6.4 const iostate std::ios_base::badbit [static, inherited]

Indicates a loss of integrity in an input or output sequence (such as an irrecoverable read error from a file).

Definition at line 342 of file ios_base.h.

Referenced by std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ios< _CharT, _Traits >::init(), std::operator<<(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_ostream< _CharT, _Traits >::tellp(), std::basic_istream< _CharT, _Traits >::unget(), and std::basic_ostream< _CharT, _Traits >::write().

5.379.6.5 const fmtflags std::ios_base::basefield [static, inherited]

A mask of dec|oct|hex. Useful for the 2-arg form of `setf`.

Definition at line 321 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), and std::basic_ostream< _CharT, _Traits >::operator<<().

5.379.6.6 const seekdir std::ios_base::beg [static, inherited]

Request a seek relative to the beginning of the stream.

Definition at line 404 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::seekpos().

5.379.6.7 const openmode std::ios_base::binary [static, inherited]

Perform input and output in binary mode (as opposed to text mode). This is probably not what you think it is; see http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch27s02.html.

Definition at line 380 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::showmanyc().

5.379.6.8 const fmtflags std::ios_base::boolalpha [static, inherited]

Insert/extract `bool` in alphabetic rather than numeric format.

Definition at line 266 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), and std::num_put< _CharT, _OutIter >::do_put().

5.379.6.9 const seekdir std::ios_base::cur [static, inherited]

Request a seek relative to the current position within the sequence.

Definition at line 407 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_istream< _CharT, _Traits >::tellg(), and std::basic_ostream< _CharT, _Traits >::tellp().

5.379.6.10 const fmtflags std::ios_base::dec [static, inherited]

Converts integer input or generates integer output in decimal base.

Definition at line 269 of file ios_base.h.

5.379.6.11 const seekdir std::ios_base::end [static, inherited]

Request a seek relative to the current end of the sequence.

Definition at line 410 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::open(), and std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff().

5.379.6.12 const iostate std::ios_base::eofbit [static, inherited]

Indicates that an input operation reached the end of an input sequence.

Definition at line 345 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_date(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_time(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), and std::ws().

5.379.6.13 const iostate std::ios_base::failbit [static, inherited]

Indicates that an input operation failed to read the expected characters, or that an output operation failed to generate the desired characters.

Definition at line 350 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::basic_istream< _CharT, _Traits >::operator>>(), std::operator>>(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::seekg(), and std::basic_ostream< _CharT, _Traits >::seekp().

5.379.6.14 const fmtflags std::ios_base::fixed [static, inherited]

Generate floating-point output in fixed-point notation.

Definition at line 272 of file ios_base.h.

5.379.6.15 const fmtflags std::ios_base::floatfield [static, inherited]

A mask of scientific|fixed. Useful for the 2-arg form of `setf`.

Definition at line 324 of file ios_base.h.

5.379.6.16 const iostate std::ios_base::goodbit [static, inherited]

Indicates all is well.

Definition at line 353 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ios< _CharT, _Traits >::init(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), and std::basic_istream< _CharT, _Traits >::unget().

5.379.6.17 const fmtflags std::ios_base::hex [static, inherited]

Converts integer input or generates integer output in hexadecimal base.

Definition at line 275 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::num_put< _CharT, _OutIter >::do_put(), and std::basic_ostream< _CharT, _Traits >::operator<<().

5.379.6.18 const openmode std::ios_base::in [static, inherited]

Open for input. Default for `ifstream` and fstream.

Definition at line 383 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_-istream< _CharT, _Traits >::seekg(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_-filebuf< _CharT, _Traits >::showmanyc(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::underflow(), std::basic_-filebuf< _CharT, _Traits >::underflow(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.379.6.19 const fmtflags std::ios_base::internal [static, inherited]

Adds fill characters at a designated internal point in certain generated output, or identical to `right` if no such point is designated.

Definition at line 280 of file ios_base.h.

5.379.6.20 const fmtflags std::ios_base::left [static, inherited]

Adds fill characters on the right (final positions) of certain generated output. (I.e., the thing you print is flush left.).

Definition at line 284 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

5.379.6.21 const fmtflags std::ios_base::oct [static, inherited]

Converts integer input or generates integer output in octal base.

Definition at line 287 of file ios_base.h.

Referenced by std::basic_ostream< _CharT, _Traits >::operator<<().

5.379.6.22 const openmode std::ios_base::out [static, inherited]

Open for output. Default for `ofstream` and fstream.

Definition at line 386 of file ios_base.h.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_ostream< _-CharT, _Traits >::tellp(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.379.6.23 const fmtflags std::ios_base::right [static, inherited]

Adds fill characters on the left (initial positions) of certain generated output. (I.e., the thing you print is flush right.).

Definition at line 291 of file ios_base.h.

5.379.6.24 const fmtflags std::ios_base::scientific [static, inherited]

Generates floating-point output in scientific notation.

Definition at line 294 of file ios_base.h.

5.379.6.25 const fmtflags std::ios_base::showbase [static, inherited]

Generates a prefix indicating the numeric base of generated integer output.

Definition at line 298 of file ios_base.h.

5.379.6.26 const fmtflags std::ios_base::showpoint [static, inherited]

Generates a decimal-point character unconditionally in generated floating-point output.

Definition at line 302 of file ios_base.h.

5.379.6.27 const fmtflags std::ios_base::showpos [static, inherited]

Generates a + sign in non-negative generated numeric output.

Definition at line 305 of file ios_base.h.

5.379.6.28 const fmtflags std::ios_base::skipws [static, inherited]

Skips leading white space before certain input operations.

Definition at line 308 of file ios_base.h.

5.379.6.29 const openmode std::ios_base::trunc [static, inherited]

Open for input. Default for `ofstream`.

Definition at line 389 of file ios_base.h.

5.379.6.30 const fmtflags std::ios_base::unitbuf [static, inherited]

Flushes output after each output operation.

Definition at line 311 of file ios_base.h.

5.379.6.31 const fmtflags std::ios_base::uppercase [static, inherited]

Replaces certain lowercase letters with their uppercase equivalents in generated output.

Definition at line 315 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

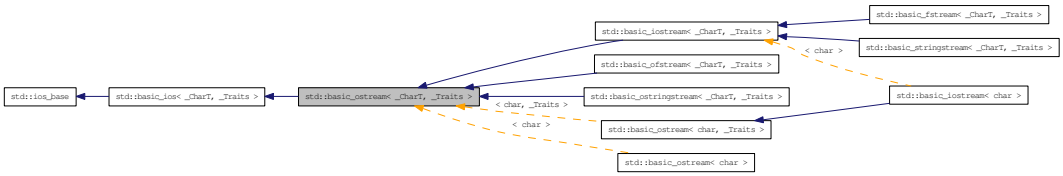
The documentation for this class was generated from the following file:

- fstream

5.380 std::basic_ostream< _CharT, _Traits > Class Template Reference

Controlling output.

This is the base class for all output streams. It provides text formatting of all builtin types, and communicates with any class derived from basic_streambuf to do the actual output. Inheritance diagram for std::basic_ostream< _CharT, _Traits >:



Classes

- class sentry

  Performs setup work for output streams.

Public Types

- typedef ctype< _CharT > __ctype_type
- typedef basic_ios< _CharT, _Traits > **__ios_type**
- typedef num_put< _CharT, ostreambuf_iterator< _CharT, _Traits > > __num_put_type
- typedef basic_ostream< _CharT, _Traits > **__ostream_type**
- typedef basic_streambuf< _CharT, _Traits > **__streambuf_type**
- typedef _CharT char_type
- enum event { **erase_event**, **imbue_event**, **copyfmt_event** }
- typedef void(* event_callback)(event, ios_base &, int)
- typedef _Ios_Fmtflags fmtflags
- typedef _Traits::int_type int_type
- typedef int **io_state**
- typedef _Ios_Iostate iostate
- typedef _Traits::off_type off_type
- typedef int **open_mode**
- typedef _Ios_Openmode openmode
- typedef _Traits::pos_type pos_type
- typedef int **seek_dir**

- typedef _Ios_Seekdir seekdir
- typedef std::streamoff **streamoff**
- typedef std::streampos **streampos**
- typedef _Traits traits_type

Public Member Functions

- basic_ostream (__streambuf_type *__sb)
- virtual ~basic_ostream ()
- const locale & _M_getloc () const
- void **_M_setstate** (iostate __state)
- bool bad () const
- void clear (iostate __state=goodbit)
- basic_ios & copyfmt (const basic_ios &__rhs)
- bool eof () const
- void exceptions (iostate __except)
- iostate exceptions () const
- bool fail () const
- char_type fill (char_type __ch)
- char_type fill () const
- fmtflags flags (fmtflags __fmtfl)
- fmtflags flags () const
- __ostream_type & flush ()
- locale getloc () const
- bool good () const
- locale imbue (const locale &__loc)
- long & iword (int __ix)
- char narrow (char_type __c, char __dfault) const
- streamsize precision (streamsize __prec)
- streamsize precision () const
- void *& pword (int __ix)
- basic_streambuf< _CharT, _Traits > * rdbuf (basic_streambuf< _CharT, _Traits > *__sb)
- basic_streambuf< _CharT, _Traits > * rdbuf () const
- iostate rdstate () const
- void register_callback (event_callback __fn, int __index)
- __ostream_type & seekp (off_type, ios_base::seekdir)
- __ostream_type & seekp (pos_type)
- fmtflags setf (fmtflags __fmtfl, fmtflags __mask)
- fmtflags setf (fmtflags __fmtfl)
- void setstate (iostate __state)
- pos_type tellp ()

- basic_ostream< _CharT, _Traits > * tie (basic_ostream< _CharT, _Traits > *_-_tiestr)
- basic_ostream< _CharT, _Traits > * tie () const
- void unsetf (fmtflags __mask)
- char_type widen (char __c) const
- streamsize width (streamsize __wide)
- streamsize width () const

Unformatted Output Functions

All the unformatted output functions have some common behavior. Each starts by constructing a temporary object of type std::basic_ostream::sentry. This has several effects, concluding with the setting of a status flag; see the sentry documentation for more.

If the sentry status is good, the function tries to generate whatever data is appropriate for the type of the argument.

If an exception is thrown during insertion, ios_base::badbit will be turned on in the stream's error state. If badbit is on in the stream's exceptions mask, the exception will be rethrown without completing its actions.

- void _M_write (const char_type *__s, streamsize __n)
- __ostream_type & put (char_type __c)
- __ostream_type & write (const char_type *__s, streamsize __n)

Arithmetic Inserters

All the `operator<<` functions (aka formatted output functions) have some common behavior. Each starts by constructing a temporary object of type std::basic_-ostream::sentry. This can have several effects, concluding with the setting of a status flag; see the sentry documentation for more.

If the sentry status is good, the function tries to generate whatever data is appropriate for the type of the argument.

If an exception is thrown during insertion, ios_base::badbit will be turned on in the stream's error state without causing an ios_base::failure to be thrown. The original exception will then be rethrown.

- __ostream_type & operator<< (__streambuf_type *__sb)
- __ostream_type & operator<< (const void *__p)
- __ostream_type & operator<< (long double __f)
- __ostream_type & operator<< (float __f)
- __ostream_type & operator<< (double __f)
- __ostream_type & operator<< (unsigned long long __n)
- __ostream_type & operator<< (long long __n)
- __ostream_type & operator<< (unsigned int __n)
- __ostream_type & operator<< (int __n)
- __ostream_type & operator<< (unsigned short __n)
- __ostream_type & operator<< (short __n)

- __ostream_type & operator<< (bool __n)
- __ostream_type & operator<< (unsigned long __n)
- __ostream_type & operator<< (long __n)

- __ostream_type & operator<< (ios_base &(*__pf)(ios_base &))
- __ostream_type & operator<< (__ios_type &(*__pf)(__ios_type &))
- __ostream_type & operator<< (__ostream_type &(*__pf)(__ostream_type &))

Static Public Member Functions

- static bool sync_with_stdio (bool __sync=true)
- static int xalloc () throw ()

Static Public Attributes

- static const fmtflags adjustfield
- static const openmode app
- static const openmode ate
- static const iostate badbit
- static const fmtflags basefield
- static const seekdir beg
- static const openmode binary
- static const fmtflags boolalpha
- static const seekdir cur
- static const fmtflags dec
- static const seekdir end
- static const iostate eofbit
- static const iostate failbit
- static const fmtflags fixed
- static const fmtflags floatfield
- static const iostate goodbit
- static const fmtflags hex
- static const openmode in
- static const fmtflags internal
- static const fmtflags left
- static const fmtflags oct
- static const openmode out
- static const fmtflags right
- static const fmtflags scientific
- static const fmtflags showbase
- static const fmtflags showpoint

- static const fmtflags showpos
- static const fmtflags skipws
- static const openmode trunc
- static const fmtflags unitbuf
- static const fmtflags uppercase

Protected Types

- enum { **_S_local_word_size** }

Protected Member Functions

- void **_M_cache_locale** (const locale &__loc)
- void **_M_call_callbacks** (event __ev) throw ()
- void **_M_dispose_callbacks** (void) throw ()
- _Words & **_M_grow_words** (int __index, bool __iword)
- void **_M_init** () throw ()
- template<typename _ValueT >
  __ostream_type & **_M_insert** (_ValueT __v)
- void init (basic_streambuf< _CharT, _Traits > *__sb)

Protected Attributes

- _Callback_list * **_M_callbacks**
- const __ctype_type * **_M_ctype**
- iostate **_M_exception**
- char_type **_M_fill**
- bool **_M_fill_init**
- fmtflags **_M_flags**
- locale **_M_ios_locale**
- _Words **_M_local_word** [_S_local_word_size]
- const __num_get_type * **_M_num_get**
- const __num_put_type * **_M_num_put**
- streamsize **_M_precision**
- basic_streambuf< _CharT, _Traits > * **_M_streambuf**
- iostate **_M_streambuf_state**
- basic_ostream< _CharT, _Traits > * **_M_tie**
- streamsize **_M_width**
- _Words * **_M_word**
- int **_M_word_size**
- _Words **_M_word_zero**

Friends

- class **sentry**

- typedef num_get< _CharT, istreambuf_iterator< _CharT, _Traits > > __num_get_type
- operator void * () const
- bool operator! () const

5.380.1 Detailed Description

template<typename _CharT, typename _Traits> class std::basic_ostream< _CharT, _Traits >

Controlling output.

This is the base class for all output streams. It provides text formatting of all builtin types, and communicates with any class derived from basic_streambuf to do the actual output.

Definition at line 55 of file ostream.

5.380.2 Member Typedef Documentation

5.380.2.1 template<typename _CharT, typename _Traits> typedef ctype<_CharT> std::basic_ostream< _CharT, _Traits >::__ctype_type

These are non-standard types.

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 71 of file ostream.

5.380.2.2 template<typename _CharT, typename _Traits> typedef num_get<_CharT, istreambuf_iterator<_CharT, _Traits> > std::basic_ios< _CharT, _Traits >::__num_get_type [inherited]

These are non-standard types.

Reimplemented in std::basic_istream< _CharT, _Traits >, std::basic_istream< char, _Traits >, and std::basic_istream< char >.

Definition at line 86 of file basic_ios.h.

5.380.2.3 template<typename _CharT, typename _Traits> typedef num_put<_CharT, ostreambuf_iterator<_CharT, _Traits> > std::basic_ostream< _CharT, _Traits >::__num_put_type

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 70 of file ostream.

5.380.2.4 template<typename _CharT, typename _Traits> typedef _CharT std::basic_ostream< _CharT, _Traits >::char_type

These are standard types. They permit a standardized way of referring to names of (or names dependant on) the template parameters, which are specific to the implementation.

Reimplemented from std::basic_ios< _CharT, _Traits >.

Reimplemented in std::basic_ofstream< _CharT, _Traits >, std::basic_fstream< _CharT, _Traits >, std::basic_iostream< _CharT, _Traits >, std::basic_ostringstream< _CharT, _Traits, _Alloc >, std::basic_stringstream< _CharT, _Traits, _Alloc >, and std::basic_iostream< char >.

Definition at line 59 of file ostream.

5.380.2.5 typedef void(* std::ios_base::event_callback)(event, ios_base &, int) [inherited]

The type of an event callback function.

Parameters:

event One of the members of the event enum.

ios_base Reference to the ios_base object.

int The integer provided when the callback was registered.

Event callbacks are user defined functions that get called during several ios_base and basic_ios functions, specifically imbue(), copyfmt(), and ~ios().

Definition at line 444 of file ios_base.h.

5.380.2.6 typedef _Ios_Fmtflags std::ios_base::fmtflags [inherited]

This is a bitmask type. `_Ios_Fmtflags` is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen.

Defined objects of type fmtflags are:

- boolalpha
- dec
- fixed
- hex
- internal
- left
- oct
- right
- scientific
- showbase
- showpoint
- showpos
- skipws
- unitbuf
- uppercase
- adjustfield
- basefield
- floatfield

Definition at line 263 of file ios_base.h.

5.380.2.7 template<typename _CharT, typename _Traits> typedef _Traits::int_type std::basic_ostream< _CharT, _Traits >::int_type

These are non-standard types.

Reimplemented from std::basic_ios< _CharT, _Traits >.

Reimplemented in std::basic_ofstream< _CharT, _Traits >, std::basic_fstream< _CharT, _Traits >, std::basic_iostream< _CharT, _Traits >, std::basic_ostringstream< _CharT, _Traits, _Alloc >, std::basic_stringstream< _CharT, _Traits, _Alloc >, and std::basic_iostream< char >.

Definition at line 60 of file ostream.

5.380.2.8 typedef _Ios_Iostate std::ios_base::iostate [inherited]

This is a bitmask type. *_Ios_Iostate* is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type iostate are:

- badbit
- eofbit
- failbit
- goodbit

Definition at line 338 of file ios_base.h.

5.380.2.9 template<typename _CharT, typename _Traits> typedef _Traits::off_type std::basic_ostream< _CharT, _Traits >::off_type

These are non-standard types.

Reimplemented from std::basic_ios< _CharT, _Traits >.

Reimplemented in std::basic_ofstream< _CharT, _Traits >, std::basic_fstream< _CharT, _Traits >, std::basic_iostream< _CharT, _Traits >, std::basic_ostringstream< _CharT, _Traits, _Alloc >, std::basic_stringstream< _CharT, _Traits, _Alloc >, and std::basic_iostream< char >.

Definition at line 62 of file ostream.

5.380.2.10 typedef _Ios_Openmode std::ios_base::openmode [inherited]

This is a bitmask type. *_Ios_Openmode* is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type openmode are:

- app
- ate
- binary
- in
- out
- trunc

Definition at line 369 of file ios_base.h.

5.380.2.11 template<typename _CharT, typename _Traits> typedef _Traits::pos_type std::basic_ostream< _CharT, _Traits >::pos_type

These are non-standard types.

Reimplemented from std::basic_ios< _CharT, _Traits >.

Reimplemented in std::basic_ofstream< _CharT, _Traits >, std::basic_fstream< _CharT, _Traits >, std::basic_iostream< _CharT, _Traits >, std::basic_ostringstream< _CharT, _Traits, _Alloc >, std::basic_stringstream< _CharT, _Traits, _Alloc >, and std::basic_iostream< char >.

Definition at line 61 of file ostream.

5.380.2.12 typedef _Ios_Seekdir std::ios_base::seekdir [inherited]

This is an enumerated type. *_Ios_Seekdir* is implementation-defined. Defined values of type seekdir are:

- beg
- cur, equivalent to SEEK_CUR in the C standard library.
- end, equivalent to SEEK_END in the C standard library.

Definition at line 401 of file ios_base.h.

5.380.2.13 template<typename _CharT, typename _Traits> typedef _Traits std::basic_ostream< _CharT, _Traits >::traits_type

These are non-standard types.

Reimplemented from std::basic_ios< _CharT, _Traits >.

Reimplemented in std::basic_ofstream< _CharT, _Traits >, std::basic_fstream< _CharT, _Traits >, std::basic_iostream< _CharT, _Traits >, std::basic_ostringstream< _CharT, _Traits, _Alloc >, std::basic_stringstream< _CharT, _Traits, _Alloc >, and std::basic_iostream< char >.

Definition at line 63 of file ostream.

5.380.3 Member Enumeration Documentation

5.380.3.1 enum std::ios_base::event [inherited]

The set of events that may be passed to an event callback. erase_event is used during ~ios() and copyfmt(). imbue_event is used during imbue(). copyfmt_event is used during copyfmt().

Definition at line 427 of file ios_base.h.

5.380.4 Constructor & Destructor Documentation

5.380.4.1 template<typename _CharT, typename _Traits> std::basic_ostream< _CharT, _Traits >::basic_ostream (__streambuf_type * __sb) [inline, explicit]

Base constructor. This ctor is almost never called by the user directly, rather from derived classes' initialization lists, which pass a pointer to their own stream buffer.

Definition at line 82 of file ostream.

5.380.4.2 template<typename _CharT, typename _Traits> virtual std::basic_ostream< _CharT, _Traits >::~basic_ostream () [inline, virtual]

Base destructor. This does very little apart from providing a virtual base dtor.

Definition at line 91 of file ostream.

5.380.5 Member Function Documentation

5.380.5.1 const locale& std::ios_base::_M_getloc () const [inline, inherited]

Locale access.

Returns:

A reference to the current locale.

Like getloc above, but returns a reference instead of generating a copy.

Definition at line 705 of file ios_base.h.

Referenced by std::money_get< _CharT, _InIter >::do_get(), std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_date(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_time(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::time_put< _CharT, _OutIter >::do_put(), std::num_put< _CharT, _OutIter >::do_put(), and std::time_put< _CharT, _OutIter >::put().

5.380.5.2 template<typename _CharT, typename _Traits> void std::basic_ostream< _CharT, _Traits >::_M_write (const char_type * __s, streamsize __n) [inline]

Simple insertion.

Parameters:

c The character to insert.

Returns:

*this

Tries to insert *c*.

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 287 of file ostream.

Referenced by std::basic_ostream< _CharT, _Traits >::write().

5.380.5.3 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::bad () const [inline, inherited]

Fast error checking.

Returns:

True if the badbit is set.

Note that other iostate flags may also be set.

Definition at line 201 of file basic_ios.h.

5.380.5.4 template<typename _CharT , typename _Traits > void std::basic_ios< _CharT, _Traits >::clear (iostate __state = goodbit) [inline, inherited]

[Re]sets the error state.

Parameters:

state The new state flag(s) to set.

See std::ios_base::iostate for the possible bit values. Most users will not need to pass an argument.

Definition at line 40 of file basic_ios.tcc.

Referenced by std::basic_ios< _CharT, _Traits >::rdbuf().

5.380.5.5 template<typename _CharT , typename _Traits > basic_ios< _CharT, _Traits > & std::basic_ios< _CharT, _Traits >::copyfmt (const basic_ios< _CharT, _Traits > & *__rhs*) [inline, inherited]

Copies fields of __rhs into this.

Parameters:

__rhs The source values for the copies.

Returns:

Reference to this object.

All fields of __rhs are copied into this object except that rdbuf() and rdstate() remain unchanged. All values in the pword and iword arrays are copied. Before copying, each callback is invoked with erase_event. After copying, each (new) callback is invoked with copyfmt_event. The final step is to copy exceptions().

Definition at line 62 of file basic_ios.tcc.

References std::basic_ios< _CharT, _Traits >::exceptions(), std::basic_ios< _CharT, _Traits >::fill(), std::ios_base::flags(), std::ios_base::getloc(), std::ios_base::precision(), std::basic_ios< _CharT, _Traits >::tie(), and std::ios_base::width().

5.380.5.6 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::eof () const [inline, inherited]

Fast error checking.

Returns:

True if the eofbit is set.

Note that other iostate flags may also be set.

Definition at line 180 of file basic_ios.h.

Referenced by std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_istream< _CharT, _Traits >::putback(), and std::basic_istream< _CharT, _Traits >::unget().

5.380.5.7 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::exceptions (iostate __*except*) [inline, inherited]

Throwing exceptions on errors.

Parameters:

except The new exceptions mask.

By default, error flags are set silently. You can set an exceptions mask for each stream; if a bit in the mask becomes set in the error flags, then an exception of type std::ios_base::failure is thrown.

If the error flag is already set when the exceptions mask is added, the exception is immediately thrown. Try running the following under GCC 3.1 or later:

```
#include <iostream>
#include <fstream>
#include <exception>

int main()
{
    std::set_terminate (__gnu_cxx::__verbose_terminate_handler);

    std::ifstream f ("/etc/motd");

    std::cerr << "Setting badbit\n";
    f.setstate (std::ios_base::badbit);

    std::cerr << "Setting exception mask\n";
    f.exceptions (std::ios_base::badbit);
}
```

Definition at line 247 of file basic_ios.h.

5.380.5.8 template<typename _CharT, typename _Traits> iostate std::basic_ios< _CharT, _Traits >::exceptions () const [inline, inherited]

Throwing exceptions on errors.

Returns:

The current exceptions mask.

This changes nothing in the stream. See the one-argument version of exceptions(iostate) for the meaning of the return value.

Definition at line 212 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.380.5.9 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::fail () const [inline, inherited]

Fast error checking.

Returns:

True if either the badbit or the failbit is set.

Checking the badbit in fail() is historical practice. Note that other iostate flags may also be set.

Definition at line 191 of file basic_ios.h.

Referenced by std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_ostream< _CharT, _Traits >::tellp(), and std::regex_traits< _Ch_type >::value().

5.380.5.10 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::fill (char_type *__ch*) [inline, inherited]

Sets a new *empty* character.

Parameters:

ch The new character.

Returns:

The previous fill character.

The fill character is used to fill out space when P+ characters have been requested (e.g., via setw), Q characters are actually used, and Q<P. It defaults to a space (' ') in the current locale.

Definition at line 380 of file basic_ios.h.

5.380.5.11 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::fill () const [inline, inherited]

Retrieves the *empty* character.

Returns:

The current fill character.

It defaults to a space (' ') in the current locale.

Definition at line 360 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.380.5.12 fmtflags std::ios_base::flags (fmtflags *__fmtfl*) [inline, inherited]

Setting new format flags all at once.

Parameters:

fmtfl The new flags to set.

Returns:

The previous format control flags.

This function overwrites all the format flags with *fmtfl*.

Definition at line 561 of file ios_base.h.

5.380.5.13 fmtflags std::ios_base::flags () const [inline, inherited]

Access to format flags.

Returns:

The format control flags for both input and output.

Definition at line 550 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::num_get< _CharT, _InIter >::do_get(), std::num_put< _CharT, _OutIter >::do_put(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator<<(), and std::operator>>().

5.380.5.14 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::flush () [inline]

Synchronizing the stream buffer.

Returns:

∗this

If `rdbuf()` is a null pointer, changes nothing.

Otherwise, calls `rdbuf()->pubsync()`, and if that returns -1, sets badbit.

Definition at line 211 of file ostream.tcc.

References std::ios_base::badbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

Referenced by std::flush().

5.380.5.15 locale std::ios_base::getloc () const [inline, inherited]

Locale access.

Returns:

A copy of the current locale.

If `imbue(loc)` has previously been called, then this function returns `loc`. Otherwise, it returns a copy of `std::locale()`, the global C++ locale.

Definition at line 694 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::money_put< _CharT, _OutIter >::do_put(), std::basic_ios< _CharT, _Traits >::imbue(), std::operator>>(), and std::ws().

5.380.5.16 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::good () const [inline, inherited]

Fast error checking.

Returns:

True if no error flags are set.

A wrapper around rdstate.

Definition at line 170 of file basic_ios.h.

5.380.5.17 template<typename _CharT , typename _Traits > locale std::basic_ios< _CharT, _Traits >::imbue (const locale & *__loc*) [inline, inherited]

Moves to a new locale.

Parameters:

loc The new locale.

Returns:

The previous locale.

Calls `ios_base::imbue(loc)`, and if a stream buffer is associated with this stream, calls that buffer's `pubimbue(loc)`.

Additional l10n notes are at `http://gcc.gnu.org/onlinedocs/libstdc++/manual/localizati`

Reimplemented from std::ios_base.

Definition at line 113 of file basic_ios.tcc.

References std::ios_base::getloc(), and std::basic_ios< _CharT, _Traits >::rdbuf().

Referenced by std::operator<<().

5.380.5.18 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::init (basic_streambuf< _CharT, _Traits > * *__sb*) [inline, protected, inherited]

All setup is performed here. This is called from the public constructor. It is not virtual and cannot be redefined.

Definition at line 125 of file basic_ios.tcc.

References std::ios_base::badbit, and std::ios_base::goodbit.

5.380.5.19 long& std::ios_base::iword (int *__ix*) [inline, inherited]

Access to integer array.

Parameters:

__ix Index into the array.

Returns:

A reference to an integer associated with the index.

The iword function provides access to an array of integers that can be used for any purpose. The array grows as required to hold the supplied index. All integers in the array are initialized to 0.

The implementation reserves several indices. You should use xalloc to obtain an index that is safe to use. Also note that since the array can grow dynamically, it is not safe to hold onto the reference.

Definition at line 740 of file ios_base.h.

5.380.5.20 template<typename _CharT, typename _Traits> char std::basic_ios< _CharT, _Traits >::narrow (char_type __c, char __dfault) const [inline, inherited]

Squeezes characters.

Parameters:

c The character to narrow.

dfault The character to narrow.

Returns:

The narrowed character.

Maps a character of `char_type` to a character of `char`, if possible.
Returns the result of

```
std::use_facet<ctype<char_type> >(getloc()).narrow(c,dfault)
```

Additional l10n notes are at http://gcc.gnu.org/onlinedocs/libstdc++/manual/localization.html

Definition at line 420 of file basic_ios.h.

5.380.5.21 template<typename _CharT, typename _Traits> std::basic_ios< _CharT, _Traits >::operator void * () const [inline, inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Definition at line 111 of file basic_ios.h.

5.380.5.22 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::operator! () const [inline, inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Definition at line 115 of file basic_ios.h.

5.380.5.23 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::operator<< (__streambuf_type * *__sb*) [inline]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 120 of file ostream.tcc.

References std::ios_base::badbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.380.5.24 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (const void * *__p*) [inline]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 225 of file ostream.

5.380.5.25 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (long double __f) [inline]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 221 of file ostream.

5.380.5.26 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (float __f) [inline]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 213 of file ostream.

5.380.5.27 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (double __f) [inline]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 209 of file ostream.

5.380.5.28 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (unsigned long long __n) [inline]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 204 of file ostream.

5.380.5.29 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (long long __n) [inline]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 200 of file ostream.

5.380.5.30 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (unsigned int __n) [inline]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 191 of file ostream.

5.380.5.31 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::operator<< (int __n) [inline]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 106 of file ostream.tcc.

References std::ios_base::basefield, std::ios_base::flags(), std::ios_base::hex, and std::ios_base::oct.

5.380.5.32 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (unsigned short __n) [inline]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 180 of file ostream.

5.380.5.33 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::operator<< (short __n) [inline]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 92 of file ostream.tcc.

References std::ios_base::basefield, std::ios_base::flags(), std::ios_base::hex, and std::ios_base::oct.

5.380.5.34 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (bool __n) [inline]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 173 of file ostream.

5.380.5.35 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (unsigned long __n) [inline]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 169 of file ostream.

5.380.5.36 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (long __n) [inline]

Basic arithmetic inserters.

Parameters:

A variable of builtin type.

Returns:

`*this` if successful

These functions use the stream's current locale (specifically, the `num_get` facet) to perform numeric formatting.

Definition at line 165 of file ostream.

5.380.5.37 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (ios_base &(*)(ios_base &) __pf) [inline]

Interface for manipulators. Manipulators such as `std::endl` and `std::hex` use these functions in constructs like "std::cout << std::endl". For more information, see the iomanip header.

Definition at line 127 of file ostream.

5.380.5.38 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (__ios_type &(*)(__ios_type &) __pf) [inline]

Interface for manipulators. Manipulators such as `std::endl` and `std::hex` use these functions in constructs like "std::cout << std::endl". For more information, see the iomanip header.

Definition at line 117 of file ostream.

5.380.5.39 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (__ostream_type &(*)(__ostream_type &) *__pf*) [inline]

Interface for manipulators. Manipulators such as `std::endl` and `std::hex` use these functions in constructs like "std::cout << std::endl". For more information, see the iomanip header.

Definition at line 108 of file ostream.

5.380.5.40 streamsize std::ios_base::precision (streamsize *__prec*) [inline, inherited]

Changing flags.

Parameters:

prec The new precision value.

Returns:

The previous value of precision().

Definition at line 629 of file ios_base.h.

5.380.5.41 streamsize std::ios_base::precision () const [inline, inherited]

Flags access.

Returns:

The precision to generate on certain output operations.

Be careful if you try to give a definition of *precision* here; see DR 189.

Definition at line 620 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), and std::operator<<().

5.380.5.42 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::put (char_type *__c*) [inline]

Simple insertion.

Parameters:

c The character to insert.

Returns:

∗this

Tries to insert *c*.

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 149 of file ostream.tcc.

References std::ios_base::badbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

Referenced by std::endl(), and std::ends().

5.380.5.43 void∗& std::ios_base::pword (int *__ix*) [inline, inherited]

Access to void pointer array.

Parameters:

__ix Index into the array.

Returns:

A reference to a void∗ associated with the index.

The pword function provides access to an array of pointers that can be used for any purpose. The array grows as required to hold the supplied index. All pointers in the array are initialized to 0.

The implementation reserves several indices. You should use xalloc to obtain an index that is safe to use. Also note that since the array can grow dynamically, it is not safe to hold onto the reference.

Definition at line 761 of file ios_base.h.

5.380.5.44 template<typename _CharT, typename _Traits> basic_streambuf< _CharT, _Traits > ∗ std::basic_ios< _CharT, _Traits >::rdbuf (basic_streambuf< _CharT, _Traits > ∗ *__sb*) [inline, inherited]

Changing the underlying buffer.

Parameters:

sb The new stream buffer.

Returns:

The previous stream buffer.

Associates a new buffer with the current stream, and clears the error state.

Due to historical accidents which the LWG refuses to correct, the I/O library suffers from a design error: this function is hidden in derived classes by overrides of the zero-argument `rdbuf()`, which is non-virtual for hysterical raisins. As a result, you must use explicit qualifications to access this function via any derived class. For example:

```
std::fstream     foo;         // or some other derived type
std::streambuf*  p = .....;

foo.ios::rdbuf(p);            // ios == basic_ios<char>
```

Definition at line 52 of file basic_ios.tcc.

References std::basic_ios< _CharT, _Traits >::clear().

5.380.5.45 template<typename _CharT, typename _Traits> basic_streambuf<_CharT, _Traits>* std::basic_ios< _CharT, _Traits >::rdbuf () const [inline, inherited]

Accessing the underlying buffer.

Returns:

The current stream buffer.

This does not change the state of the stream.

Reimplemented in std::basic_ifstream< _CharT, _Traits >, std::basic_ofstream< _CharT, _Traits >, std::basic_fstream< _CharT, _Traits >, std::basic_istringstream< _CharT, _Traits, _Alloc >, std::basic_ostringstream< _CharT, _Traits, _Alloc >, and std::basic_stringstream< _CharT, _Traits, _Alloc >.

Definition at line 311 of file basic_ios.h.

Referenced by std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ios< _CharT, _Traits >::imbue(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::basic_istream< _CharT, _Traits >::operator>>(), std::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT,

_Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_-istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_ostream< _CharT, _Traits >::tellp(), std::basic_istream< _CharT, _Traits >::unget(), and std::ws().

5.380.5.46 template<typename _CharT, typename _Traits> iostate std::basic_ios< _CharT, _Traits >::rdstate () const [inline, inherited]

Returns the error state of the stream buffer.

Returns:

A bit pattern (well, isn't everything?)

See std::ios_base::iostate for the possible bit values. Most users will call one of the interpreting wrappers, e.g., good().

Definition at line 127 of file basic_ios.h.

5.380.5.47 void std::ios_base::register_callback (event_callback *__fn*, int *__index*) [inherited]

Add the callback __fn with parameter __index.

Parameters:

__fn The function to add.

__index The integer to pass to the function when invoked.

Registers a function as an event callback with an integer parameter to be passed to the function when invoked. Multiple copies of the function are allowed. If there are multiple callbacks, they are invoked in the order they were registered.

5.380.5.48 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::seekp (off_type *__off*, ios_base::seekdir *__dir*) [inline]

Changing the current write position.

Parameters:

off A file offset object.

dir The direction in which to seek.

Returns:

*this

If `fail()` is not true, calls `rdbuf()->pubseekoff(off,dir)`. If that function fails, sets failbit.

Definition at line 290 of file ostream.tcc.

References std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::failbit, std::ios_base::goodbit, std::ios_base::out, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.380.5.49 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::seekp (pos_type *__pos*) [inline]

Changing the current write position.

Parameters:

pos A file position object.

Returns:

*this

If `fail()` is not true, calls `rdbuf()->pubseekpos(pos)`. If that function fails, sets failbit.

Definition at line 258 of file ostream.tcc.

References std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::failbit, std::ios_base::goodbit, std::ios_base::out, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.380.5.50 fmtflags std::ios_base::setf (fmtflags *__fmtfl*, fmtflags *__mask*) [inline, inherited]

Setting new format flags.

Parameters:

fmtfl Additional flags to set.

mask The flags mask for *fmtfl*.

Returns:

The previous format control flags.

This function clears *mask* in the format flags, then sets *fmtfl* & *mask*. An example mask is ios_base::adjustfield.

Definition at line 594 of file ios_base.h.

5.380.5.51 fmtflags std::ios_base::setf (fmtflags __fmtfl) [inline, inherited]

Setting new format flags.

Parameters:

fmtfl Additional flags to set.

Returns:

The previous format control flags.

This function sets additional flags in format control. Flags that were previously set remain set.

Definition at line 577 of file ios_base.h.

Referenced by std::boolalpha(), std::dec(), std::fixed(), std::hex(), std::internal(), std::left(), std::oct(), std::right(), std::scientific(), std::showbase(), std::showpoint(), std::showpos(), std::skipws(), std::unitbuf(), and std::uppercase().

5.380.5.52 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::setstate (iostate __state) [inline, inherited]

Sets additional flags in the error state.

Parameters:

state The additional state flag(s) to set.

See std::ios_base::iostate for the possible bit values.

Definition at line 147 of file basic_ios.h.

Referenced by std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::basic_istream< _CharT, _Traits >::operator>>(), std::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream<

_CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), std::basic_istream< _CharT, _Traits >::unget(), and std::ws().

5.380.5.53 static bool std::ios_base::sync_with_stdio (bool *__sync* = `true`) `[static, inherited]`

Interaction with the standard C I/O objects.

Parameters:

sync Whether to synchronize or not.

Returns:

True if the standard streams were previously synchronized.

The synchronization referred to is *only* that between the standard C facilities (e.g., stdout) and the standard C++ objects (e.g., cout). User-declared streams are unaffected. See http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch28s02.html

5.380.5.54 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits >::pos_type std::basic_ostream< _CharT, _Traits >::tellp () `[inline]`

Getting the current write position.

Returns:

A file position object.

If `fail()` is not false, returns `pos_type`(-1) to indicate failure. Otherwise returns `rdbuf()->pubseekoff(0,cur,out)`.

Definition at line 237 of file ostream.tcc.

References std::ios_base::badbit, std::ios_base::cur, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::out, and std::basic_ios< _CharT, _Traits >::rdbuf().

5.380.5.55 template<typename _CharT, typename _Traits> basic_ostream<_CharT, _Traits>* std::basic_ios< _CharT, _Traits >::tie (basic_ostream< _CharT, _Traits > * *__tiestr*) `[inline, inherited]`

Ties this stream to an output stream.

Parameters:

tiestr The output stream.

Returns:

The previously tied output stream, or NULL if the stream was not tied.

This sets up a new tie; see tie() for more.

Definition at line 297 of file basic_ios.h.

5.380.5.56 template<typename _CharT, typename _Traits> basic_ostream<_CharT, _Traits>* std::basic_ios< _CharT, _Traits >::tie () const [inline, inherited]

Fetches the current *tied* stream.

Returns:

A pointer to the tied stream, or NULL if the stream is not tied.

A stream may be *tied* (or synchronized) to a second output stream. When this stream performs any I/O, the tied stream is first flushed. For example, `std::cin` is tied to `std::cout`.

Definition at line 285 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.380.5.57 void std::ios_base::unsetf (fmtflags *__mask*) [inline, inherited]

Clearing format flags.

Parameters:

mask The flags to unset.

This function clears *mask* in the format flags.

Definition at line 609 of file ios_base.h.

Referenced by std::noboolalpha(), std::noshowbase(), std::noshowpoint(), std::noshowpos(), std::noskipws(), std::nounitbuf(), and std::nouppercase().

5.380.5.58 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::widen (char __*c*) const [inline, inherited]

Widens characters.

Parameters:

c The character to widen.

Returns:

The widened character.

Maps a character of `char` to a character of `char_type`.
Returns the result of

```
std::use_facet<ctype<char_type> >(getloc()).widen(c)
```

Additional l10n notes are at http://gcc.gnu.org/onlinedocs/libstdc++/manual/localization.html

Definition at line 439 of file basic_ios.h.

Referenced by std::endl(), std::getline(), and std::operator>>().

5.380.5.59 streamsize std::ios_base::width (streamsize __*wide*) [inline, inherited]

Changing flags.

Parameters:

wide The new width value.

Returns:

The previous value of width().

Definition at line 652 of file ios_base.h.

5.380.5.60 streamsize std::ios_base::width () const [inline, inherited]

Flags access.

Returns:

The minimum field width to generate on output operations.

Minimum field width refers to the number of characters.

Definition at line 643 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::num_put< _CharT, _OutIter >::do_put(), and std::operator>>().

5.380.5.61 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::write (const char_type * __s, streamsize __n) [inline]

Character string insertion.

Parameters:

s The array to insert.

n Maximum number of characters to insert.

Returns:

*this

Characters are copied from *s* and inserted into the stream until one of the following happens:

- *n* characters are inserted
- inserting into the output sequence fails (in this case, badbit will be set in the stream's error state)

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 183 of file ostream.tcc.

References std::basic_ostream< _CharT, _Traits >::_M_write(), and std::ios_base::badbit.

5.380.5.62 static int std::ios_base::xalloc () throw () [static, inherited]

Access to unique indices.

Returns:

An integer different from all previous calls.

This function returns a unique integer every time it is called. It can be used for any purpose, but is primarily intended to be a unique index for the iword and pword functions. The expectation is that an application calls xalloc in order to obtain an index in the iword and pword arrays that can be used without fear of conflict.

The implementation maintains a static variable that is incremented and returned on each invocation. xalloc is guaranteed to return an index that is safe to use in the iword and pword arrays.

5.380.6 Member Data Documentation

5.380.6.1 const fmtflags std::ios_base::adjustfield [static, inherited]

A mask of left|right|internal. Useful for the 2-arg form of `setf`.

Definition at line 318 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

5.380.6.2 const openmode std::ios_base::app [static, inherited]

Seek to end before each write.

Definition at line 372 of file ios_base.h.

5.380.6.3 const openmode std::ios_base::ate [static, inherited]

Open and seek to end immediately after opening.

Definition at line 375 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::open().

5.380.6.4 const iostate std::ios_base::badbit [static, inherited]

Indicates a loss of integrity in an input or output sequence (such as an irrecoverable read error from a file).

Definition at line 342 of file ios_base.h.

Referenced by std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ios< _CharT, _Traits >::init(), std::operator<<(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT,

_Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_-istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_ostream< _CharT, _Traits >::tellp(), std::basic_istream< _CharT, _Traits >::unget(), and std::basic_ostream< _CharT, _Traits >::write().

5.380.6.5 const fmtflags std::ios_base::basefield [static, inherited]

A mask of dec|oct|hex. Useful for the 2-arg form of `setf`.

Definition at line 321 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), and std::basic_ostream< _CharT, _Traits >::operator<<().

5.380.6.6 const seekdir std::ios_base::beg [static, inherited]

Request a seek relative to the beginning of the stream.

Definition at line 404 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::seekpos().

5.380.6.7 const openmode std::ios_base::binary [static, inherited]

Perform input and output in binary mode (as opposed to text mode). This is probably not what you think it is; see http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch27s02.html.

Definition at line 380 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::showmanyc().

5.380.6.8 const fmtflags std::ios_base::boolalpha [static, inherited]

Insert/extract `bool` in alphabetic rather than numeric format.

Definition at line 266 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), and std::num_put< _-CharT, _OutIter >::do_put().

5.380.6.9 const seekdir std::ios_base::cur [static, inherited]

Request a seek relative to the current position within the sequence.

Definition at line 407 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_istream< _CharT, _Traits >::tellg(), and std::basic_ostream< _CharT, _Traits >::tellp().

5.380.6.10 const fmtflags std::ios_base::dec [static, inherited]

Converts integer input or generates integer output in decimal base.

Definition at line 269 of file ios_base.h.

5.380.6.11 const seekdir std::ios_base::end [static, inherited]

Request a seek relative to the current end of the sequence.

Definition at line 410 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::open(), and std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff().

5.380.6.12 const iostate std::ios_base::eofbit [static, inherited]

Indicates that an input operation reached the end of an input sequence.

Definition at line 345 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_date(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_time(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), and std::ws().

5.380.6.13 const iostate std::ios_base::failbit [static, inherited]

Indicates that an input operation failed to read the expected characters, or that an output operation failed to generate the desired characters.

Definition at line 350 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_istream< _-

CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::basic_istream< _CharT, _Traits >::operator>>(), std::operator>>(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::seekg(), and std::basic_ostream< _CharT, _Traits >::seekp().

5.380.6.14 const fmtflags std::ios_base::fixed [static, inherited]

Generate floating-point output in fixed-point notation.

Definition at line 272 of file ios_base.h.

5.380.6.15 const fmtflags std::ios_base::floatfield [static, inherited]

A mask of scientific|fixed. Useful for the 2-arg form of `setf`.

Definition at line 324 of file ios_base.h.

5.380.6.16 const iostate std::ios_base::goodbit [static, inherited]

Indicates all is well.

Definition at line 353 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ios< _CharT, _Traits >::init(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), and std::basic_istream< _CharT, _Traits >::unget().

5.380.6.17 const fmtflags std::ios_base::hex [static, inherited]

Converts integer input or generates integer output in hexadecimal base.

Definition at line 275 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::num_put< _CharT, _OutIter >::do_put(), and std::basic_ostream< _CharT, _Traits >::operator<<().

5.380.6.18 const openmode std::ios_base::in [static, inherited]

Open for input. Default for `ifstream` and fstream.

Definition at line 383 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_-istream< _CharT, _Traits >::seekg(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_-filebuf< _CharT, _Traits >::showmanyc(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::underflow(), std::basic_-filebuf< _CharT, _Traits >::underflow(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.380.6.19 const fmtflags std::ios_base::internal [static, inherited]

Adds fill characters at a designated internal point in certain generated output, or identical to `right` if no such point is designated.

Definition at line 280 of file ios_base.h.

5.380.6.20 const fmtflags std::ios_base::left [static, inherited]

Adds fill characters on the right (final positions) of certain generated output. (I.e., the thing you print is flush left.).

Definition at line 284 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

5.380.6.21 const fmtflags std::ios_base::oct [static, inherited]

Converts integer input or generates integer output in octal base.

Definition at line 287 of file ios_base.h.

Referenced by std::basic_ostream< _CharT, _Traits >::operator<<().

5.380.6.22 const openmode std::ios_base::out [static, inherited]

Open for output. Default for `ofstream` and fstream.

Definition at line 386 of file ios_base.h.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_ostream< _CharT, _Traits >::seekp(),

std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_ostream< _CharT, _Traits >::tellp(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.380.6.23 const fmtflags std::ios_base::right [static, inherited]

Adds fill characters on the left (initial positions) of certain generated output. (I.e., the thing you print is flush right.).

Definition at line 291 of file ios_base.h.

5.380.6.24 const fmtflags std::ios_base::scientific [static, inherited]

Generates floating-point output in scientific notation.

Definition at line 294 of file ios_base.h.

5.380.6.25 const fmtflags std::ios_base::showbase [static, inherited]

Generates a prefix indicating the numeric base of generated integer output.

Definition at line 298 of file ios_base.h.

5.380.6.26 const fmtflags std::ios_base::showpoint [static, inherited]

Generates a decimal-point character unconditionally in generated floating-point output.

Definition at line 302 of file ios_base.h.

5.380.6.27 const fmtflags std::ios_base::showpos [static, inherited]

Generates a + sign in non-negative generated numeric output.

Definition at line 305 of file ios_base.h.

5.380.6.28 const fmtflags std::ios_base::skipws [static, inherited]

Skips leading white space before certain input operations.

Definition at line 308 of file ios_base.h.

5.380.6.29 const openmode std::ios_base::trunc [static, inherited]

Open for input. Default for `ofstream`.

Definition at line 389 of file ios_base.h.

5.380.6.30 const fmtflags std::ios_base::unitbuf [static, inherited]

Flushes output after each output operation.

Definition at line 311 of file ios_base.h.

5.380.6.31 const fmtflags std::ios_base::uppercase [static, inherited]

Replaces certain lowercase letters with their uppercase equivalents in generated output.

Definition at line 315 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

The documentation for this class was generated from the following files:

- ostream
- ostream.tcc

5.381 std::basic_ostream< _CharT, _Traits >::sentry Class Reference

Performs setup work for output streams.

Public Member Functions

- sentry (basic_ostream< _CharT, _Traits > &__os)
- ~sentry ()
- operator bool () const

5.381.1 Detailed Description

template<typename _CharT, typename _Traits> class std::basic_ostream< _CharT, _Traits >::sentry

Performs setup work for output streams. Objects of this class are created before all of the standard inserters are run. It is responsible for *exception-safe prefix and suffix operations*.

Definition at line 377 of file ostream.

5.381.2 Constructor & Destructor Documentation

5.381.2.1 template<typename _CharT, typename _Traits> std::basic_ostream< _CharT, _Traits >::sentry::sentry (basic_ostream< _CharT, _Traits > & *__os*) [inline, explicit]

The constructor performs preparatory work.

Parameters:

os The output stream to guard.

If the stream state is good (*os.good()* is true), then if the stream is tied to another output stream, `is.tie()->flush()` is called to synchronize the output sequences.

If the stream state is still good, then the sentry state becomes true (*okay*).

Definition at line 47 of file ostream.tcc.

5.381.2.2 template<typename _CharT, typename _Traits> std::basic_ostream< _CharT, _Traits >::sentry::~sentry () [inline]

Possibly flushes the stream. If `ios_base::unitbuf` is set in `os.flags()`, and `std::uncaught_exception()` is true, the sentry destructor calls `flush()` on the output stream.

Definition at line 405 of file ostream.

References std::uncaught_exception(), and std::unitbuf().

5.381.3 Member Function Documentation

5.381.3.1 template<typename _CharT, typename _Traits> std::basic_ostream< _CharT, _Traits >::sentry::operator bool () const [inline, explicit]

Quick status checking.

Returns:

The sentry state.

For ease of use, sentries may be converted to booleans. The return value is that of the sentry state (true == okay).

Definition at line 426 of file ostream.

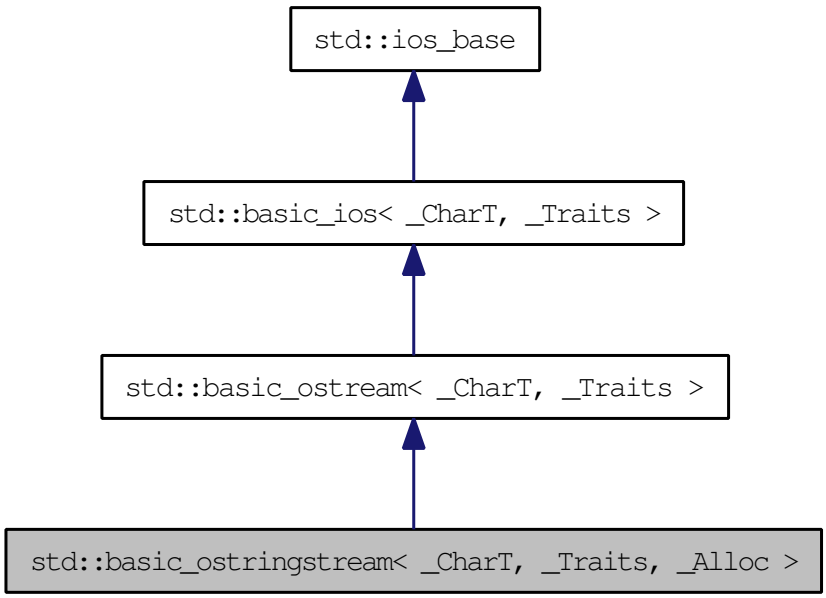
The documentation for this class was generated from the following files:

- ostream
- ostream.tcc

5.382 std::basic_ostringstream< _CharT, _Traits, _Alloc > Class Template Reference

Controlling output for std::string.

This class supports writing to objects of type std::basic_string, using the inherited functions from std::basic_ostream. To control the associated sequence, an instance of std::basic_stringbuf is used, which this page refers to as `sb`. Inheritance diagram for std::basic_ostringstream< _CharT, _Traits, _Alloc >:



Public Types

- typedef ctype< _CharT > __ctype_type
- typedef basic_ios< _CharT, _Traits > **__ios_type**
- typedef num_put< _CharT, ostreambuf_iterator< _CharT, _Traits > > __num_put_type
- typedef basic_ostream< char_type, traits_type > **__ostream_type**
- typedef basic_streambuf< _CharT, _Traits > **__streambuf_type**
- typedef basic_string< _CharT, _Traits, _Alloc > **__string_type**
- typedef basic_stringbuf< _CharT, _Traits, _Alloc > **__stringbuf_type**
- typedef _Alloc **allocator_type**
- typedef _CharT char_type
- enum event { **erase_event**, **imbue_event**, **copyfmt_event** }

- typedef void(∗ event_callback)(event, ios_base &, int)
- typedef _Ios_Fmtflags fmtflags
- typedef traits_type::int_type int_type
- typedef int **io_state**
- typedef _Ios_Iostate iostate
- typedef traits_type::off_type off_type
- typedef int **open_mode**
- typedef _Ios_Openmode openmode
- typedef traits_type::pos_type pos_type
- typedef int **seek_dir**
- typedef _Ios_Seekdir seekdir
- typedef std::streamoff **streamoff**
- typedef std::streampos **streampos**
- typedef _Traits traits_type

Public Member Functions

- basic_ostringstream (const __string_type &__str, ios_base::openmode __mode=ios_base::out)
- basic_ostringstream (ios_base::openmode __mode=ios_base::out)
- ~basic_ostringstream ()
- const locale & _M_getloc () const
- void **_M_setstate** (iostate __state)
- bool bad () const
- void clear (iostate __state=goodbit)
- basic_ios & copyfmt (const basic_ios &__rhs)
- bool eof () const
- void exceptions (iostate __except)
- iostate exceptions () const
- bool fail () const
- char_type fill (char_type __ch)
- char_type fill () const
- fmtflags flags (fmtflags __fmtfl)
- fmtflags flags () const
- __ostream_type & flush ()
- locale getloc () const
- bool good () const
- locale imbue (const locale &__loc)
- long & iword (int __ix)
- char narrow (char_type __c, char __dfault) const
- streamsize precision (streamsize __prec)
- streamsize precision () const

- void ∗& pword (int __ix)
- basic_streambuf< _CharT, _Traits > ∗ rdbuf (basic_streambuf< _CharT, _Traits > ∗__sb)
- __stringbuf_type ∗ rdbuf () const
- iostate rdstate () const
- void register_callback (event_callback __fn, int __index)
- __ostream_type & seekp (off_type, ios_base::seekdir)
- __ostream_type & seekp (pos_type)
- fmtflags setf (fmtflags __fmtfl, fmtflags __mask)
- fmtflags setf (fmtflags __fmtfl)
- void setstate (iostate __state)
- void str (const __string_type &__s)
- __string_type str () const
- pos_type tellp ()
- basic_ostream< _CharT, _Traits > ∗ tie (basic_ostream< _CharT, _Traits > ∗_-_tiestr)
- basic_ostream< _CharT, _Traits > ∗ tie () const
- void unsetf (fmtflags __mask)
- char_type widen (char __c) const
- streamsize width (streamsize __wide)
- streamsize width () const

Unformatted Output Functions

All the unformatted output functions have some common behavior. Each starts by constructing a temporary object of type std::basic_ostream::sentry. This has several effects, concluding with the setting of a status flag; see the sentry documentation for more.

If the sentry status is good, the function tries to generate whatever data is appropriate for the type of the argument.

If an exception is thrown during insertion, ios_base::badbit will be turned on in the stream's error state. If badbit is on in the stream's exceptions mask, the exception will be rethrown without completing its actions.

- void _M_write (const char_type ∗__s, streamsize __n)
- __ostream_type & put (char_type __c)
- __ostream_type & write (const char_type ∗__s, streamsize __n)

Arithmetic Inserters

All the `operator<<` functions (aka formatted output functions) have some common behavior. Each starts by constructing a temporary object of type std::basic_-ostream::sentry. This can have several effects, concluding with the setting of a status flag; see the sentry documentation for more.

If the sentry status is good, the function tries to generate whatever data is appropriate for the type of the argument.

If an exception is thrown during insertion, ios_base::badbit will be turned on in the stream's error state without causing an ios_base::failure to be thrown. The original exception will then be rethrown.

- __ostream_type & operator<< (__streambuf_type *__sb)
- __ostream_type & operator<< (const void *__p)
- __ostream_type & operator<< (long double __f)
- __ostream_type & operator<< (float __f)
- __ostream_type & operator<< (double __f)
- __ostream_type & operator<< (unsigned long long __n)
- __ostream_type & operator<< (long long __n)
- __ostream_type & operator<< (unsigned int __n)
- __ostream_type & operator<< (int __n)
- __ostream_type & operator<< (unsigned short __n)
- __ostream_type & operator<< (short __n)
- __ostream_type & operator<< (bool __n)
- __ostream_type & operator<< (unsigned long __n)
- __ostream_type & operator<< (long __n)

- __ostream_type & operator<< (ios_base &(*__pf)(ios_base &))
- __ostream_type & operator<< (__ios_type &(*__pf)(__ios_type &))
- __ostream_type & operator<< (__ostream_type &(*__pf)(__ostream_type &))

Static Public Member Functions

- static bool sync_with_stdio (bool __sync=true)
- static int xalloc () throw ()

Static Public Attributes

- static const fmtflags adjustfield
- static const openmode app
- static const openmode ate
- static const iostate badbit
- static const fmtflags basefield
- static const seekdir beg
- static const openmode binary
- static const fmtflags boolalpha
- static const seekdir cur
- static const fmtflags dec
- static const seekdir end

- static const iostate eofbit
- static const iostate failbit
- static const fmtflags fixed
- static const fmtflags floatfield
- static const iostate goodbit
- static const fmtflags hex
- static const openmode in
- static const fmtflags internal
- static const fmtflags left
- static const fmtflags oct
- static const openmode out
- static const fmtflags right
- static const fmtflags scientific
- static const fmtflags showbase
- static const fmtflags showpoint
- static const fmtflags showpos
- static const fmtflags skipws
- static const openmode trunc
- static const fmtflags unitbuf
- static const fmtflags uppercase

Protected Types

- enum { **_S_local_word_size** }

Protected Member Functions

- void **_M_cache_locale** (const locale &__loc)
- void **_M_call_callbacks** (event __ev) throw ()
- void **_M_dispose_callbacks** (void) throw ()
- _Words & **_M_grow_words** (int __index, bool __iword)
- void **_M_init** () throw ()
- template<typename _ValueT >
  __ostream_type & **_M_insert** (_ValueT __v)
- void init (basic_streambuf< _CharT, _Traits > *__sb)

Protected Attributes

- _Callback_list * **_M_callbacks**
- const __ctype_type * **_M_ctype**
- iostate **_M_exception**
- char_type **_M_fill**
- bool **_M_fill_init**
- fmtflags **_M_flags**
- locale **_M_ios_locale**
- _Words **_M_local_word** [_S_local_word_size]
- const __num_get_type * **_M_num_get**
- const __num_put_type * **_M_num_put**
- streamsize **_M_precision**
- basic_streambuf< _CharT, _Traits > * **_M_streambuf**
- iostate **_M_streambuf_state**
- basic_ostream< _CharT, _Traits > * **_M_tie**
- streamsize **_M_width**
- _Words * **_M_word**
- int **_M_word_size**
- _Words **_M_word_zero**

Friends

- class **sentry**

- typedef num_get< _CharT, istreambuf_iterator< _CharT, _Traits > > __num_get_type
- operator void * () const
- bool operator! () const

5.382.1 Detailed Description

template<typename _CharT, typename _Traits, typename _Alloc> class std::basic_ostringstream< _CharT, _Traits, _Alloc >

Controlling output for std::string.

This class supports writing to objects of type std::basic_string, using the inherited functions from std::basic_ostream. To control the associated sequence, an instance of std::basic_stringbuf is used, which this page refers to as `sb`.

Definition at line 366 of file sstream.

5.382.2 Member Typedef Documentation

5.382.2.1 template<typename _CharT, typename _Traits> typedef ctype<_CharT> std::basic_ostream< _CharT, _Traits >::__ctype_type [inherited]

These are non-standard types.

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 71 of file ostream.

5.382.2.2 template<typename _CharT, typename _Traits> typedef num_get<_CharT, istreambuf_iterator<_CharT, _Traits> > std::basic_ios< _CharT, _Traits >::__num_get_type [inherited]

These are non-standard types.

Reimplemented in std::basic_istream< _CharT, _Traits >, std::basic_istream< char, _Traits >, and std::basic_istream< char >.

Definition at line 86 of file basic_ios.h.

5.382.2.3 template<typename _CharT, typename _Traits> typedef num_put<_CharT, ostreambuf_iterator<_CharT, _Traits> > std::basic_ostream< _CharT, _Traits >::__num_put_type [inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 70 of file ostream.

5.382.2.4 template<typename _CharT, typename _Traits, typename _Alloc> typedef _CharT std::basic_ostringstream< _CharT, _Traits, _Alloc >::char_type

These are standard types. They permit a standardized way of referring to names of (or names dependant on) the template parameters, which are specific to the implementation.

Reimplemented from std::basic_ostream< _CharT, _Traits >.

Definition at line 370 of file sstream.

5.382.2.5 typedef void(* std::ios_base::event_callback)(event, ios_base &, int) [inherited]

The type of an event callback function.

Parameters:

event One of the members of the event enum.

ios_base Reference to the ios_base object.

int The integer provided when the callback was registered.

Event callbacks are user defined functions that get called during several ios_base and basic_ios functions, specifically imbue(), copyfmt(), and ~ios().

Definition at line 444 of file ios_base.h.

5.382.2.6 typedef _Ios_Fmtflags std::ios_base::fmtflags [inherited]

This is a bitmask type. *_Ios_Fmtflags* is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type fmtflags are:

- boolalpha
- dec
- fixed
- hex
- internal
- left
- oct
- right
- scientific
- showbase
- showpoint
- showpos
- skipws
- unitbuf

- uppercase
- adjustfield
- basefield
- floatfield

Definition at line 263 of file ios_base.h.

5.382.2.7 template<typename _CharT, typename _Traits, typename _Alloc> typedef traits_type::int_type std::basic_ostringstream< _CharT, _Traits, _Alloc >::int_type

These are non-standard types.

Reimplemented from std::basic_ostream< _CharT, _Traits >.

Definition at line 375 of file sstream.

5.382.2.8 typedef _Ios_Iostate std::ios_base::iostate [inherited]

This is a bitmask type. *_Ios_Iostate* is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type iostate are:

- badbit
- eofbit
- failbit
- goodbit

Definition at line 338 of file ios_base.h.

5.382.2.9 template<typename _CharT, typename _Traits, typename _Alloc> typedef traits_type::off_type std::basic_ostringstream< _CharT, _Traits, _Alloc >::off_type

These are non-standard types.

Reimplemented from std::basic_ostream< _CharT, _Traits >.

Definition at line 377 of file sstream.

5.382.2.10 typedef _Ios_Openmode std::ios_base::openmode [inherited]

This is a bitmask type. *_Ios_Openmode* is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type openmode are:

- app
- ate
- binary
- in
- out
- trunc

Definition at line 369 of file ios_base.h.

5.382.2.11 template<typename _CharT, typename _Traits, typename _Alloc> typedef traits_type::pos_type std::basic_ostringstream< _CharT, _Traits, _Alloc >::pos_type

These are non-standard types.

Reimplemented from std::basic_ostream< _CharT, _Traits >.

Definition at line 376 of file sstream.

5.382.2.12 typedef _Ios_Seekdir std::ios_base::seekdir [inherited]

This is an enumerated type. *_Ios_Seekdir* is implementation-defined. Defined values of type seekdir are:

- beg
- cur, equivalent to SEEK_CUR in the C standard library.
- end, equivalent to SEEK_END in the C standard library.

Definition at line 401 of file ios_base.h.

5.382.2.13 template<typename _CharT, typename _Traits, typename _Alloc> typedef _Traits std::basic_ostringstream< _CharT, _Traits, _Alloc >::traits_type

These are non-standard types.

Reimplemented from std::basic_ostream< _CharT, _Traits >.

Definition at line 371 of file sstream.

5.382.3 Member Enumeration Documentation

5.382.3.1 enum std::ios_base::event [inherited]

The set of events that may be passed to an event callback. erase_event is used during ~ios() and copyfmt(). imbue_event is used during imbue(). copyfmt_event is used during copyfmt().

Definition at line 427 of file ios_base.h.

5.382.4 Constructor & Destructor Documentation

5.382.4.1 template<typename _CharT, typename _Traits, typename _Alloc> std::basic_ostringstream< _CharT, _Traits, _Alloc >::basic_ostringstream (ios_base::openmode __*mode* = ios_base::out) [inline, explicit]

Default constructor starts with an empty string buffer.

Parameters:

mode Whether the buffer can read, or write, or both.

`ios_base::out` is automatically included in *mode*.

Initializes `sb` using `mode|out`, and passes `&sb` to the base class initializer. Does not allocate any buffer.

That's a lie. We initialize the base class with NULL, because the string class does its own memory management.

Definition at line 402 of file sstream.

5.382.4.2 template<typename _CharT, typename _Traits, typename _Alloc> std::basic_ostringstream< _CharT, _Traits, _Alloc >::basic_ostringstream (const __string_type & *__str*, ios_base::openmode *__mode* = ios_base::out) [inline, explicit]

Starts with an existing string buffer.

Parameters:

str A string to copy as a starting buffer.

mode Whether the buffer can read, or write, or both.

`ios_base::out` is automatically included in *mode*.

Initializes `sb` using *str* and `mode|out`, and passes `&sb` to the base class initializer.

That's a lie. We initialize the base class with NULL, because the string class does its own memory management.

Definition at line 420 of file sstream.

5.382.4.3 template<typename _CharT, typename _Traits, typename _Alloc> std::basic_ostringstream< _CharT, _Traits, _Alloc >::~basic_ostringstream () [inline]

The destructor does nothing. The buffer is deallocated by the stringbuf object, not the formatting stream.

Definition at line 431 of file sstream.

5.382.5 Member Function Documentation

5.382.5.1 const locale& std::ios_base::_M_getloc () const [inline, inherited]

Locale access.

Returns:

A reference to the current locale.

Like getloc above, but returns a reference instead of generating a copy.

Definition at line 705 of file ios_base.h.

Referenced by std::money_get< _CharT, _InIter >::do_get(), std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_date(), std::time_get<

_CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_time(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::time_put< _CharT, _OutIter >::do_put(), std::num_put< _CharT, _OutIter >::do_put(), and std::time_put< _CharT, _OutIter >::put().

5.382.5.2 template<typename _CharT, typename _Traits> void std::basic_ostream< _CharT, _Traits >::_M_write (const char_type * __s, streamsize __n) [inline, inherited]

Simple insertion.

Parameters:

c The character to insert.

Returns:

*this

Tries to insert *c*.

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 287 of file ostream.

Referenced by std::basic_ostream< _CharT, _Traits >::write().

5.382.5.3 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::bad () const [inline, inherited]

Fast error checking.

Returns:

True if the badbit is set.

Note that other iostate flags may also be set.

Definition at line 201 of file basic_ios.h.

5.382.5.4 template<typename _CharT , typename _Traits > void std::basic_ios< _CharT, _Traits >::clear (iostate __state = goodbit) [inline, inherited]

[Re]sets the error state.

Parameters:

state The new state flag(s) to set.

See std::ios_base::iostate for the possible bit values. Most users will not need to pass an argument.

Definition at line 40 of file basic_ios.tcc.

Referenced by std::basic_ios< _CharT, _Traits >::rdbuf().

5.382.5.5 template<typename _CharT , typename _Traits > basic_ios< _CharT, _Traits > & std::basic_ios< _CharT, _Traits >::copyfmt (const basic_ios< _CharT, _Traits > & *__rhs*) [inline, inherited]

Copies fields of __rhs into this.

Parameters:

__rhs The source values for the copies.

Returns:

Reference to this object.

All fields of __rhs are copied into this object except that rdbuf() and rdstate() remain unchanged. All values in the pword and iword arrays are copied. Before copying, each callback is invoked with erase_event. After copying, each (new) callback is invoked with copyfmt_event. The final step is to copy exceptions().

Definition at line 62 of file basic_ios.tcc.

References std::basic_ios< _CharT, _Traits >::exceptions(), std::basic_ios< _CharT, _Traits >::fill(), std::ios_base::flags(), std::ios_base::getloc(), std::ios_base::precision(), std::basic_ios< _CharT, _Traits >::tie(), and std::ios_base::width().

5.382.5.6 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::eof () const [inline, inherited]

Fast error checking.

Returns:

True if the eofbit is set.

Note that other iostate flags may also be set.

Definition at line 180 of file basic_ios.h.

Referenced by std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_istream< _CharT, _Traits >::putback(), and std::basic_istream< _CharT, _Traits >::unget().

5.382.5.7 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::exceptions (iostate __*except*) [inline, inherited]

Throwing exceptions on errors.

Parameters:

except The new exceptions mask.

By default, error flags are set silently. You can set an exceptions mask for each stream; if a bit in the mask becomes set in the error flags, then an exception of type std::ios_base::failure is thrown.

If the error flag is already set when the exceptions mask is added, the exception is immediately thrown. Try running the following under GCC 3.1 or later:

```
#include <iostream>
#include <fstream>
#include <exception>

int main()
{
    std::set_terminate (__gnu_cxx::__verbose_terminate_handler);

    std::ifstream f ("/etc/motd");

    std::cerr << "Setting badbit\n";
    f.setstate (std::ios_base::badbit);

    std::cerr << "Setting exception mask\n";
    f.exceptions (std::ios_base::badbit);
}
```

Definition at line 247 of file basic_ios.h.

5.382.5.8 template<typename _CharT, typename _Traits> iostate std::basic_ios< _CharT, _Traits >::exceptions () const [inline, inherited]

Throwing exceptions on errors.

Returns:

The current exceptions mask.

This changes nothing in the stream. See the one-argument version of exceptions(iostate) for the meaning of the return value.

Definition at line 212 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.382.5.9 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::fail () const [inline, inherited]

Fast error checking.

Returns:

True if either the badbit or the failbit is set.

Checking the badbit in fail() is historical practice. Note that other iostate flags may also be set.

Definition at line 191 of file basic_ios.h.

Referenced by std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_ostream< _CharT, _Traits >::tellp(), and std::regex_traits< _Ch_type >::value().

5.382.5.10 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::fill (char_type *__ch*) [inline, inherited]

Sets a new *empty* character.

Parameters:

ch The new character.

Returns:

The previous fill character.

The fill character is used to fill out space when P+ characters have been requested (e.g., via setw), Q characters are actually used, and Q<P. It defaults to a space (' ') in the current locale.

Definition at line 380 of file basic_ios.h.

5.382.5.11 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::fill () const [inline, inherited]

Retrieves the *empty* character.

Returns:

The current fill character.

It defaults to a space (' ') in the current locale.

Definition at line 360 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.382.5.12 fmtflags std::ios_base::flags (fmtflags *__fmtfl*) [inline, inherited]

Setting new format flags all at once.

Parameters:

fmtfl The new flags to set.

Returns:

The previous format control flags.

This function overwrites all the format flags with *fmtfl*.

Definition at line 561 of file ios_base.h.

5.382.5.13 fmtflags std::ios_base::flags () const [inline, inherited]

Access to format flags.

Returns:

The format control flags for both input and output.

Definition at line 550 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::num_get< _CharT, _InIter >::do_get(), std::num_put< _CharT, _OutIter >::do_put(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator<<(), and std::operator>>().

5.382.5.14 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::flush () [inline, inherited]

Synchronizing the stream buffer.

Returns:

∗this

If `rdbuf()` is a null pointer, changes nothing.

Otherwise, calls `rdbuf()->pubsync()`, and if that returns -1, sets badbit.

Definition at line 211 of file ostream.tcc.

References std::ios_base::badbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

Referenced by std::flush().

5.382.5.15 locale std::ios_base::getloc () const [inline, inherited]

Locale access.

Returns:

A copy of the current locale.

If `imbue(loc)` has previously been called, then this function returns `loc`. Otherwise, it returns a copy of `std::locale()`, the global C++ locale.

Definition at line 694 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::money_put< _CharT, _OutIter >::do_put(), std::basic_ios< _CharT, _Traits >::imbue(), std::operator>>(), and std::ws().

5.382.5.16 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::good () const [inline, inherited]

Fast error checking.

Returns:

True if no error flags are set.

A wrapper around rdstate.

Definition at line 170 of file basic_ios.h.

5.382.5.17 template<typename _CharT , typename _Traits > locale std::basic_ios< _CharT, _Traits >::imbue (const locale & *__loc*) [inline, inherited]

Moves to a new locale.

Parameters:

loc The new locale.

Returns:

The previous locale.

Calls `ios_base::imbue(loc)`, and if a stream buffer is associated with this stream, calls that buffer's `pubimbue(loc)`.

Additional l10n notes are at http://gcc.gnu.org/onlinedocs/libstdc++/manual/localizati

Reimplemented from std::ios_base.

Definition at line 113 of file basic_ios.tcc.

References std::ios_base::getloc(), and std::basic_ios< _CharT, _Traits >::rdbuf().

Referenced by std::operator<<().

5.382.5.18 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::init (basic_streambuf< _CharT, _Traits > * *__sb*) [inline, protected, inherited]

All setup is performed here. This is called from the public constructor. It is not virtual and cannot be redefined.

Definition at line 125 of file basic_ios.tcc.

References std::ios_base::badbit, and std::ios_base::goodbit.

5.382.5.19 long& std::ios_base::iword (int *__ix*) [inline, inherited]

Access to integer array.

Parameters:

__ix Index into the array.

Returns:

A reference to an integer associated with the index.

The iword function provides access to an array of integers that can be used for any purpose. The array grows as required to hold the supplied index. All integers in the array are initialized to 0.

The implementation reserves several indices. You should use xalloc to obtain an index that is safe to use. Also note that since the array can grow dynamically, it is not safe to hold onto the reference.

Definition at line 740 of file ios_base.h.

5.382.5.20 template<typename _CharT, typename _Traits> char std::basic_ios< _CharT, _Traits >::narrow (char_type __c, char __dfault) const [inline, inherited]

Squeezes characters.

Parameters:

c The character to narrow.

dfault The character to narrow.

Returns:

The narrowed character.

Maps a character of `char_type` to a character of `char`, if possible.

Returns the result of

```
std::use_facet<ctype<char_type> >(getloc()).narrow(c,dfault)
```

Additional l10n notes are at http://gcc.gnu.org/onlinedocs/libstdc++/manual/localization.html

Definition at line 420 of file basic_ios.h.

5.382.5.21 template<typename _CharT, typename _Traits> std::basic_ios< _CharT, _Traits >::operator void * () const [inline, inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Definition at line 111 of file basic_ios.h.

5.382.5.22 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::operator! () const [inline, inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Definition at line 115 of file basic_ios.h.

5.382.5.23 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::operator<< (__streambuf_type * *__sb*) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 120 of file ostream.tcc.

References std::ios_base::badbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.382.5.24 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (const void * *__p*) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 225 of file ostream.

5.382.5.25 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (long double __f) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 221 of file ostream.

5.382.5.26 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (float __f) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 213 of file ostream.

5.382.5.27 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (double __f) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 209 of file ostream.

5.382.5.28 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (unsigned long long __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 204 of file ostream.

5.382.5.29 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (long long __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 200 of file ostream.

5.382.5.30 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (unsigned int __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,

- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 191 of file ostream.

5.382.5.31 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::operator<< (int __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 106 of file ostream.tcc.

References std::ios_base::basefield, std::ios_base::flags(), std::ios_base::hex, and std::ios_base::oct.

5.382.5.32 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (unsigned short __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 180 of file ostream.

5.382.5.33 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::operator<< (short __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 92 of file ostream.tcc.

References std::ios_base::basefield, std::ios_base::flags(), std::ios_base::hex, and std::ios_base::oct.

5.382.5.34 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (bool __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 173 of file ostream.

5.382.5.35 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (unsigned long __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 169 of file ostream.

5.382.5.36 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (long __n) [inline, inherited]

Basic arithmetic inserters.

Parameters:

A variable of builtin type.

Returns:

`*this` if successful

These functions use the stream's current locale (specifically, the `num_get` facet) to perform numeric formatting.

Definition at line 165 of file ostream.

5.382.5.37 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (ios_base &(*)(ios_base &) __pf) [inline, inherited]

Interface for manipulators. Manipulators such as `std::endl` and `std::hex` use these functions in constructs like "std::cout << std::endl". For more information, see the iomanip header.

Definition at line 127 of file ostream.

5.382.5.38 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (__ios_type &(*)(__ios_type &) *__pf*) [inline, inherited]

Interface for manipulators. Manipulators such as `std::endl` and `std::hex` use these functions in constructs like "std::cout << std::endl". For more information, see the iomanip header.

Definition at line 117 of file ostream.

5.382.5.39 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (__ostream_type &(*)(__ostream_type &) *__pf*) [inline, inherited]

Interface for manipulators. Manipulators such as `std::endl` and `std::hex` use these functions in constructs like "std::cout << std::endl". For more information, see the iomanip header.

Definition at line 108 of file ostream.

5.382.5.40 streamsize std::ios_base::precision (streamsize *__prec*) [inline, inherited]

Changing flags.

Parameters:

prec The new precision value.

Returns:

The previous value of precision().

Definition at line 629 of file ios_base.h.

5.382.5.41 streamsize std::ios_base::precision () const [inline, inherited]

Flags access.

Returns:

The precision to generate on certain output operations.

Be careful if you try to give a definition of *precision* here; see DR 189.

Definition at line 620 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), and std::operator<<().

5.382.5.42 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::put (char_type __c) [inline, inherited]

Simple insertion.

Parameters:

c The character to insert.

Returns:

∗this

Tries to insert *c*.

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 149 of file ostream.tcc.

References std::ios_base::badbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

Referenced by std::endl(), and std::ends().

5.382.5.43 void∗& std::ios_base::pword (int __ix) [inline, inherited]

Access to void pointer array.

Parameters:

__ix Index into the array.

Returns:

A reference to a void∗ associated with the index.

The pword function provides access to an array of pointers that can be used for any purpose. The array grows as required to hold the supplied index. All pointers in the array are initialized to 0.

The implementation reserves several indices. You should use xalloc to obtain an index that is safe to use. Also note that since the array can grow dynamically, it is not safe to hold onto the reference.

Definition at line 761 of file ios_base.h.

5.382.5.44 template<typename _CharT, typename _Traits> basic_streambuf< _CharT, _Traits > * std::basic_ios< _CharT, _Traits >::rdbuf (basic_streambuf< _CharT, _Traits > * *__sb*) [inline, inherited]

Changing the underlying buffer.

Parameters:

sb The new stream buffer.

Returns:

The previous stream buffer.

Associates a new buffer with the current stream, and clears the error state.

Due to historical accidents which the LWG refuses to correct, the I/O library suffers from a design error: this function is hidden in derived classes by overrides of the zero-argument `rdbuf()`, which is non-virtual for hysterical raisins. As a result, you must use explicit qualifications to access this function via any derived class. For example:

```
std::fstream     foo;         // or some other derived type
std::streambuf*  p = .....;

foo.ios::rdbuf(p);            // ios == basic_ios<char>
```

Definition at line 52 of file basic_ios.tcc.

References std::basic_ios< _CharT, _Traits >::clear().

5.382.5.45 template<typename _CharT, typename _Traits, typename _Alloc> __stringbuf_type* std::basic_ostringstream< _CharT, _Traits, _Alloc >::rdbuf () const [inline]

Accessing the underlying buffer.

Returns:

The current basic_stringbuf buffer.

This hides both signatures of std::basic_ios::rdbuf().

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 442 of file sstream.

5.382.5.46 template<typename _CharT, typename _Traits> iostate std::basic_ios< _CharT, _Traits >::rdstate () const [inline, inherited]

Returns the error state of the stream buffer.

Returns:

A bit pattern (well, isn't everything?)

See std::ios_base::iostate for the possible bit values. Most users will call one of the interpreting wrappers, e.g., good().

Definition at line 127 of file basic_ios.h.

5.382.5.47 void std::ios_base::register_callback (event_callback *__fn*, int *__index*) [inherited]

Add the callback __fn with parameter __index.

Parameters:

__fn The function to add.

__index The integer to pass to the function when invoked.

Registers a function as an event callback with an integer parameter to be passed to the function when invoked. Multiple copies of the function are allowed. If there are multiple callbacks, they are invoked in the order they were registered.

5.382.5.48 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::seekp (off_type *__off*, ios_base::seekdir *__dir*) [inline, inherited]

Changing the current write position.

Parameters:

off A file offset object.

dir The direction in which to seek.

Returns:

*this

If `fail()` is not true, calls `rdbuf()->pubseekoff(off,dir)`. If that function fails, sets failbit.

Definition at line 290 of file ostream.tcc.

References std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::failbit, std::ios_base::goodbit, std::ios_base::out, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.382.5.49 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::seekp (pos_type *__pos*) [inline, inherited]

Changing the current write position.

Parameters:

pos A file position object.

Returns:

*this

If `fail()` is not true, calls `rdbuf()->pubseekpos(pos)`. If that function fails, sets failbit.

Definition at line 258 of file ostream.tcc.

References std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::failbit, std::ios_base::goodbit, std::ios_base::out, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.382.5.50 fmtflags std::ios_base::setf (fmtflags *__fmtfl*, fmtflags *__mask*) [inline, inherited]

Setting new format flags.

Parameters:

fmtfl Additional flags to set.

mask The flags mask for *fmtfl*.

Returns:

The previous format control flags.

This function clears *mask* in the format flags, then sets *fmtfl* & *mask*. An example mask is `ios_base::adjustfield`.

Definition at line 594 of file ios_base.h.

5.382.5.51 fmtflags std::ios_base::setf (fmtflags *__fmtfl*) [inline, inherited]

Setting new format flags.

Parameters:

fmtfl Additional flags to set.

Returns:

The previous format control flags.

This function sets additional flags in format control. Flags that were previously set remain set.

Definition at line 577 of file ios_base.h.

Referenced by std::boolalpha(), std::dec(), std::fixed(), std::hex(), std::internal(), std::left(), std::oct(), std::right(), std::scientific(), std::showbase(), std::showpoint(), std::showpos(), std::skipws(), std::unitbuf(), and std::uppercase().

5.382.5.52 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::setstate (iostate *__state*) [inline, inherited]

Sets additional flags in the error state.

Parameters:

state The additional state flag(s) to set.

See std::ios_base::iostate for the possible bit values.

Definition at line 147 of file basic_ios.h.

Referenced by std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::basic_istream< _CharT, _Traits >::operator>>(), std::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), std::basic_istream< _CharT, _Traits >::unget(), and std::ws().

5.382.5.53 template<typename _CharT, typename _Traits, typename _Alloc> void std::basic_ostringstream< _CharT, _Traits, _Alloc >::str (const __string_type & __*s*) [inline]

Setting a new buffer.

Parameters:

s The string to use as a new sequence.

Calls `rdbuf()->str(s)`.

Definition at line 460 of file sstream.

5.382.5.54 template<typename _CharT, typename _Traits, typename _Alloc> __string_type std::basic_ostringstream< _CharT, _Traits, _Alloc >::str () const [inline]

Copying out the string buffer.

Returns:

`rdbuf()->str()`

Definition at line 450 of file sstream.

Referenced by std::operator<<().

5.382.5.55 static bool std::ios_base::sync_with_stdio (bool __*sync* = true) [static, inherited]

Interaction with the standard C I/O objects.

Parameters:

sync Whether to synchronize or not.

Returns:

True if the standard streams were previously synchronized.

The synchronization referred to is *only* that between the standard C facilities (e.g., stdout) and the standard C++ objects (e.g., cout). User-declared streams are unaffected. See http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch28s02.html

5.382.5.56 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits >::pos_type std::basic_ostream< _CharT, _Traits >::tellp () [inline, inherited]

Getting the current write position.

Returns:

A file position object.

If `fail()` is not false, returns `pos_type`(-1) to indicate failure. Otherwise returns `rdbuf()->pubseekoff(0,cur,out)`.

Definition at line 237 of file ostream.tcc.

References std::ios_base::badbit, std::ios_base::cur, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::out, and std::basic_ios< _CharT, _Traits >::rdbuf().

5.382.5.57 template<typename _CharT, typename _Traits> basic_ostream<_CharT, _Traits>* std::basic_ios< _CharT, _Traits >::tie (basic_ostream< _CharT, _Traits > * *__tiestr*) [inline, inherited]

Ties this stream to an output stream.

Parameters:

tiestr The output stream.

Returns:

The previously tied output stream, or NULL if the stream was not tied.

This sets up a new tie; see tie() for more.

Definition at line 297 of file basic_ios.h.

5.382.5.58 template<typename _CharT, typename _Traits> basic_ostream<_CharT, _Traits>* std::basic_ios< _CharT, _Traits >::tie () const [inline, inherited]

Fetches the current *tied* stream.

Returns:

A pointer to the tied stream, or NULL if the stream is not tied.

A stream may be *tied* (or synchronized) to a second output stream. When this stream performs any I/O, the tied stream is first flushed. For example, `std::cin` is tied to `std::cout`.

Definition at line 285 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.382.5.59 void std::ios_base::unsetf (fmtflags *__mask*) [inline, inherited]

Clearing format flags.

Parameters:

mask The flags to unset.

This function clears *mask* in the format flags.

Definition at line 609 of file ios_base.h.

Referenced by std::noboolalpha(), std::noshowbase(), std::noshowpoint(), std::noshowpos(), std::noskipws(), std::nounitbuf(), and std::nouppercase().

5.382.5.60 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::widen (char *__c*) const [inline, inherited]

Widens characters.

Parameters:

c The character to widen.

Returns:

The widened character.

Maps a character of `char` to a character of `char_type`.

Returns the result of

```
std::use_facet<ctype<char_type> >(getloc()).widen(c)
```

Additional l10n notes are at http://gcc.gnu.org/onlinedocs/libstdc++/manual/localization.html

Definition at line 439 of file basic_ios.h.

Referenced by std::endl(), std::getline(), and std::operator>>().

5.382.5.61 streamsize std::ios_base::width (streamsize __*wide*) [inline, inherited]

Changing flags.

Parameters:

wide The new width value.

Returns:

The previous value of width().

Definition at line 652 of file ios_base.h.

5.382.5.62 streamsize std::ios_base::width () const [inline, inherited]

Flags access.

Returns:

The minimum field width to generate on output operations.

Minimum field width refers to the number of characters.

Definition at line 643 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::num_put< _CharT, _OutIter >::do_put(), and std::operator>>().

5.382.5.63 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::write (const char_type * __*s*, streamsize __*n*) [inline, inherited]

Character string insertion.

Parameters:

s The array to insert.

n Maximum number of characters to insert.

Returns:

*this

Characters are copied from *s* and inserted into the stream until one of the following happens:

- *n* characters are inserted
- inserting into the output sequence fails (in this case, badbit will be set in the stream's error state)

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 183 of file ostream.tcc.

References std::basic_ostream< _CharT, _Traits >::_M_write(), and std::ios_base::badbit.

5.382.5.64 static int std::ios_base::xalloc () throw () [static, inherited]

Access to unique indices.

Returns:

An integer different from all previous calls.

This function returns a unique integer every time it is called. It can be used for any purpose, but is primarily intended to be a unique index for the iword and pword functions. The expectation is that an application calls xalloc in order to obtain an index in the iword and pword arrays that can be used without fear of conflict.

The implementation maintains a static variable that is incremented and returned on each invocation. xalloc is guaranteed to return an index that is safe to use in the iword and pword arrays.

5.382.6 Member Data Documentation

5.382.6.1 const fmtflags std::ios_base::adjustfield [static, inherited]

A mask of left|right|internal. Useful for the 2-arg form of `setf`.

Definition at line 318 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

5.382.6.2 const openmode std::ios_base::app [static, inherited]

Seek to end before each write.

Definition at line 372 of file ios_base.h.

5.382.6.3 const openmode std::ios_base::ate [static, inherited]

Open and seek to end immediately after opening.

Definition at line 375 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::open().

5.382.6.4 const iostate std::ios_base::badbit [static, inherited]

Indicates a loss of integrity in an input or output sequence (such as an irrecoverable read error from a file).

Definition at line 342 of file ios_base.h.

Referenced by std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ios< _CharT, _Traits >::init(), std::operator<<(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_ostream< _CharT, _Traits >::tellp(), std::basic_istream< _CharT, _Traits >::unget(), and std::basic_ostream< _CharT, _Traits >::write().

5.382.6.5 const fmtflags std::ios_base::basefield [static, inherited]

A mask of dec|oct|hex. Useful for the 2-arg form of `setf`.

Definition at line 321 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), and std::basic_ostream< _CharT, _Traits >::operator<<().

5.382.6.6 const seekdir std::ios_base::beg [static, inherited]

Request a seek relative to the beginning of the stream.

Definition at line 404 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::seekpos().

5.382.6.7 const openmode std::ios_base::binary [static, inherited]

Perform input and output in binary mode (as opposed to text mode). This is probably not what you think it is; see http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch27s02.html.

Definition at line 380 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::showmanyc().

5.382.6.8 const fmtflags std::ios_base::boolalpha [static, inherited]

Insert/extract `bool` in alphabetic rather than numeric format.

Definition at line 266 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), and std::num_put< _CharT, _OutIter >::do_put().

5.382.6.9 const seekdir std::ios_base::cur [static, inherited]

Request a seek relative to the current position within the sequence.

Definition at line 407 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_istream< _CharT, _Traits >::tellg(), and std::basic_ostream< _CharT, _Traits >::tellp().

5.382.6.10 const fmtflags std::ios_base::dec [static, inherited]

Converts integer input or generates integer output in decimal base.

Definition at line 269 of file ios_base.h.

5.382.6.11 const seekdir std::ios_base::end [static, inherited]

Request a seek relative to the current end of the sequence.

Definition at line 410 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::open(), and std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff().

5.382.6.12 const iostate std::ios_base::eofbit [static, inherited]

Indicates that an input operation reached the end of an input sequence.

Definition at line 345 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_date(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_time(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), and std::ws().

5.382.6.13 const iostate std::ios_base::failbit [static, inherited]

Indicates that an input operation failed to read the expected characters, or that an output operation failed to generate the desired characters.

Definition at line 350 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::basic_istream< _CharT, _Traits >::operator>>(), std::operator>>(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::seekg(), and std::basic_ostream< _CharT, _Traits >::seekp().

5.382.6.14 const fmtflags std::ios_base::fixed [static, inherited]

Generate floating-point output in fixed-point notation.

Definition at line 272 of file ios_base.h.

5.382.6.15 const fmtflags std::ios_base::floatfield [static, inherited]

A mask of scientific|fixed. Useful for the 2-arg form of `setf`.

Definition at line 324 of file ios_base.h.

5.382.6.16 const iostate std::ios_base::goodbit [static, inherited]

Indicates all is well.

Definition at line 353 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ios< _CharT, _Traits >::init(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), and std::basic_istream< _CharT, _Traits >::unget().

5.382.6.17 const fmtflags std::ios_base::hex [static, inherited]

Converts integer input or generates integer output in hexadecimal base.

Definition at line 275 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::num_put< _CharT, _OutIter >::do_put(), and std::basic_ostream< _CharT, _Traits >::operator<<().

5.382.6.18 const openmode std::ios_base::in [static, inherited]

Open for input. Default for `ifstream` and fstream.

Definition at line 383 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::showmanyc(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::underflow(), std::basic_filebuf< _CharT, _Traits >::underflow(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.382.6.19 const fmtflags std::ios_base::internal [static, inherited]

Adds fill characters at a designated internal point in certain generated output, or identical to `right` if no such point is designated.

Definition at line 280 of file ios_base.h.

5.382.6.20 const fmtflags std::ios_base::left [static, inherited]

Adds fill characters on the right (final positions) of certain generated output. (I.e., the thing you print is flush left.).

Definition at line 284 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

5.382.6.21 const fmtflags std::ios_base::oct [static, inherited]

Converts integer input or generates integer output in octal base.

Definition at line 287 of file ios_base.h.

Referenced by std::basic_ostream< _CharT, _Traits >::operator<<().

5.382.6.22 const openmode std::ios_base::out [static, inherited]

Open for output. Default for `ofstream` and fstream.

Definition at line 386 of file ios_base.h.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_ostream< _CharT, _Traits >::tellp(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.382.6.23 const fmtflags std::ios_base::right [static, inherited]

Adds fill characters on the left (initial positions) of certain generated output. (I.e., the thing you print is flush right.).

Definition at line 291 of file ios_base.h.

5.382.6.24 const fmtflags std::ios_base::scientific [static, inherited]

Generates floating-point output in scientific notation.

Definition at line 294 of file ios_base.h.

5.382.6.25 const fmtflags std::ios_base::showbase [static, inherited]

Generates a prefix indicating the numeric base of generated integer output.

Definition at line 298 of file ios_base.h.

5.382.6.26 const fmtflags std::ios_base::showpoint [static, inherited]

Generates a decimal-point character unconditionally in generated floating-point output.

Definition at line 302 of file ios_base.h.

5.382.6.27 const fmtflags std::ios_base::showpos [static, inherited]

Generates a + sign in non-negative generated numeric output.

Definition at line 305 of file ios_base.h.

5.382.6.28 const fmtflags std::ios_base::skipws [static, inherited]

Skips leading white space before certain input operations.

Definition at line 308 of file ios_base.h.

5.382.6.29 const openmode std::ios_base::trunc [static, inherited]

Open for input. Default for `ofstream`.

Definition at line 389 of file ios_base.h.

5.382.6.30 const fmtflags std::ios_base::unitbuf [static, inherited]

Flushes output after each output operation.

Definition at line 311 of file ios_base.h.

5.382.6.31 const fmtflags std::ios_base::uppercase [static, inherited]

Replaces certain lowercase letters with their uppercase equivalents in generated output.

Definition at line 315 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

The documentation for this class was generated from the following file:

- sstream

5.383 std::basic_regex< _Ch_type, _Rx_traits > Class Template Reference

Public Types

- typedef regex_constants::syntax_option_type **flag_type**
- typedef _Rx_traits::locale_type **locale_type**
- typedef _Rx_traits::string_type **string_type**
- typedef _Ch_type **value_type**

Public Member Functions

- basic_regex (initializer_list< _Ch_type > __l, flag_type __f=regex_constants::ECMAScript)
- template<typename _InputIterator >
  basic_regex (_InputIterator __first, _InputIterator __last, flag_type __f=regex_constants::ECMAScript)
- template<typename _Ch_traits , typename _Ch_alloc >
  basic_regex (const basic_string< _Ch_type, _Ch_traits, _Ch_alloc > &__s, flag_type __f=regex_constants::ECMAScript)
- basic_regex (const basic_regex &__rhs)
- basic_regex (const _Ch_type *__p, std::size_t __len, flag_type __f)
- basic_regex (const _Ch_type *__p, flag_type __f=regex_constants::ECMAScript)
- basic_regex ()
- ~basic_regex ()
- basic_regex & assign (initializer_list< _Ch_type > __l, flag_type __f=regex_constants::ECMAScript)
- template<typename _InputIterator >
  basic_regex & assign (_InputIterator __first, _InputIterator __last, flag_type __flags=regex_constants::ECMAScript)
- template<typename _Ch_typeraits , typename _Allocator >
  basic_regex & assign (const basic_string< _Ch_type, _Ch_typeraits, _Allocator > &__s, flag_type __f=regex_constants::ECMAScript)
- basic_regex & assign (const _Ch_type *__p, std::size_t __len, flag_type __flags)
- basic_regex & assign (const _Ch_type *__p, flag_type __flags=regex_constants::ECMAScript)
- basic_regex & assign (const basic_regex &__that)
- flag_type flags () const
- locale_type getloc () const
- locale_type imbue (locale_type __loc)
- unsigned int mark_count () const

- template<typename _Ch_typeraits , typename _Allocator > basic_regex & operator= (const basic_string< _Ch_type, _Ch_typeraits, _Allocator > &__s)
- basic_regex & operator= (const _Ch_type *__p)
- basic_regex & operator= (const basic_regex &__rhs)
- void swap (basic_regex &__rhs)

Static Public Attributes

Constants

tr1 [7.8.1] std [28.8.1]

- static const regex_constants::syntax_option_type **awk**
- static const regex_constants::syntax_option_type **basic**
- static const regex_constants::syntax_option_type **collate**
- static const regex_constants::syntax_option_type **ECMAScript**
- static const regex_constants::syntax_option_type **egrep**
- static const regex_constants::syntax_option_type **extended**
- static const regex_constants::syntax_option_type **grep**
- static const regex_constants::syntax_option_type **icase**
- static const regex_constants::syntax_option_type **nosubs**
- static const regex_constants::syntax_option_type **optimize**

Protected Attributes

- flag_type **_M_flags**
- unsigned int **_M_mark_count**
- string_type **_M_pattern**
- _Rx_traits **_M_traits**

5.383.1 Detailed Description

template<typename _Ch_type, typename _Rx_traits = regex_traits<_Ch_type>> class std::basic_regex< _Ch_type, _Rx_traits >

Objects of specializations of this class represent regular expressions constructed from sequences of character type `_Ch_type`.

Storage for the regular expression is allocated and deallocated as necessary by the member functions of this class.

Definition at line 711 of file tr1_impl/regex.

5.383.2 Constructor & Destructor Documentation

5.383.2.1 template<typename _Ch_type, typename _Rx_traits = regex_traits<_Ch_type>> std::basic_regex< _Ch_type, _Rx_traits >::basic_regex () [inline]

Constructs a basic regular expression that does not match any character sequence.

Definition at line 752 of file tr1_impl/regex.

5.383.2.2 template<typename _Ch_type, typename _Rx_traits = regex_traits<_Ch_type>> std::basic_regex< _Ch_type, _Rx_traits >::basic_regex (const _Ch_type * *__p*, flag_type *__f* = regex_constants::ECMAScript) [inline, explicit]

Constructs a basic regular expression from the sequence [p, p + char_traits<_Ch_type>::length(p)) interpreted according to the flags in `f`.

Parameters:

p A pointer to the start of a C-style null-terminated string containing a regular expression.

f Flags indicating the syntax rules and options.

Exceptions:

regex_error if `p` is not a valid regular expression.

Definition at line 768 of file tr1_impl/regex.

5.383.2.3 template<typename _Ch_type, typename _Rx_traits = regex_traits<_Ch_type>> std::basic_regex< _Ch_type, _Rx_traits >::basic_regex (const _Ch_type * *__p*, std::size_t *__len*, flag_type *__f*) [inline]

Constructs a basic regular expression from the sequence [p, p + len) interpreted according to the flags in `f`.

Parameters:

p A pointer to the start of a string containing a regular expression.

len The length of the string containing the regular expression.

f Flags indicating the syntax rules and options.

Exceptions:

regex_error if p is not a valid regular expression.

Definition at line 784 of file tr1_impl/regex.

5.383.2.4 template<typename _Ch_type, typename _Rx_traits = regex_traits<_Ch_type>> std::basic_regex< _Ch_type, _Rx_traits >::basic_regex (const basic_regex< _Ch_type, _Rx_traits > & *__rhs*) [inline]

Copy-constructs a basic regular expression.

Parameters:

rhs A regex object.

Definition at line 793 of file tr1_impl/regex.

5.383.2.5 template<typename _Ch_type, typename _Rx_traits = regex_traits<_Ch_type>> template<typename _Ch_traits , typename _Ch_alloc > std::basic_regex< _Ch_type, _Rx_traits >::basic_regex (const basic_string< _Ch_type, _Ch_traits, _Ch_alloc > & *__s*, flag_type *__f* = regex_constants::ECMAScript) [inline, explicit]

Constructs a basic regular expression from the string s interpreted according to the flags in f.

Parameters:

s A string containing a regular expression.

f Flags indicating the syntax rules and options.

Exceptions:

regex_error if s is not a valid regular expression.

Definition at line 809 of file tr1_impl/regex.

5.383.2.6 template<typename _Ch_type, typename _Rx_traits = regex_traits<_Ch_type>> template<typename _InputIterator > std::basic_regex< _Ch_type, _Rx_traits >::basic_regex (_InputIterator *__first*, _InputIterator *__last*, flag_type *__f* = regex_constants::ECMAScript) [inline]

Constructs a basic regular expression from the range [first, last) interpreted according to the flags in `f`.

Parameters:

first The start of a range containing a valid regular expression.

last The end of a range containing a valid regular expression.

f The format flags of the regular expression.

Exceptions:

regex_error if [first, last) is not a valid regular expression.

Definition at line 828 of file tr1_impl/regex.

5.383.2.7 template<typename _Ch_type, typename _Rx_traits = regex_traits<_Ch_type>> std::basic_regex< _Ch_type, _Rx_traits >::basic_regex (initializer_list< _Ch_type > *__l*, flag_type *__f* = regex_constants::ECMAScript) [inline]

Constructs a basic regular expression from an initializer list.

Parameters:

l The initializer list.

f The format flags of the regular expression.

Exceptions:

regex_error if `l` is not a valid regular expression.

Definition at line 842 of file tr1_impl/regex.

5.383.2.8 template<typename _Ch_type, typename _Rx_traits = regex_traits<_Ch_type>> std::basic_regex< _Ch_type, _Rx_traits >::~basic_regex () [inline]

Destroys a basic regular expression.

Definition at line 851 of file tr1_impl/regex.

5.383.3 Member Function Documentation

5.383.3.1 template<typename _Ch_type, typename _Rx_traits = regex_traits<_Ch_type>> basic_regex& std::basic_regex< _Ch_type, _Rx_traits >::assign (initializer_list< _Ch_type > __l, flag_type __f = regex_constants::ECMAScript) [inline]

Assigns a new regular expression to a regex object.

Parameters:

l An initializer list representing a regular expression.

flags Syntax option flags.

Exceptions:

regex_error if `l` does not contain a valid regular expression pattern interpreted according to `flags`. If regex_error is thrown, the object remains unchanged.

Definition at line 984 of file tr1_impl/regex.

References std::basic_regex< _Ch_type, _Rx_traits >::assign().

Referenced by std::basic_regex< _Ch_type, _Rx_traits >::assign().

5.383.3.2 template<typename _Ch_type, typename _Rx_traits = regex_traits<_Ch_type>> template<typename _InputIterator > basic_regex& std::basic_regex< _Ch_type, _Rx_traits >::assign (_InputIterator __first, _InputIterator __last, flag_type __flags = regex_constants::ECMAScript) [inline]

Assigns a new regular expression to a regex object.

Parameters:

first The start of a range containing a valid regular expression.

last The end of a range containing a valid regular expression.

flags Syntax option flags.

Exceptions:

regex_error if p does not contain a valid regular expression pattern interpreted according to `flags`. If regex_error is thrown, the object remains unchanged.

Definition at line 968 of file tr1_impl/regex.

References std::basic_regex< _Ch_type, _Rx_traits >::assign().

Referenced by std::basic_regex< _Ch_type, _Rx_traits >::assign().

5.383.3.3 template<typename _Ch_type, typename _Rx_traits = regex_traits<_Ch_type>> template<typename _Ch_typeraits , typename _Allocator > basic_regex& std::basic_regex< _Ch_type, _Rx_traits >::assign (const basic_string< _Ch_type, _Ch_typeraits, _Allocator > & __s, flag_type __f = regex_constants::ECMAScript) [inline]

Assigns a new regular expression to a regex object from a string containing a regular expression pattern.

Parameters:

s A string containing a regular expression pattern.

flags Syntax option flags.

Exceptions:

regex_error if p does not contain a valid regular expression pattern interpreted according to `flags`. If regex_error is thrown, ∗this remains unchanged.

Definition at line 945 of file tr1_impl/regex.

References std::basic_regex< _Ch_type, _Rx_traits >::swap().

5.383.3.4 template<typename _Ch_type, typename _Rx_traits = regex_traits<_Ch_type>> basic_regex& std::basic_regex< _Ch_type, _Rx_traits >::assign (const _Ch_type ∗ __p, std::size_t __len, flag_type __flags) [inline]

Assigns a new regular expression to a regex object from a C-style string containing a regular expression pattern.

Parameters:

p A pointer to a C-style string containing a regular expression pattern.

len The length of the regular expression pattern string.

flags Syntax option flags.

Exceptions:

regex_error if p does not contain a valid regular expression pattern interpreted according to `flags`. If regex_error is thrown, ∗this remains unchanged.

Definition at line 929 of file tr1_impl/regex.

References std::basic_regex< _Ch_type, _Rx_traits >::assign().

Referenced by std::basic_regex< _Ch_type, _Rx_traits >::assign().

5.383.3.5 template<typename _Ch_type, typename _Rx_traits = regex_traits<_Ch_type>> basic_regex& std::basic_regex< _Ch_type, _Rx_traits >::assign (const _Ch_type * *__p*, flag_type *__flags* = regex_constants::ECMAScript) [inline]

Assigns a new regular expression to a regex object from a C-style null-terminated string containing a regular expression pattern.

Parameters:

p A pointer to a C-style null-terminated string containing a regular expression pattern.

flags Syntax option flags.

Exceptions:

regex_error if p does not contain a valid regular expression pattern interpreted according to `flags`. If regex_error is thrown, *this remains unchanged.

Definition at line 911 of file tr1_impl/regex.

References std::basic_regex< _Ch_type, _Rx_traits >::assign().

Referenced by std::basic_regex< _Ch_type, _Rx_traits >::assign().

5.383.3.6 template<typename _Ch_type, typename _Rx_traits = regex_traits<_Ch_type>> basic_regex& std::basic_regex< _Ch_type, _Rx_traits >::assign (const basic_regex< _Ch_type, _Rx_traits > & *__that*) [inline]

the real assignment operator.

Parameters:

that Another regular expression object.

Definition at line 890 of file tr1_impl/regex.

References std::basic_regex< _Ch_type, _Rx_traits >::swap().

Referenced by std::basic_regex< _Ch_type, _Rx_traits >::operator=().

5.383.3.7 template<typename _Ch_type, typename _Rx_traits = regex_traits<_Ch_type>> flag_type std::basic_regex< _Ch_type, _Rx_traits >::flags () const [inline]

Gets the flags used to construct the regular expression or in the last call to assign().

Definition at line 1003 of file tr1_impl/regex.

Referenced by std::basic_regex< _Ch_type, _Rx_traits >::operator=().

5.383.3.8 template<typename _Ch_type, typename _Rx_traits = regex_traits<_Ch_type>> locale_type std::basic_regex< _Ch_type, _Rx_traits >::getloc () const [inline]

Gets the locale currently imbued in the regular expression object.

Definition at line 1021 of file tr1_impl/regex.

5.383.3.9 template<typename _Ch_type, typename _Rx_traits = regex_traits<_Ch_type>> locale_type std::basic_regex< _Ch_type, _Rx_traits >::imbue (locale_type *__loc*) [inline]

Imbues the regular expression object with the given locale.

Parameters:

loc A locale.

Definition at line 1013 of file tr1_impl/regex.

5.383.3.10 template<typename _Ch_type, typename _Rx_traits = regex_traits<_Ch_type>> unsigned int std::basic_regex< _Ch_type, _Rx_traits >::mark_count () const [inline]

Gets the number of marked subexpressions within the regular expression.

Definition at line 995 of file tr1_impl/regex.

5.383.3.11 template<typename _Ch_type, typename _Rx_traits = regex_traits<_Ch_type>> template<typename _Ch_typeraits , typename _Allocator > basic_regex& std::basic_regex< _Ch_type, _Rx_traits >::operator= (const basic_string< _Ch_type, _Ch_typeraits, _Allocator > & *__s*) [inline]

Replaces a regular expression with a new one constructed from a string.

Parameters:

A pointer to a string containing a regular expression.

Definition at line 880 of file tr1_impl/regex.

References std::basic_regex< _Ch_type, _Rx_traits >::assign(), and std::basic_-regex< _Ch_type, _Rx_traits >::flags().

5.383.3.12 template<typename _Ch_type, typename _Rx_traits = regex_traits<_Ch_type>> basic_regex& std::basic_regex< _Ch_type, _Rx_traits >::operator= (const _Ch_type * *__p*) [inline]

Replaces a regular expression with a new one constructed from a C-style null-terminated string.

Parameters:

A pointer to the start of a null-terminated C-style string containing a regular expression.

Definition at line 869 of file tr1_impl/regex.

References std::basic_regex< _Ch_type, _Rx_traits >::assign(), and std::basic_-regex< _Ch_type, _Rx_traits >::flags().

5.383.3.13 template<typename _Ch_type, typename _Rx_traits = regex_traits<_Ch_type>> basic_regex& std::basic_regex< _Ch_type, _Rx_traits >::operator= (const basic_regex< _Ch_type, _Rx_traits > & *__rhs*) [inline]

Assigns one regular expression to another.

Definition at line 858 of file tr1_impl/regex.

References std::basic_regex< _Ch_type, _Rx_traits >::assign().

5.383.3.14 template<typename _Ch_type, typename _Rx_traits = regex_traits<_Ch_type>> void std::basic_regex< _Ch_type, _Rx_traits >::swap (basic_regex< _Ch_type, _Rx_traits > & *__rhs*) [inline]

Swaps the contents of two regular expression objects.

Parameters:

rhs Another regular expression object.

Definition at line 1031 of file tr1_impl/regex.

Referenced by std::basic_regex< _Ch_type, _Rx_traits >::assign(), and std::swap().

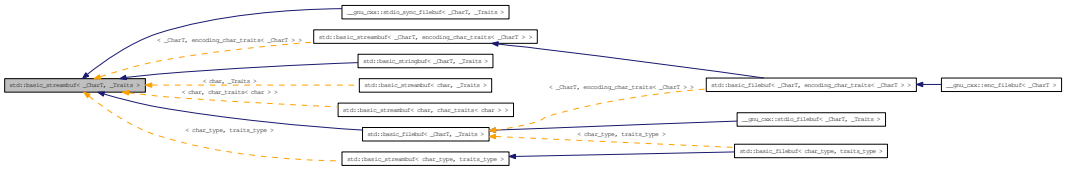
The documentation for this class was generated from the following file:

- tr1_impl/regex

5.384 std::basic_streambuf< _CharT, _Traits > Class Template Reference

The actual work of input and output (interface).

This is a base class. Derived stream buffers each control a pair of character sequences: one for input, and one for output. Inheritance diagram for std::basic_streambuf< _CharT, _Traits >:



Public Member Functions

- streamsize in_avail ()
- int_type sbumpc ()
- int_type sgetc ()
- streamsize sgetn (char_type *__s, streamsize __n)
- int_type snextc ()
- int_type sputbackc (char_type __c)
- int_type sputc (char_type __c)
- streamsize sputn (const char_type *__s, streamsize __n)
- void stossc ()
- int_type sungetc ()

Protected Member Functions

- basic_streambuf ()
- void gbump (int __n)
- virtual void imbue (const locale &)
- virtual int_type overflow (int_type=traits_type::eof())
- virtual int_type pbackfail (int_type=traits_type::eof())
- void pbump (int __n)
- virtual pos_type seekoff (off_type, ios_base::seekdir, ios_base::openmode=ios_base::in|ios_base::out)
- virtual pos_type seekpos (pos_type, ios_base::openmode=ios_base::in|ios_base::out)
- virtual basic_streambuf< char_type, _Traits > * setbuf (char_type *, streamsize)

- void setg (char_type *__gbeg, char_type *__gnext, char_type *__gend)
- void setp (char_type *__pbeg, char_type *__pend)
- virtual streamsize showmanyc ()
- virtual int sync ()
- virtual int_type uflow ()
- virtual int_type underflow ()
- virtual streamsize xsgetn (char_type *__s, streamsize __n)
- virtual streamsize xsputn (const char_type *__s, streamsize __n)

Friends

- template<bool _IsMove, typename _CharT2 > __gnu_cxx::__enable_if< __is_char< _CharT2 >::__value, _CharT2 * >::__type **__copy_move_a2** (istreambuf_iterator< _CharT2 >, istreambuf_iterator< _CharT2 >, _CharT2 *)
- streamsize **__copy_streambufs_eof** (__streambuf_type *, __streambuf_type *, bool &)
- class **basic_ios< char_type, traits_type >**
- class **basic_istream< char_type, traits_type >**
- class **basic_ostream< char_type, traits_type >**
- template<typename _CharT2 > __gnu_cxx::__enable_if< __is_char< _CharT2 >::__value, istreambuf_iterator< _CharT2 > >::__type **find** (istreambuf_iterator< _CharT2 >, istreambuf_iterator< _CharT2 >, const _CharT2 &)
- template<typename _CharT2 , typename _Traits2 , typename _Alloc > basic_istream< _CharT2, _Traits2 > & **getline** (basic_istream< _CharT2, _Traits2 > &, basic_string< _CharT2, _Traits2, _Alloc > &, _CharT2)
- class **istreambuf_iterator< char_type, traits_type >**
- template<typename _CharT2 , typename _Traits2 , typename _Alloc > basic_istream< _CharT2, _Traits2 > & **operator>>** (basic_istream< _CharT2, _Traits2 > &, basic_string< _CharT2, _Traits2, _Alloc > &)
- template<typename _CharT2 , typename _Traits2 > basic_istream< _CharT2, _Traits2 > & **operator>>** (basic_istream< _CharT2, _Traits2 > &, _CharT2 *)
- class **ostreambuf_iterator< char_type, traits_type >**

- typedef basic_streambuf< char_type, traits_type > __streambuf_type
- typedef _CharT char_type
- typedef traits_type::int_type int_type
- typedef traits_type::off_type off_type
- typedef traits_type::pos_type pos_type
- typedef _Traits traits_type

- locale _M_buf_locale
- char_type * _M_in_beg
- char_type * _M_in_cur
- char_type * _M_in_end
- char_type * _M_out_beg
- char_type * _M_out_cur
- char_type * _M_out_end
- virtual ~basic_streambuf ()
- locale getloc () const
- locale pubimbue (const locale &__loc)
- pos_type pubseekoff (off_type __off, ios_base::seekdir __way, ios_base::openmode __mode=ios_base::in|ios_base::out)
- pos_type pubseekpos (pos_type __sp, ios_base::openmode __mode=ios_base::in|ios_base::out)
- __streambuf_type * pubsetbuf (char_type *__s, streamsize __n)
- int pubsync ()
- char_type * eback () const
- char_type * egptr () const
- char_type * epptr () const
- char_type * gptr () const
- char_type * pbase () const
- char_type * pptr () const

5.384.1 Detailed Description

template<typename _CharT, typename _Traits> class std::basic_streambuf< _CharT, _Traits >

The actual work of input and output (interface).

This is a base class. Derived stream buffers each control a pair of character sequences: one for input, and one for output. Section [27.5.1] of the standard describes the requirements and behavior of stream buffer classes. That section (three paragraphs) is reproduced here, for simplicity and accuracy.

1. Stream buffers can impose various constraints on the sequences they control. Some constraints are:
   - The controlled input sequence can be not readable.
   - The controlled output sequence can be not writable.
   - The controlled sequences can be associated with the contents of other representations for character sequences, such as external files.

- The controlled sequences can support operations *directly* to or from associated sequences.
- The controlled sequences can impose limitations on how the program can read characters from a sequence, write characters to a sequence, put characters back into an input sequence, or alter the stream position.

2. Each sequence is characterized by three pointers which, if non-null, all point into the same `charT` array object. The array object represents, at any moment, a (sub)sequence of characters from the sequence. Operations performed on a sequence alter the values stored in these pointers, perform reads and writes directly to or from associated sequences, and alter *the stream position* and conversion state as needed to maintain this subsequence relationship. The three pointers are:

   - the *beginning pointer*, or lowest element address in the array (called *xbeg* here);
   - the *next pointer*, or next element address that is a current candidate for reading or writing (called *xnext* here);
   - the *end pointer*, or first element address beyond the end of the array (called *xend* here).

3. The following semantic constraints shall always apply for any set of three pointers for a sequence, using the pointer names given immediately above:

   - If *xnext* is not a null pointer, then *xbeg* and *xend* shall also be non-null pointers into the same `charT` array, as described above; otherwise, *xbeg* and *xend* shall also be null.
   - If *xnext* is not a null pointer and *xnext* $<$ *xend* for an output sequence, then a *write position* is available. In this case, $*$*xnext* shall be assignable as the next element to write (to put, or to store a character value, into the sequence).
   - If *xnext* is not a null pointer and *xbeg* $<$ *xnext* for an input sequence, then a *putback position* is available. In this case, *xnext*[-1] shall have a defined value and is the next (preceding) element to store a character that is put back into the input sequence.
   - If *xnext* is not a null pointer and *xnext*$<$ *xend* for an input sequence, then a *read position* is available. In this case, $*$*xnext* shall have a defined value and is the next element to read (to get, or to obtain a character value, from the sequence).

Definition at line 115 of file streambuf.

5.384.2 Member Typedef Documentation

5.384.2.1 template<typename _CharT, typename _Traits> typedef basic_streambuf<char_type, traits_type> std::basic_streambuf< _CharT, _Traits >::__streambuf_type

This is a non-standard type.

Reimplemented in std::basic_filebuf< _CharT, _Traits >, std::basic_stringbuf< _CharT, _Traits, _Alloc >, std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >, and std::basic_filebuf< char_type, traits_type >.

Definition at line 133 of file streambuf.

5.384.2.2 template<typename _CharT, typename _Traits> typedef _CharT std::basic_streambuf< _CharT, _Traits >::char_type

These are standard types. They permit a standardized way of referring to names of (or names dependant on) the template parameters, which are specific to the implementation.

Reimplemented in std::basic_filebuf< _CharT, _Traits >, std::basic_stringbuf< _CharT, _Traits, _Alloc >, __gnu_cxx::stdio_filebuf< _CharT, _Traits >, __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >, std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >, and std::basic_filebuf< char_type, traits_type >.

Definition at line 124 of file streambuf.

5.384.2.3 template<typename _CharT, typename _Traits> typedef traits_type::int_type std::basic_streambuf< _CharT, _Traits >::int_type

This is a non-standard type.

Reimplemented in std::basic_filebuf< _CharT, _Traits >, std::basic_stringbuf< _CharT, _Traits, _Alloc >, __gnu_cxx::stdio_filebuf< _CharT, _Traits >, __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >, std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >, and std::basic_filebuf< char_type, traits_type >.

Definition at line 126 of file streambuf.

5.384.2.4 template<typename _CharT, typename _Traits> typedef traits_type::off_type std::basic_streambuf< _CharT, _Traits >::off_type

This is a non-standard type.

Reimplemented in std::basic_filebuf< _CharT, _Traits >, std::basic_stringbuf< _CharT, _Traits, _Alloc >, __gnu_cxx::stdio_filebuf< _CharT, _Traits >, __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >, std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >, and std::basic_filebuf< char_type, traits_type >.

Definition at line 128 of file streambuf.

5.384.2.5 template<typename _CharT, typename _Traits> typedef traits_type::pos_type std::basic_streambuf< _CharT, _Traits >::pos_type

This is a non-standard type.

Reimplemented in std::basic_filebuf< _CharT, _Traits >, std::basic_stringbuf< _CharT, _Traits, _Alloc >, __gnu_cxx::enc_filebuf< _CharT >, __gnu_cxx::stdio_filebuf< _CharT, _Traits >, __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >, std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >, and std::basic_filebuf< char_type, traits_type >.

Definition at line 127 of file streambuf.

5.384.2.6 template<typename _CharT, typename _Traits> typedef _Traits std::basic_streambuf< _CharT, _Traits >::traits_type

This is a non-standard type.

Reimplemented in std::basic_filebuf< _CharT, _Traits >, std::basic_stringbuf< _CharT, _Traits, _Alloc >, __gnu_cxx::enc_filebuf< _CharT >, __gnu_cxx::stdio_filebuf< _CharT, _Traits >, __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >, std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >, and std::basic_filebuf< char_type, traits_type >.

Definition at line 125 of file streambuf.

5.384.3 Constructor & Destructor Documentation

5.384.3.1 template<typename _CharT, typename _Traits> virtual std::basic_streambuf< _CharT, _Traits >::~basic_streambuf () [inline, virtual]

Destructor deallocates no buffer space.

Definition at line 193 of file streambuf.

5.384.3.2 template<typename _CharT, typename _Traits> std::basic_streambuf< _CharT, _Traits >::basic_streambuf () [inline, protected]

Base constructor. Only called from derived constructors, and sets up all the buffer data to zero, including the pointers described in the basic_streambuf class description. Note that, as a result,

- the class starts with no read nor write positions available,
- this is not an error

Definition at line 441 of file streambuf.

5.384.4 Member Function Documentation

5.384.4.1 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::eback () const [inline, protected]

Access to the get area. These functions are only available to other protected functions, including derived classes.

- eback() returns the beginning pointer for the input sequence
- gptr() returns the next pointer for the input sequence
- egptr() returns the end pointer for the input sequence

Definition at line 460 of file streambuf.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::underflow(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.384.4.2 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::egptr () const [inline, protected]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 466 of file streambuf.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::showmanyc(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::underflow(), std::basic_filebuf< _CharT, _Traits >::underflow(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.384.4.3 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::epptr () const [inline, protected]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 513 of file streambuf.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_streambuf< _CharT, _Traits >::xsputn(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.384.4.4 template<typename _CharT, typename _Traits> void std::basic_streambuf< _CharT, _Traits >::gbump (int __n) [inline, protected]

Moving the read position.

Parameters:

n The delta by which to move.

This just advances the read position without returning any data.

Definition at line 476 of file streambuf.

Referenced by std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.384.4.5 template<typename _CharT, typename _Traits> locale std::basic_streambuf< _CharT, _Traits >::getloc () const [inline]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 222 of file streambuf.

5.384.4.6 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::gptr () const [inline, protected]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 463 of file streambuf.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::showmanyc(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::underflow(), std::basic_filebuf< _CharT, _Traits >::underflow(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.384.4.7 template<typename _CharT, typename _Traits> virtual void std::basic_streambuf< _CharT, _Traits >::imbue (const locale &) [inline, protected, virtual]

Changes translations.

Parameters:

loc A new locale.

Translations done during I/O which depend on the current locale are changed by this call. The standard adds, *Between invocations of this function a class derived from streambuf can safely cache results of calls to locale functions and to members of facets so obtained.*

Note:

Base class version does nothing.

Reimplemented in std::basic_filebuf< _CharT, _Traits >, std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >, and std::basic_filebuf< char_type, traits_type >.

Definition at line 554 of file streambuf.

5.384.4.8 template<typename _CharT, typename _Traits> streamsize std::basic_streambuf< _CharT, _Traits >::in_avail () [inline]

Looking ahead into the stream.

Returns:

The number of characters available.

If a read position is available, returns the number of characters available for reading before the buffer must be refilled. Otherwise returns the derived `showmanyc()`.

Definition at line 262 of file streambuf.

5.384.4.9 template<typename _CharT, typename _Traits> virtual int_type std::basic_streambuf< _CharT, _Traits >::overflow (int_type = traits_type::eof()) [inline, protected, virtual]

Consumes data from the buffer; writes to the controlled sequence.

Parameters:

c An additional character to consume.

Returns:

eof() to indicate failure, something else (usually *c*, or not_eof())

Informally, this function is called when the output buffer is full (or does not exist, as buffering need not actually be done). If a buffer exists, it is *consumed*, with *some effect* on the controlled sequence. (Typically, the buffer is written out to the sequence verbatim.) In either case, the character *c* is also written out, if *c* is not `eof()`.

For a formal definition of this function, see a good text such as Langer & Kreft, or [27.5.2.4.5]/3-7.

A functioning output streambuf can be created by overriding only this function (no buffer area will be used).

Note:

Base class version does nothing, returns eof().

Reimplemented in std::basic_filebuf< _CharT, _Traits >, std::basic_stringbuf< _CharT, _Traits, _Alloc >, __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >, std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >, and std::basic_filebuf< char_type, traits_type >.

Definition at line 746 of file streambuf.

Referenced by std::basic_streambuf< _CharT, _Traits >::xsputn().

5.384.4.10 template<typename _CharT, typename _Traits> virtual int_type std::basic_streambuf< _CharT, _Traits >::pbackfail (int_type = traits_type::eof()) [inline, protected, virtual]

Tries to back up the input sequence.

Parameters:

c The character to be inserted back into the sequence.

Returns:

eof() on failure, *some other value* on success

Postcondition:

The constraints of `gptr()`, `eback()`, and `pptr()` are the same as for `underflow()`.

Note:

Base class version does nothing, returns eof().

Reimplemented in std::basic_filebuf< _CharT, _Traits >, std::basic_stringbuf< _CharT, _Traits, _Alloc >, __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >, std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >, and std::basic_filebuf< char_type, traits_type >.

Definition at line 702 of file streambuf.

5.384.4.11 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::pbase () const [inline, protected]

Access to the put area. These functions are only available to other protected functions, including derived classes.

- pbase() returns the beginning pointer for the output sequence
- pptr() returns the next pointer for the output sequence
- epptr() returns the end pointer for the output sequence

Definition at line 507 of file streambuf.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::sync(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.384.4.12 template<typename _CharT, typename _Traits> void std::basic_streambuf< _CharT, _Traits >::pbump (int __n) [inline, protected]

Moving the write position.

Parameters:

n The delta by which to move.

This just advances the write position without returning any data.

Definition at line 523 of file streambuf.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), and std::basic_streambuf< _CharT, _Traits >::xsputn().

5.384.4.13 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::pptr () const [inline, protected]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 510 of file streambuf.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::sync(), std::basic_streambuf< _CharT, _Traits >::xsputn(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.384.4.14 template<typename _CharT, typename _Traits> locale std::basic_streambuf< _CharT, _Traits >::pubimbue (const locale & *__loc*) [inline]

Entry point for imbue().

Parameters:

loc The new locale.

Returns:

The previous locale.

Calls the derived imbue(loc).

Definition at line 205 of file streambuf.

5.384.4.15 template<typename _CharT, typename _Traits> pos_type std::basic_streambuf< _CharT, _Traits >::pubseekoff (off_type *__off*, ios_base::seekdir *__way*, ios_base::openmode *__mode* = ios_base::in | ios_base::out) [inline]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 239 of file streambuf.

5.384.4.16 template<typename _CharT, typename _Traits> pos_type std::basic_streambuf< _CharT, _Traits >::pubseekpos (pos_type __sp, ios_base::openmode __mode = ios_base::in | ios_base::out) [inline]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 244 of file streambuf.

5.384.4.17 template<typename _CharT, typename _Traits> __streambuf_type* std::basic_streambuf< _CharT, _Traits >::pubsetbuf (char_type * __s, streamsize __n) [inline]

Entry points for derived buffer functions. The public versions of `pubfoo` dispatch to the protected derived `foo` member functions, passing the arguments (if any) and returning the result unchanged.

Definition at line 235 of file streambuf.

5.384.4.18 template<typename _CharT, typename _Traits> int std::basic_streambuf< _CharT, _Traits >::pubsync () [inline]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 249 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::sync().

5.384.4.19 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::sbumpc () [inline]

Getting the next character.

Returns:

The next character, or eof.

If the input read position is available, returns that character and increments the read pointer, otherwise calls and returns `uflow()`.

Definition at line 294 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), and std::istreambuf_iterator< _CharT, _Traits >::operator++().

5.384.4.20 template<typename _CharT, typename _Traits> virtual pos_type std::basic_streambuf< _CharT, _Traits >::seekoff (off_type, ios_base::seekdir, ios_base::openmode = ios_base::in | ios_base::out) [inline, protected, virtual]

Alters the stream positions. Each derived class provides its own appropriate behavior.

Note:

Base class version does nothing, returns a `pos_type` that represents an invalid stream position.

Reimplemented in std::basic_filebuf< _CharT, _Traits >, std::basic_stringbuf< _CharT, _Traits, _Alloc >, std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >, and std::basic_filebuf< char_type, traits_type >.

Definition at line 580 of file streambuf.

5.384.4.21 template<typename _CharT, typename _Traits> virtual pos_type std::basic_streambuf< _CharT, _Traits >::seekpos (pos_type, ios_base::openmode = ios_base::in | ios_base::out) [inline, protected, virtual]

Alters the stream positions. Each derived class provides its own appropriate behavior.

Note:

Base class version does nothing, returns a `pos_type` that represents an invalid stream position.

Reimplemented in std::basic_filebuf< _CharT, _Traits >, std::basic_stringbuf< _CharT, _Traits, _Alloc >, std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >, and std::basic_filebuf< char_type, traits_type >.

Definition at line 592 of file streambuf.

5.384.4.22 template<typename _CharT, typename _Traits> virtual basic_streambuf<char_type,_Traits>* std::basic_streambuf< _CharT, _Traits >::setbuf (char_type *, streamsize) [inline, protected, virtual]

Manipulates the buffer. Each derived class provides its own appropriate behavior. See the next-to-last paragraph of http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch25s02.html for more on this function.

Note:

Base class version does nothing, returns `this`.

Reimplemented in std::basic_filebuf< _CharT, _Traits >, std::basic_stringbuf< _CharT, _Traits, _Alloc >, std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >, and std::basic_filebuf< char_type, traits_type >.

Definition at line 569 of file streambuf.

5.384.4.23 template<typename _CharT, typename _Traits> void std::basic_streambuf< _CharT, _Traits >::setg (char_type * *__gbeg*, char_type * *__gnext*, char_type * *__gend*) [inline, protected]

Setting the three read area pointers.

Parameters:

gbeg A pointer.

gnext A pointer.

gend A pointer.

Postcondition:

gbeg == `eback()`, *gnext* == `gptr()`, and *gend* == `egptr()`

Definition at line 487 of file streambuf.

5.384.4.24 template<typename _CharT, typename _Traits> void std::basic_streambuf< _CharT, _Traits >::setp (char_type * *__pbeg*, char_type * *__pend*) [inline, protected]

Setting the three write area pointers.

Parameters:

pbeg A pointer.

pend A pointer.

Postcondition:

pbeg == `pbase()`, *pbeg* == `pptr()`, and *pend* == `epptr()`

Definition at line 533 of file streambuf.

5.384.4.25 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::sgetc () [inline]

Getting the next character.

Returns:

The next character, or eof.

If the input read position is available, returns that character, otherwise calls and returns `underflow()`. Does not move the read position after fetching the character.

Definition at line 316 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), and std::basic_istream< _CharT, _Traits >::sentry::sentry().

5.384.4.26 template<typename _CharT, typename _Traits> streamsize std::basic_streambuf< _CharT, _Traits >::sgetn (char_type * __s, streamsize __n) [inline]

Entry point for xsgetn.

Parameters:

s A buffer area.

n A count.

Returns xsgetn(s,n). The effect is to fill *s*[0] through *s*[n-1] with characters from the input sequence, if possible.

Definition at line 335 of file streambuf.

5.384.4.27 template<typename _CharT, typename _Traits> virtual streamsize std::basic_streambuf< _CharT, _Traits >::showmanyc () [inline, protected, virtual]

Investigating the data available.

Returns:

An estimate of the number of characters available in the input sequence, or -1.

If it returns a positive value, then successive calls to `underflow()` *will not return* `traits::eof()` *until at least that number of characters have been supplied. If* `showmanyc()` *returns -1, then calls to* `underflow()` *or* `uflow()` *will fail.* [27.5.2.4.3]/1

Note:

Base class version does nothing, returns zero.
The standard adds that *the intention is not only that the calls [to underflow or uflow] will not return* `eof()` *but that they will return immediately.*
The standard adds that *the morphemes of* `showmanyc` *are* ***es-how-many-see****, not* ***show-manic***.

Reimplemented in std::basic_filebuf< _CharT, _Traits >, std::basic_stringbuf< _CharT, _Traits, _Alloc >, std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >, and std::basic_filebuf< char_type, traits_type >.

Definition at line 627 of file streambuf.

5.384.4.28 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::snextc () [inline]

Getting the next character.

Returns:

The next character, or eof.

Calls `sbumpc()`, and if that function returns `traits::eof()`, so does this function. Otherwise, `sgetc()`.

Definition at line 276 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), and std::basic_istream< _CharT, _Traits >::sentry::sentry().

5.384.4.29 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::sputbackc (char_type __c) [inline]

Pushing characters back into the input stream.

Parameters:

c The character to push back.

Returns:

The previous character, if possible.

Similar to sungetc(), but *c* is pushed onto the stream instead of *the previous character*. If successful, the next character fetched from the input stream will be *c*.

Definition at line 350 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::putback().

5.384.4.30 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::sputc (char_type __c) [inline]

Entry point for all single-character output functions.

Parameters:

c A character to output.

Returns:

c, if possible.

One of two public output functions.

If a write position is available for the output sequence (i.e., the buffer is not full), stores *c* in that position, increments the position, and returns `traits::to_int_type(c)`. If a write position is not available, returns `overflow(c)`.

Definition at line 402 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::get(), and std::ostreambuf_iterator< _CharT, _Traits >::operator=().

5.384.4.31 template<typename _CharT, typename _Traits> streamsize std::basic_streambuf< _CharT, _Traits >::sputn (const char_type * __s, streamsize __n) [inline]

Entry point for all single-character output functions.

Parameters:

s A buffer read area.

n A count.

One of two public output functions.

Returns xsputn(s,n). The effect is to write *s*[0] through *s*[n-1] to the output sequence, if possible.

Definition at line 428 of file streambuf.

5.384.4.32 template<typename _CharT, typename _Traits> void std::basic_streambuf< _CharT, _Traits >::stossc () [inline]

Tosses a character. Advances the read pointer, ignoring the character that would have been read.

See http://gcc.gnu.org/ml/libstdc++/2002-05/msg00168.html

Definition at line 761 of file streambuf.

5.384.4.33 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::sungetc () [inline]

Moving backwards in the input stream.

Returns:

The previous character, if possible.

If a putback position is available, this function decrements the input pointer and returns that character. Otherwise, calls and returns pbackfail(). The effect is to *unget* the last character *gotten*.

Definition at line 375 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::unget().

5.384.4.34 template<typename _CharT, typename _Traits> virtual int std::basic_streambuf< _CharT, _Traits >::sync (void) [inline, protected, virtual]

Synchronizes the buffer arrays with the controlled sequences.

Returns:

-1 on failure.

Each derived class provides its own appropriate behavior, including the definition of *failure*.

Note:

Base class version does nothing, returns zero.

Reimplemented in std::basic_filebuf< _CharT, _Traits >, __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >, std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >, and std::basic_filebuf< char_type, traits_type >.

Definition at line 605 of file streambuf.

5.384.4.35 template<typename _CharT, typename _Traits> virtual int_type std::basic_streambuf< _CharT, _Traits >::uflow () [inline, protected, virtual]

Fetches more data from the controlled sequence.

Returns:

The first character from the *pending sequence*.

Informally, this function does the same thing as `underflow()`, and in fact is required to call that function. It also returns the new character, like `underflow()` does. However, this function also moves the read position forward by one.

Reimplemented in __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >.

Definition at line 678 of file streambuf.

5.384.4.36 template<typename _CharT, typename _Traits> virtual int_type std::basic_streambuf< _CharT, _Traits >::underflow () [inline, protected, virtual]

Fetches more data from the controlled sequence.

Returns:

The first character from the *pending sequence*.

Informally, this function is called when the input buffer is exhausted (or does not exist, as buffering need not actually be done). If a buffer exists, it is *refilled*. In either case, the next available character is returned, or `traits::eof()` to indicate a null pending sequence.

For a formal definition of the pending sequence, see a good text such as Langer & Kreft, or [27.5.2.4.3]/7-14.

A functioning input streambuf can be created by overriding only this function (no buffer area will be used). For an example, see http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch25.html

Note:

Base class version does nothing, returns eof().

Reimplemented in std::basic_filebuf< _CharT, _Traits >, std::basic_stringbuf< _CharT, _Traits, _Alloc >, __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >, std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >, and std::basic_filebuf< char_type, traits_type >.

Definition at line 665 of file streambuf.

5.384.4.37 template<typename _CharT , typename _Traits > streamsize std::basic_streambuf< _CharT, _Traits >::xsgetn (char_type * __s, streamsize __n) [inline, protected, virtual]

Multiple character extraction.

Parameters:

s A buffer area.

n Maximum number of characters to assign.

Returns:

The number of characters assigned.

Fills *s*[0] through *s*[n-1] with characters from the input sequence, as if by `sbumpc()`. Stops when either *n* characters have been copied, or when `traits::eof()` would be copied.

It is expected that derived classes provide a more efficient implementation by overriding this definition.

Reimplemented in std::basic_filebuf< _CharT, _Traits >, __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >, std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >, and std::basic_filebuf< char_type, traits_type >.

Definition at line 45 of file streambuf.tcc.

References std::min().

5.384.4.38 template<typename _CharT , typename _Traits > streamsize std::basic_streambuf< _CharT, _Traits >::xsputn (const char_type * __s, streamsize __n) [inline, protected, virtual]

Multiple character insertion.

Parameters:

s A buffer area.

n Maximum number of characters to write.

Returns:

The number of characters written.

Writes *s*[0] through *s*[n-1] to the output sequence, as if by `sputc()`. Stops when either *n* characters have been copied, or when `sputc()` would return `traits::eof()`.

It is expected that derived classes provide a more efficient implementation by overriding this definition.

Reimplemented in std::basic_filebuf< _CharT, _Traits >, __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >, std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >, and std::basic_filebuf< char_type, traits_type >.

Definition at line 79 of file streambuf.tcc.

References std::basic_streambuf< _CharT, _Traits >::epptr(), std::min(), std::basic_streambuf< _CharT, _Traits >::overflow(), std::basic_streambuf< _CharT, _Traits >::pbump(), and std::basic_streambuf< _CharT, _Traits >::pptr().

5.384.5 Member Data Documentation

5.384.5.1 template<typename _CharT, typename _Traits> locale std::basic_streambuf< _CharT, _Traits >::_M_buf_locale [protected]

Current locale setting.

Definition at line 188 of file streambuf.

Referenced by std::basic_filebuf< _CharT, _Traits >::basic_filebuf().

5.384.5.2 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_in_beg [protected]

This is based on _IO_FILE, just reordered to be more consistent, and is intended to be the most minimal abstraction for an internal buffer.

- get == input == read
- put == output == write

Definition at line 180 of file streambuf.

5.384.5.3 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_in_cur [protected]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 181 of file streambuf.

5.384.5.4 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_in_end [protected]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 182 of file streambuf.

5.384.5.5 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_out_beg [protected]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 183 of file streambuf.

5.384.5.6 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_out_cur [protected]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 184 of file streambuf.

5.384.5.7 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_out_end [protected]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

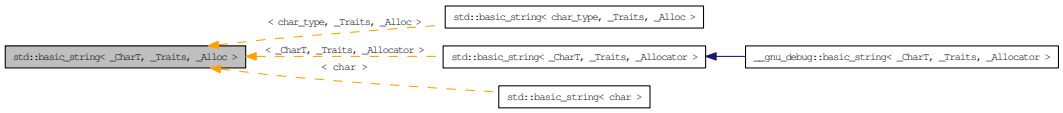
Definition at line 185 of file streambuf.

The documentation for this class was generated from the following files:

- streambuf
- streambuf.tcc

5.385 std::basic_string< _CharT, _Traits, _Alloc > Class Template Reference

Managing sequences of characters and character-like objects. Inheritance diagram for std::basic_string< _CharT, _Traits, _Alloc >:



Public Types

- typedef _Alloc **allocator_type**
- typedef __gnu_cxx::__normal_iterator< const_pointer, basic_string > **const_iterator**
- typedef _CharT_alloc_type::const_pointer **const_pointer**
- typedef _CharT_alloc_type::const_reference **const_reference**
- typedef std::reverse_iterator< const_iterator > **const_reverse_iterator**
- typedef _CharT_alloc_type::difference_type **difference_type**
- typedef __gnu_cxx::__normal_iterator< pointer, basic_string > **iterator**
- typedef _CharT_alloc_type::pointer **pointer**
- typedef _CharT_alloc_type::reference **reference**
- typedef std::reverse_iterator< iterator > **reverse_iterator**
- typedef _CharT_alloc_type::size_type **size_type**
- typedef _Traits **traits_type**
- typedef _Traits::char_type **value_type**

Public Member Functions

- template<class _InputIterator >
  basic_string (_InputIterator __beg, _InputIterator __end, const _Alloc &__a=_Alloc())
- basic_string (initializer_list< _CharT > __l, const _Alloc &__a=_Alloc())
- basic_string (basic_string &&__str)
- basic_string (size_type __n, _CharT __c, const _Alloc &__a=_Alloc())
- basic_string (const _CharT *__s, const _Alloc &__a=_Alloc())
- basic_string (const _CharT *__s, size_type __n, const _Alloc &__a=_Alloc())
- basic_string (const basic_string &__str, size_type __pos, size_type __n, const _Alloc &__a)
- basic_string (const basic_string &__str, size_type __pos, size_type __n=npos)

- basic_string (const basic_string &__str)
- basic_string (const _Alloc &__a)
- basic_string ()
- ~basic_string ()
- template<typename _InIterator >
  _CharT * **_S_construct** (_InIterator __beg, _InIterator __end, const _Alloc &_-_a, forward_iterator_tag)
- template<class _InputIterator >
  basic_string & append (_InputIterator __first, _InputIterator __last)
- basic_string & append (initializer_list< _CharT > __l)
- basic_string & append (size_type __n, _CharT __c)
- basic_string & append (const _CharT *__s)
- basic_string & append (const _CharT *__s, size_type __n)
- basic_string & append (const basic_string &__str, size_type __pos, size_type __n)
- basic_string & append (const basic_string &__str)
- basic_string & assign (initializer_list< _CharT > __l)
- template<class _InputIterator >
  basic_string & assign (_InputIterator __first, _InputIterator __last)
- basic_string & assign (size_type __n, _CharT __c)
- basic_string & assign (const _CharT *__s)
- basic_string & assign (const _CharT *__s, size_type __n)
- basic_string & assign (const basic_string &__str, size_type __pos, size_type _-_n)
- basic_string & assign (basic_string &&__str)
- basic_string & assign (const basic_string &__str)
- reference at (size_type __n)
- const_reference at (size_type __n) const
- const_iterator begin () const
- iterator begin ()
- const _CharT * c_str () const
- size_type capacity () const
- const_iterator cbegin () const
- const_iterator cend () const
- void clear ()
- int compare (size_type __pos, size_type __n1, const _CharT *__s, size_type _-_n2) const
- int compare (size_type __pos, size_type __n1, const _CharT *__s) const
- int compare (const _CharT *__s) const
- int compare (size_type __pos1, size_type __n1, const basic_string &__str, size_-type __pos2, size_type __n2) const
- int compare (size_type __pos, size_type __n, const basic_string &__str) const
- int compare (const basic_string &__str) const

- size_type copy (_CharT *__s, size_type __n, size_type __pos=0) const
- const_reverse_iterator crbegin () const
- const_reverse_iterator crend () const
- const _CharT * data () const
- bool empty () const
- const_iterator end () const
- iterator end ()
- iterator erase (iterator __first, iterator __last)
- iterator erase (iterator __position)
- basic_string & erase (size_type __pos=0, size_type __n=npos)
- size_type find (_CharT __c, size_type __pos=0) const
- size_type find (const _CharT *__s, size_type __pos=0) const
- size_type find (const basic_string &__str, size_type __pos=0) const
- size_type find (const _CharT *__s, size_type __pos, size_type __n) const
- size_type find_first_not_of (_CharT __c, size_type __pos=0) const
- size_type find_first_not_of (const _CharT *__s, size_type __pos=0) const
- size_type find_first_not_of (const _CharT *__s, size_type __pos, size_type __n) const
- size_type find_first_not_of (const basic_string &__str, size_type __pos=0) const
- size_type find_first_of (_CharT __c, size_type __pos=0) const
- size_type find_first_of (const _CharT *__s, size_type __pos=0) const
- size_type find_first_of (const _CharT *__s, size_type __pos, size_type __n) const
- size_type find_first_of (const basic_string &__str, size_type __pos=0) const
- size_type find_last_not_of (_CharT __c, size_type __pos=npos) const
- size_type find_last_not_of (const _CharT *__s, size_type __pos=npos) const
- size_type find_last_not_of (const _CharT *__s, size_type __pos, size_type __n) const
- size_type find_last_not_of (const basic_string &__str, size_type __pos=npos) const
- size_type find_last_of (_CharT __c, size_type __pos=npos) const
- size_type find_last_of (const _CharT *__s, size_type __pos=npos) const
- size_type find_last_of (const _CharT *__s, size_type __pos, size_type __n) const
- size_type find_last_of (const basic_string &__str, size_type __pos=npos) const
- allocator_type get_allocator () const
- iterator insert (iterator __p, _CharT __c)
- basic_string & insert (size_type __pos, size_type __n, _CharT __c)
- basic_string & insert (size_type __pos, const _CharT *__s)
- basic_string & insert (size_type __pos, const _CharT *__s, size_type __n)
- basic_string & insert (size_type __pos1, const basic_string &__str, size_type __pos2, size_type __n)
- basic_string & insert (size_type __pos1, const basic_string &__str)

- void insert (iterator __p, initializer_list< _CharT > __l)
- template<class _InputIterator >
  void insert (iterator __p, _InputIterator __beg, _InputIterator __end)
- void insert (iterator __p, size_type __n, _CharT __c)
- size_type length () const
- size_type max_size () const
- basic_string & operator+= (initializer_list< _CharT > __l)
- basic_string & operator+= (_CharT __c)
- basic_string & operator+= (const _CharT *__s)
- basic_string & operator+= (const basic_string &__str)
- basic_string & operator= (initializer_list< _CharT > __l)
- basic_string & operator= (basic_string &&__str)
- basic_string & operator= (_CharT __c)
- basic_string & operator= (const _CharT *__s)
- basic_string & operator= (const basic_string &__str)
- reference operator[ ] (size_type __pos)
- const_reference operator[ ] (size_type __pos) const
- void push_back (_CharT __c)
- const_reverse_iterator rbegin () const
- reverse_iterator rbegin ()
- const_reverse_iterator rend () const
- reverse_iterator rend ()
- basic_string & replace (iterator __i1, iterator __i2, initializer_list< _CharT > __l)
- basic_string & **replace** (iterator __i1, iterator __i2, const_iterator __k1, const_iterator __k2)
- basic_string & **replace** (iterator __i1, iterator __i2, iterator __k1, iterator __k2)
- basic_string & **replace** (iterator __i1, iterator __i2, const _CharT *__k1, const _CharT *__k2)
- basic_string & **replace** (iterator __i1, iterator __i2, _CharT *__k1, _CharT *__k2)
- template<class _InputIterator >
  basic_string & replace (iterator __i1, iterator __i2, _InputIterator __k1, _InputIterator __k2)
- basic_string & replace (iterator __i1, iterator __i2, size_type __n, _CharT __c)
- basic_string & replace (iterator __i1, iterator __i2, const _CharT *__s)
- basic_string & replace (iterator __i1, iterator __i2, const _CharT *__s, size_type __n)
- basic_string & replace (iterator __i1, iterator __i2, const basic_string &__str)
- basic_string & replace (size_type __pos, size_type __n1, size_type __n2, _CharT __c)
- basic_string & replace (size_type __pos, size_type __n1, const _CharT *__s)
- basic_string & replace (size_type __pos, size_type __n1, const _CharT *__s, size_type __n2)

- basic_string & replace (size_type __pos1, size_type __n1, const basic_string &__str, size_type __pos2, size_type __n2)
- basic_string & replace (size_type __pos, size_type __n, const basic_string &__str)
- void reserve (size_type __res_arg=0)
- void resize (size_type __n)
- void resize (size_type __n, _CharT __c)
- size_type rfind (_CharT __c, size_type __pos=npos) const
- size_type rfind (const _CharT *__s, size_type __pos=npos) const
- size_type rfind (const _CharT *__s, size_type __pos, size_type __n) const
- size_type rfind (const basic_string &__str, size_type __pos=npos) const
- void shrink_to_fit ()
- size_type size () const
- basic_string substr (size_type __pos=0, size_type __n=npos) const
- void swap (basic_string &__s)

Static Public Attributes

- static const size_type npos

5.385.1 Detailed Description

template<typename _CharT, typename _Traits, typename _Alloc> class std::basic_string< _CharT, _Traits, _Alloc >

Managing sequences of characters and character-like objects. Meets the requirements of a container, a reversible container, and a sequence. Of the optional sequence requirements, only push_back, at, and array access are supported.

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Documentation? What's that? Nathan Myers <ncm@cantrip.org>.

A string looks like this:

```
                                        [_Rep]
                                        _M_length
[basic_string<char_type>]               _M_capacity
_M_dataplus                             _M_refcount
_M_p ----------------->                 unnamed array of char_type
```

Where the _M_p points to the first character in the string, and you cast it to a pointer-to-_Rep and subtract 1 to get a pointer to the header.

This approach has the enormous advantage that a string object requires only one allocation. All the ugliness is confined within a single pair of inline functions, which each compile to a single *add* instruction: _Rep::_M_data(), and string::_M_rep(); and the allocation function which gets a block of raw bytes and with room enough and constructs a _Rep object at the front.

The reason you want _M_data pointing to the character array and not the _Rep is so that the debugger can see the string contents. (Probably we should add a non-inline member to get the _Rep for the debugger to use, so users can check the actual string length.)

Note that the _Rep object is a POD so that you can have a static *empty string* _Rep object already *constructed* before static constructors have run. The reference-count encoding is chosen so that a 0 indicates one reference, so you never try to destroy the empty-string _Rep object.

All but the last paragraph is considered pretty conventional for a C++ string implementation.

Definition at line 104 of file basic_string.h.

5.385.2 Constructor & Destructor Documentation

5.385.2.1 template<typename _CharT, typename _Traits, typename _Alloc> std::basic_string< _CharT, _Traits, _Alloc >::basic_string () [inline]

Default constructor creates an empty string.

Definition at line 422 of file basic_string.h.

5.385.2.2 template<typename _CharT , typename _Traits , typename _Alloc> std::basic_string< _CharT, _Traits, _Alloc >::basic_string (const _Alloc & *__a*) [inline, explicit]

Construct an empty string using allocator *a*.

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 178 of file basic_string.tcc.

5.385.2.3 template<typename _CharT , typename _Traits , typename _Alloc> std::basic_string< _CharT, _Traits, _Alloc >::basic_string (const basic_string< _CharT, _Traits, _Alloc > & *__str*) [inline]

Construct string with copy of value of *str*.

Parameters:

str Source string.

Definition at line 170 of file basic_string.tcc.

5.385.2.4 template<typename _CharT , typename _Traits , typename _Alloc> std::basic_string< _CharT, _Traits, _Alloc >::basic_string (const basic_string< _CharT, _Traits, _Alloc > & *__str*, size_type *__pos*, size_type *__n* = npos) [inline]

Construct string as copy of a substring.

Parameters:

str Source string.

pos Index of first character to copy from.

n Number of characters to copy (default remainder).

Definition at line 184 of file basic_string.tcc.

5.385.2.5 template<typename _CharT , typename _Traits , typename _Alloc> std::basic_string< _CharT, _Traits, _Alloc >::basic_string (const basic_string< _CharT, _Traits, _Alloc > & *__str*, size_type *__pos*, size_type *__n*, const _Alloc & *__a*) [inline]

Construct string as copy of a substring.

Parameters:

str Source string.

pos Index of first character to copy from.

n Number of characters to copy.

a Allocator to use.

Definition at line 194 of file basic_string.tcc.

5.385.2.6 template<typename _CharT, typename _Traits , typename _Alloc> std::basic_string< _CharT, _Traits, _Alloc >::basic_string (const _CharT * __s, size_type __n, const _Alloc & __a = _Alloc()) [inline]

Construct string initialized by a character array.

Parameters:

- ***s*** Source character array.
- ***n*** Number of characters to copy.
- ***a*** Allocator to use (default is default allocator).

NB: *s* must have at least *n* characters, '\0' has no special meaning.

Definition at line 206 of file basic_string.tcc.

5.385.2.7 template<typename _CharT, typename _Traits , typename _Alloc> std::basic_string< _CharT, _Traits, _Alloc >::basic_string (const _CharT * __s, const _Alloc & __a = _Alloc()) [inline]

Construct string as copy of a C string.

Parameters:

- ***s*** Source C string.
- ***a*** Allocator to use (default is default allocator).

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 213 of file basic_string.tcc.

5.385.2.8 template<typename _CharT, typename _Traits , typename _Alloc> std::basic_string< _CharT, _Traits, _Alloc >::basic_string (size_type __n, _CharT __c, const _Alloc & __a = _Alloc()) [inline]

Construct string as multiple characters.

Parameters:

- ***n*** Number of characters.
- ***c*** Character to use.
- ***a*** Allocator to use (default is default allocator).

Definition at line 220 of file basic_string.tcc.

5.385.2.9 template<typename _CharT, typename _Traits, typename _Alloc> std::basic_string< _CharT, _Traits, _Alloc >::basic_string (basic_string< _CharT, _Traits, _Alloc > && *__str*) [inline]

Move construct string.

Parameters:

str Source string.

The newly-created string contains the exact contents of *str*. *str* is a valid, but unspecified string.

Definition at line 492 of file basic_string.h.

5.385.2.10 template<typename _CharT, typename _Traits , typename _Alloc> std::basic_string< _CharT, _Traits, _Alloc >::basic_string (initializer_list< _CharT > *__l*, const _Alloc & *__a* = _Alloc()) [inline]

Construct string from an initializer list.

Parameters:

l std::initializer_list of characters.

a Allocator to use (default is default allocator).

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 235 of file basic_string.tcc.

5.385.2.11 template<typename _CharT , typename _Traits , typename _Alloc> template<typename _InputIterator > std::basic_string< _CharT, _Traits, _Alloc >::basic_string (_InputIterator *__beg*, _InputIterator *__end*, const _Alloc & *__a* = _Alloc()) [inline]

Construct string as copy of a range.

Parameters:

beg Start of range.

end End of range.

a Allocator to use (default is default allocator).

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 228 of file basic_string.tcc.

5.385.2.12 template<typename _CharT, typename _Traits, typename _Alloc> std::basic_string< _CharT, _Traits, _Alloc >::~basic_string () [inline]

Destroy the string instance.

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 523 of file basic_string.h.

5.385.3 Member Function Documentation

5.385.3.1 template<typename _CharT, typename _Traits, typename _Alloc> template<class _InputIterator > basic_string& std::basic_string< _CharT, _Traits, _Alloc >::append (_InputIterator *__first*, _InputIterator *__last*) [inline]

Append a range of characters.

Parameters:

first Iterator referencing the first character to append.

last Iterator marking the end of the range.

Returns:

Reference to this string.

Appends characters in the range [first,last) to this string.

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 991 of file basic_string.h.

5.385.3.2 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::append (initializer_list< _CharT > *__l*) [inline]

Append an initializer_list of characters.

Parameters:

l The initializer_list of characters to append.

Returns:

Reference to this string.

Definition at line 977 of file basic_string.h.

Referenced by std::basic_string< char >::append().

5.385.3.3 template<typename _CharT, typename _Traits , typename _Alloc > basic_string< _CharT, _Traits, _Alloc > & std::basic_string< _CharT, _Traits, _Alloc >::append (size_type __n, _CharT __c) [inline]

Append multiple characters.

Parameters:

n The number of characters to append.

c The character to use.

Returns:

Reference to this string.

Appends n copies of c to this string.

Definition at line 281 of file basic_string.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::capacity(), std::basic_string< _CharT, _Traits, _Alloc >::reserve(), and std::basic_string< _CharT, _Traits, _Alloc >::size().

5.385.3.4 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::append (const _CharT * __s) [inline]

Append a C string.

Parameters:

s The C string to append.

Returns:

Reference to this string.

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 953 of file basic_string.h.

5.385.3.5 template<typename _CharT, typename _Traits , typename _Alloc > basic_string< _CharT, _Traits, _Alloc > & std::basic_string< _CharT, _Traits, _Alloc >::append (const _CharT * __s, size_type __n) [inline]

Append a C substring.

Parameters:

s The C string to append.

n The number of characters to append.

Returns:

Reference to this string.

Definition at line 298 of file basic_string.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::capacity(), std::basic_string< _CharT, _Traits, _Alloc >::reserve(), and std::basic_string< _CharT, _Traits, _Alloc >::size().

5.385.3.6 template<typename _CharT , typename _Traits , typename _Alloc > basic_string< _CharT, _Traits, _Alloc > & std::basic_string< _CharT, _Traits, _Alloc >::append (const basic_string< _CharT, _Traits, _Alloc > & __str, size_type __pos, size_type __n) [inline]

Append a substring.

Parameters:

str The string to append.

pos Index of the first character of str to append.

n The number of characters to append.

Returns:

Reference to this string.

Exceptions:

std::out_of_range if *pos* is not a valid index.

This function appends *n* characters from *str* starting at *pos* to this string. If *n* is is larger than the number of available characters in *str*, the remainder of *str* is appended.

Definition at line 342 of file basic_string.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::capacity(), std::basic_string< _CharT, _Traits, _Alloc >::reserve(), and std::basic_string< _CharT, _Traits, _Alloc >::size().

5.385.3.7 template<typename _CharT , typename _Traits , typename _Alloc > basic_string< _CharT, _Traits, _Alloc > & std::basic_string< _CharT, _Traits, _Alloc >::append (const basic_string< _CharT, _Traits, _Alloc > & *__str*) [inline]

Append a string to this string.

Parameters:

str The string to append.

Returns:

Reference to this string.

Definition at line 325 of file basic_string.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::capacity(), std::basic_string< _CharT, _Traits, _Alloc >::reserve(), and std::basic_string< _CharT, _Traits, _Alloc >::size().

Referenced by std::collate< _CharT >::do_transform(), std::operator+(), std::operator>>(), and std::basic_string< _CharT, _Traits, _Alloc >::resize().

5.385.3.8 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::assign (initializer_list< _CharT > *__l*) [inline]

Set value to an initializer_list of characters.

Parameters:

l The initializer_list of characters to assign.

Returns:

Reference to this string.

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 1113 of file basic_string.h.

Referenced by std::basic_string< char >::assign().

5.385.3.9 template<typename _CharT, typename _Traits, typename _Alloc> template<class _InputIterator > basic_string& std::basic_string< _CharT, _Traits, _Alloc >::assign (_InputIterator *__first*, _InputIterator *__last*) [inline]

Set value to a range of characters.

Parameters:

first Iterator referencing the first character to append.

last Iterator marking the end of the range.

Returns:

Reference to this string.

Sets value of string to characters in the range [first,last).

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 1103 of file basic_string.h.

5.385.3.10 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::assign (size_type *__n*, _CharT *__c*) [inline]

Set value to multiple characters.

Parameters:

n Length of the resulting string.

c The character to use.

Returns:

Reference to this string.

This function sets the value of this string to *n* copies of character *c*.

Definition at line 1090 of file basic_string.h.

5.385.3.11 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::assign (const _CharT * *__s*) [inline]

Set value to contents of a C string.

Parameters:

s The C string to use.

Returns:

Reference to this string.

This function sets the value of this string to the value of *s*. The data is copied, so there is no dependence on *s* once the function returns.

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 1074 of file basic_string.h.

5.385.3.12 template<typename _CharT, typename _Traits , typename _Alloc > basic_string< _CharT, _Traits, _Alloc > & std::basic_string< _CharT, _Traits, _Alloc >::assign (const _CharT * __s, size_type __n) [inline]

Set value to a C substring.

Parameters:

s The C string to use.

n Number of characters to use.

Returns:

Reference to this string.

This function sets the value of this string to the first *n* characters of *s*. If *n* is is larger than the number of available characters in *s*, the remainder of *s* is used.

Definition at line 259 of file basic_string.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::size().

5.385.3.13 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::assign (const basic_string< _CharT, _Traits, _Alloc > & __str, size_type __pos, size_type __n) [inline]

Set value to a substring of a string.

Parameters:

str The string to use.

pos Index of the first character of str.

n Number of characters to use.

Returns:

Reference to this string.

Exceptions:

std::out_of_range if *pos* is not a valid index.

This function sets this string to the substring of *str* consisting of *n* characters at *pos*. If *n* is is larger than the number of available characters in *str*, the remainder of *str* is used.

Definition at line 1046 of file basic_string.h.

Referenced by std::basic_string< char >::assign().

5.385.3.14 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::assign (basic_string< _CharT, _Traits, _Alloc > && *__str*) [inline]

Set value to contents of another string.

Parameters:

str Source string to use.

Returns:

Reference to this string.

This function sets this string to the exact contents of *str*. *str* is a valid, but unspecified string.

Definition at line 1026 of file basic_string.h.

5.385.3.15 template<typename _CharT , typename _Traits , typename _Alloc > basic_string< _CharT, _Traits, _Alloc > & std::basic_string< _CharT, _Traits, _Alloc >::assign (const basic_string< _CharT, _Traits, _Alloc > & *__str*) [inline]

Set value to contents of another string.

Parameters:

str Source string to use.

Returns:

Reference to this string.

Definition at line 243 of file basic_string.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::get_allocator().

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), and std::basic_stringbuf< _CharT, _Traits, _Alloc >::str().

5.385.3.16 template<typename _CharT, typename _Traits, typename _Alloc> reference std::basic_string< _CharT, _Traits, _Alloc >::at (size_type __n) [inline]

Provides access to the data contained in the string.

Parameters:

n The index of the character to access.

Returns:

Read/write reference to the character.

Exceptions:

std::out_of_range If *n* is an invalid index.

This function provides for safer data access. The parameter is first checked that it is in the range of the string. The function throws out_of_range if the check fails. Success results in unsharing the string.

Definition at line 865 of file basic_string.h.

5.385.3.17 template<typename _CharT, typename _Traits, typename _Alloc> const_reference std::basic_string< _CharT, _Traits, _Alloc >::at (size_type __n) const [inline]

Provides access to the data contained in the string.

Parameters:

n The index of the character to access.

Returns:

Read-only (const) reference to the character.

Exceptions:

std::out_of_range If *n* is an invalid index.

This function provides for safer data access. The parameter is first checked that it is in the range of the string. The function throws out_of_range if the check fails.

Definition at line 846 of file basic_string.h.

5.385.3.18 template<typename _CharT, typename _Traits, typename _Alloc> const_iterator std::basic_string< _CharT, _Traits, _Alloc >::begin () const [inline]

Returns a read-only (constant) iterator that points to the first character in the string.

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 601 of file basic_string.h.

5.385.3.19 template<typename _CharT, typename _Traits, typename _Alloc> iterator std::basic_string< _CharT, _Traits, _Alloc >::begin () [inline]

Returns a read/write iterator that points to the first character in the string. Unshares the string.

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 590 of file basic_string.h.

Referenced by std::regex_match(), std::regex_replace(), and std::regex_search().

5.385.3.20 template<typename _CharT, typename _Traits, typename _Alloc> const _CharT* std::basic_string< _CharT, _Traits, _Alloc >::c_str () const [inline]

Return const pointer to null-terminated contents. This is a handle to internal data. Do not modify or dire things may happen.

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 1722 of file basic_string.h.

Referenced by std::collate< _CharT >::do_compare(), std::money_get< _CharT, _InIter >::do_get(), std::num_get< _CharT, _InIter >::do_get(), std::collate< _CharT >::do_transform(), and std::basic_filebuf< char_type, traits_type >::open().

5.385.3.21 template<typename _CharT, typename _Traits, typename _Alloc> size_type std::basic_string< _CharT, _Traits, _Alloc >::capacity () const [inline]

Returns the total number of characters that the string can hold before needing to allocate more memory.

Definition at line 758 of file basic_string.h.

Referenced by std::basic_string< _CharT, _Traits, _Alloc >::append(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), and std::basic_string< _CharT, _Traits, _Alloc >::reserve().

5.385.3.22 template<typename _CharT, typename _Traits, typename _Alloc> const_iterator std::basic_string< _CharT, _Traits, _Alloc >::cbegin () const [inline]

Returns a read-only (constant) iterator that points to the first character in the string.

Definition at line 665 of file basic_string.h.

5.385.3.23 template<typename _CharT, typename _Traits, typename _Alloc> const_iterator std::basic_string< _CharT, _Traits, _Alloc >::cend () const [inline]

Returns a read-only (constant) iterator that points one past the last character in the string.

Definition at line 673 of file basic_string.h.

5.385.3.24 template<typename _CharT, typename _Traits, typename _Alloc> void std::basic_string< _CharT, _Traits, _Alloc >::clear () [inline]

Erases the string, making it empty.

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 785 of file basic_string.h.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::setbuf().

5.385.3.25 template<typename _CharT, typename _Traits , typename _Alloc > int std::basic_string< _CharT, _Traits, _Alloc >::compare (size_type *__pos*, size_type *__n1*, const _CharT * *__s*, size_type *__n2*) const [inline]

Compare substring against a character array.

Parameters:

pos1 Index of first character of substring.

n1 Number of characters in substring.

s character array to compare against.

n2 Number of characters of s.

Returns:

Integer < 0, 0, or > 0.

Form the substring of this string from the *n1* characters starting at *pos1*. Form a string from the first *n2* characters of *s*. Returns an integer < 0 if this substring is ordered before the string from *s*, 0 if their values are equivalent, or > 0 if this substring is ordered after the string from *s*. Determines the effective length rlen of the strings to compare as the smallest of the length of the substring and *n2*. The function then compares the two strings by calling traits::compare(substring.data(),s,rlen). If the result of the comparison is nonzero returns it, otherwise the shorter one is ordered first.

NB: s must have at least n2 characters, '\0' has no special meaning.

Definition at line 980 of file basic_string.tcc.

References std::min().

5.385.3.26 template<typename _CharT, typename _Traits , typename _Alloc > int std::basic_string< _CharT, _Traits, _Alloc >::compare (size_type *__pos*, size_type *__n1*, const _CharT * *__s*) const [inline]

Compare substring to a C string.

Parameters:

pos Index of first character of substring.

n1 Number of characters in substring.

s C string to compare against.

Returns:

Integer < 0, 0, or > 0.

Form the substring of this string from the *n1* characters starting at *pos*. Returns an integer < 0 if the substring is ordered before *s*, 0 if their values are equivalent, or > 0 if the substring is ordered after *s*. Determines the effective length rlen of the strings to compare as the smallest of the length of the substring and the length of a string constructed from *s*. The function then compares the two string by calling traits::compare(substring.data(),s,rlen). If the result of the comparison is nonzero returns it, otherwise the shorter one is ordered first.

Definition at line 964 of file basic_string.tcc.

References std::min().

5.385.3.27 template<typename _CharT, typename _Traits , typename _Alloc > int std::basic_string< _CharT, _Traits, _Alloc >::compare (const _CharT * __s) const [inline]

Compare to a C string.

Parameters:

s C string to compare against.

Returns:

Integer < 0, 0, or > 0.

Returns an integer < 0 if this string is ordered before *s*, 0 if their values are equivalent, or > 0 if this string is ordered after *s*. Determines the effective length rlen of the strings to compare as the smallest of size() and the length of a string constructed from *s*. The function then compares the two strings by calling traits::compare(data(),s,rlen). If the result of the comparison is nonzero returns it, otherwise the shorter one is ordered first.

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 949 of file basic_string.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::compare(), std::basic_string< _CharT, _Traits, _Alloc >::length(), std::min(), and std::basic_string< _CharT, _Traits, _Alloc >::size().

5.385.3.28 template<typename _CharT , typename _Traits , typename _Alloc > int std::basic_string< _CharT, _Traits, _Alloc >::compare (size_type __pos1, size_type __n1, const basic_string< _CharT, _Traits, _Alloc > & __str, size_type __pos2, size_type __n2) const [inline]

Compare substring to a substring.

Parameters:

pos1 Index of first character of substring.

n1 Number of characters in substring.

str String to compare against.

pos2 Index of first character of substring of str.

n2 Number of characters in substring of str.

Returns:

Integer < 0, 0, or > 0.

Form the substring of this string from the *n1* characters starting at *pos1*. Form the substring of *str* from the *n2* characters starting at *pos2*. Returns an integer < 0 if this substring is ordered before the substring of *str*, 0 if their values are equivalent, or > 0 if this substring is ordered after the substring of *str*. Determines the effective length rlen of the strings to compare as the smallest of the lengths of the substrings. The function then compares the two strings by calling traits::compare(substring.data(),str.substr(pos2,n2).data(),rlen). If the result of the comparison is nonzero returns it, otherwise the shorter one is ordered first.

Definition at line 931 of file basic_string.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::compare(), std::basic_string< _CharT, _Traits, _Alloc >::data(), and std::min().

5.385.3.29 template<typename _CharT , typename _Traits , typename _Alloc > int std::basic_string< _CharT, _Traits, _Alloc >::compare (size_type __pos, size_type __n, const basic_string< _CharT, _Traits, _Alloc > & __str) const [inline]

Compare substring to a string.

Parameters:

pos Index of first character of substring.

n Number of characters in substring.

str String to compare against.

Returns:

Integer < 0, 0, or > 0.

Form the substring of this string from the *n* characters starting at *pos*. Returns an integer < 0 if the substring is ordered before *str*, 0 if their values are equivalent, or > 0 if the substring is ordered after *str*. Determines the effective length rlen of the strings to

compare as the smallest of the length of the substring and *str.size()*. The function then compares the two strings by calling traits::compare(substring.data(),str.data(),rlen). If the result of the comparison is nonzero returns it, otherwise the shorter one is ordered first.

Definition at line 916 of file basic_string.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::compare(), std::basic_string< _CharT, _Traits, _Alloc >::data(), std::min(), and std::basic_string< _CharT, _Traits, _Alloc >::size().

5.385.3.30 template<typename _CharT, typename _Traits, typename _Alloc> int std::basic_string< _CharT, _Traits, _Alloc >::compare (const basic_string< _CharT, _Traits, _Alloc > & *__str*) const [inline]

Compare to a string.

Parameters:

str String to compare against.

Returns:

Integer < 0, 0, or > 0.

Returns an integer < 0 if this string is ordered before *str*, 0 if their values are equivalent, or > 0 if this string is ordered after *str*. Determines the effective length rlen of the strings to compare as the smallest of size() and str.size(). The function then compares the two strings by calling traits::compare(data(), str.data(),rlen). If the result of the comparison is nonzero returns it, otherwise the shorter one is ordered first.

Definition at line 2129 of file basic_string.h.

Referenced by std::basic_string< _CharT, _Traits, _Alloc >::compare(), std::operator<(), std::operator<=(), std::operator==(), std::operator>(), and std::operator>=().

5.385.3.31 template<typename _CharT, typename _Traits , typename _Alloc > basic_string< _CharT, _Traits, _Alloc >::size_type std::basic_string< _CharT, _Traits, _Alloc >::copy (_CharT * *__s*, size_type *__n*, size_type *__pos* = 0) const [inline]

Copy substring into C string.

Parameters:

s C string to copy value into.

n Number of characters to copy.

pos Index of first character to copy.

Returns:

Number of characters actually copied

Exceptions:

std::out_of_range If pos > size().

Copies up to *n* characters starting at *pos* into the C string *s*. If *pos* is greater than size(), out_of_range is thrown.

Definition at line 723 of file basic_string.tcc.

5.385.3.32 template<typename _CharT, typename _Traits, typename _Alloc> const_reverse_iterator std::basic_string< _CharT, _Traits, _Alloc >::crbegin () const [inline]

Returns a read-only (constant) reverse iterator that points to the last character in the string. Iteration is done in reverse element order.

Definition at line 682 of file basic_string.h.

5.385.3.33 template<typename _CharT, typename _Traits, typename _Alloc> const_reverse_iterator std::basic_string< _CharT, _Traits, _Alloc >::crend () const [inline]

Returns a read-only (constant) reverse iterator that points to one before the first character in the string. Iteration is done in reverse element order.

Definition at line 691 of file basic_string.h.

5.385.3.34 template<typename _CharT, typename _Traits, typename _Alloc> const _CharT* std::basic_string< _CharT, _Traits, _Alloc >::data () const [inline]

Return const pointer to contents. This is a handle to internal data. Do not modify or dire things may happen.

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 1732 of file basic_string.h.

Referenced by std::basic_string< _CharT, _Traits, _Alloc >::compare(), std::basic_string< char >::compare(), std::collate< _CharT >::do_compare(), std::collate< _CharT >::do_transform(), std::basic_string< char >::find(), std::basic_string< char

>::find_first_not_of(), std::basic_string< char >::find_first_of(), std::basic_string< char >::find_last_not_of(), std::basic_string< char >::find_last_of(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_string< char >::rfind(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::str(), and std::regex_traits< _Ch_type >::transform().

5.385.3.35 template<typename _CharT, typename _Traits, typename _Alloc> bool std::basic_string< _CharT, _Traits, _Alloc >::empty () const [inline]

Returns true if the string is empty. Equivalent to `*this == ""`.

Definition at line 793 of file basic_string.h.

Referenced by std::operator>>().

5.385.3.36 template<typename _CharT, typename _Traits, typename _Alloc> const_iterator std::basic_string< _CharT, _Traits, _Alloc >::end () const [inline]

Returns a read-only (constant) iterator that points one past the last character in the string.

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 620 of file basic_string.h.

5.385.3.37 template<typename _CharT, typename _Traits, typename _Alloc> iterator std::basic_string< _CharT, _Traits, _Alloc >::end () [inline]

Returns a read/write iterator that points one past the last character in the string. Unshares the string.

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 609 of file basic_string.h.

Referenced by std::regex_match(), std::regex_replace(), and std::regex_search().

5.385.3.38 template<typename _CharT , typename _Traits , typename _Alloc > basic_string< _CharT, _Traits, _Alloc >::iterator std::basic_string< _CharT, _Traits, _Alloc >::erase (iterator *__first*, iterator *__last*) [inline]

Remove a range of characters.

Parameters:

first Iterator referencing the first character to remove.

last Iterator referencing the end of the range.

Returns:

Iterator referencing location of first after removal.

Removes the characters in the range [first,last) from this string. The value of the string doesn't change if an error is thrown.

Definition at line 391 of file basic_string.tcc.

5.385.3.39 template<typename _CharT, typename _Traits, typename _Alloc> iterator std::basic_string< _CharT, _Traits, _Alloc >::erase (iterator *__position*) [inline]

Remove one character.

Parameters:

position Iterator referencing the character to remove.

Returns:

iterator referencing same location after removal.

Removes the character at *position* from this string. The value of the string doesn't change if an error is thrown.

Definition at line 1319 of file basic_string.h.

5.385.3.40 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::erase (size_type *__pos* = 0, size_type *__n* = npos) [inline]

Remove characters.

Parameters:

pos Index of first character to remove (default 0).

n Number of characters to remove (default remainder).

Returns:

Reference to this string.

Exceptions:

std::out_of_range If *pos* is beyond the end of this string.

Removes *n* characters from this string starting at *pos*. The length of the string is reduced by *n*. If there are < *n* characters to remove, the remainder of the string is truncated. If *p* is beyond end of string, out_of_range is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1303 of file basic_string.h.

Referenced by std::getline(), std::operator>>(), and std::basic_string< _CharT, _Traits, _Alloc >::resize().

5.385.3.41 template<typename _CharT, typename _Traits , typename _Alloc > basic_string< _CharT, _Traits, _Alloc >::size_type std::basic_string< _CharT, _Traits, _Alloc >::find (_CharT __c, size_type __pos = 0) const [inline]

Find position of a character.

Parameters:

c Character to locate.

pos Index of character to search from (default 0).

Returns:

Index of first occurrence.

Starting from *pos*, searches forward for *c* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 760 of file basic_string.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::find(), and std::basic_string< _CharT, _Traits, _Alloc >::size().

5.385.3.42 template<typename _CharT, typename _Traits, typename _Alloc> size_type std::basic_string< _CharT, _Traits, _Alloc >::find (const _CharT * __s, size_type __pos = 0) const [inline]

Find position of a C string.

Parameters:

s C string to locate.

pos Index of character to search from (default 0).

Returns:

Index of start of first occurrence.

Starting from *pos*, searches forward for the value of *s* within this string. If found, returns the index where it begins. If not found, returns npos.

Definition at line 1781 of file basic_string.h.

5.385.3.43 template<typename _CharT, typename _Traits, typename _Alloc> size_type std::basic_string< _CharT, _Traits, _Alloc >::find (const basic_string< _CharT, _Traits, _Alloc > & *__str*, size_type *__pos* = 0) const [inline]

Find position of a string.

Parameters:

str String to locate.

pos Index of character to search from (default 0).

Returns:

Index of start of first occurrence.

Starting from *pos*, searches forward for value of *str* within this string. If found, returns the index where it begins. If not found, returns npos.

Definition at line 1767 of file basic_string.h.

Referenced by std::basic_string< char >::find().

5.385.3.44 template<typename _CharT, typename _Traits , typename _Alloc > basic_string< _CharT, _Traits, _Alloc >::size_type std::basic_string< _CharT, _Traits, _Alloc >::find (const _CharT * *__s*, size_type *__pos*, size_type *__n*) const [inline]

Find position of a C substring.

Parameters:

s C string to locate.

pos Index of character to search from.

n Number of characters from *s* to search for.

Returns:

Index of start of first occurrence.

Starting from *pos*, searches forward for the first *n* characters in *s* within this string. If found, returns the index where it begins. If not found, returns npos.

Definition at line 737 of file basic_string.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::size().

Referenced by std::basic_string< _CharT, _Traits, _Alloc >::find(), and std::basic_string< _CharT, _Traits, _Alloc >::find_first_of().

5.385.3.45 template<typename _CharT, typename _Traits , typename _Alloc > basic_string< _CharT, _Traits, _Alloc >::size_type std::basic_string< _CharT, _Traits, _Alloc >::find_first_not_of (_CharT __*c*, size_type __*pos* = 0) const [inline]

Find position of a different character.

Parameters:

c Character to avoid.

pos Index of character to search from (default 0).

Returns:

Index of first occurrence.

Starting from *pos*, searches forward for a character other than *c* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 864 of file basic_string.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::size().

5.385.3.46 template<typename _CharT, typename _Traits, typename _Alloc> size_type std::basic_string< _CharT, _Traits, _Alloc >::find_first_not_of (const _CharT * __*s*, size_type __*pos* = 0) const [inline]

Find position of a character not in C string.

Parameters:

s C string containing characters to avoid.

pos Index of character to search from (default 0).

Returns:

Index of first occurrence.

Starting from *pos*, searches forward for a character not contained in *s* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 2020 of file basic_string.h.

5.385.3.47 template<typename _CharT, typename _Traits , typename _Alloc > basic_string< _CharT, _Traits, _Alloc >::size_type std::basic_string< _CharT, _Traits, _Alloc >::find_first_not_of (const _CharT * __s, size_type __pos, size_type __n) const [inline]

Find position of a character not in C substring.

Parameters:

s C string containing characters to avoid.

pos Index of character to search from.

n Number of characters from s to consider.

Returns:

Index of first occurrence.

Starting from *pos*, searches forward for a character not contained in the first *n* characters of *s* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 852 of file basic_string.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::size().

5.385.3.48 template<typename _CharT, typename _Traits, typename _Alloc> size_type std::basic_string< _CharT, _Traits, _Alloc >::find_first_not_of (const basic_string< _CharT, _Traits, _Alloc > & __str, size_type __pos = 0) const [inline]

Find position of a character not in string.

Parameters:

str String containing characters to avoid.

pos Index of character to search from (default 0).

Returns:

Index of first occurrence.

Starting from *pos*, searches forward for a character not contained in *str* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 1991 of file basic_string.h.

Referenced by std::basic_string< char >::find_first_not_of().

5.385.3.49 template<typename _CharT, typename _Traits, typename _Alloc> size_type std::basic_string< _CharT, _Traits, _Alloc >::find_first_of (_CharT __*c*, size_type __*pos* = 0) const [inline]

Find position of a character.

Parameters:

c Character to locate.

pos Index of character to search from (default 0).

Returns:

Index of first occurrence.

Starting from *pos*, searches forward for the character *c* within this string. If found, returns the index where it was found. If not found, returns npos.

Note: equivalent to find(c, pos).

Definition at line 1916 of file basic_string.h.

5.385.3.50 template<typename _CharT, typename _Traits, typename _Alloc> size_type std::basic_string< _CharT, _Traits, _Alloc >::find_first_of (const _CharT * __*s*, size_type __*pos* = 0) const [inline]

Find position of a character of C string.

Parameters:

s String containing characters to locate.

pos Index of character to search from (default 0).

Returns:

Index of first occurrence.

Starting from *pos*, searches forward for one of the characters of *s* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 1897 of file basic_string.h.

5.385.3.51 template<typename _CharT, typename _Traits , typename _Alloc > basic_string< _CharT, _Traits, _Alloc >::size_type std::basic_string< _CharT, _Traits, _Alloc >::find_first_of (const _CharT * __s, size_type __pos, size_type __n) const [inline]

Find position of a character of C substring.

Parameters:

s String containing characters to locate.

pos Index of character to search from.

n Number of characters from s to search for.

Returns:

Index of first occurrence.

Starting from *pos*, searches forward for one of the first *n* characters of *s* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 816 of file basic_string.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::find(), and std::basic_string< _CharT, _Traits, _Alloc >::size().

5.385.3.52 template<typename _CharT, typename _Traits, typename _Alloc> size_type std::basic_string< _CharT, _Traits, _Alloc >::find_first_of (const basic_string< _CharT, _Traits, _Alloc > & __str, size_type __pos = 0) const [inline]

Find position of a character of string.

Parameters:

str String containing characters to locate.

pos Index of character to search from (default 0).

Returns:

Index of first occurrence.

Starting from *pos*, searches forward for one of the characters of *str* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 1869 of file basic_string.h.

Referenced by std::basic_string< char >::find_first_of().

5.385.3.53 template<typename _CharT, typename _Traits , typename _Alloc > basic_string< _CharT, _Traits, _Alloc >::size_type std::basic_string< _CharT, _Traits, _Alloc >::find_last_not_of (_CharT __*c*, size_type __*pos* = npos) const [inline]

Find last position of a different character.

Parameters:

c Character to avoid.

pos Index of character to search back from (default end).

Returns:

Index of last occurrence.

Starting from *pos*, searches backward for a character other than *c* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 896 of file basic_string.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::size().

5.385.3.54 template<typename _CharT, typename _Traits, typename _Alloc> size_type std::basic_string< _CharT, _Traits, _Alloc >::find_last_not_of (const _CharT * __*s*, size_type __*pos* = npos) const [inline]

Find last position of a character not in C string.

Parameters:

s C string containing characters to avoid.

pos Index of character to search back from (default end).

Returns:

Index of last occurrence.

Starting from *pos*, searches backward for a character not contained in *s* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 2079 of file basic_string.h.

5.385.3.55 template<typename _CharT, typename _Traits , typename _Alloc > basic_string< _CharT, _Traits, _Alloc >::size_type std::basic_string< _CharT, _Traits, _Alloc >::find_last_not_of (const _CharT * __s, size_type __pos, size_type __n) const [inline]

Find last position of a character not in C substring.

Parameters:

s C string containing characters to avoid.

pos Index of character to search back from.

n Number of characters from s to consider.

Returns:

Index of last occurrence.

Starting from *pos*, searches backward for a character not contained in the first *n* characters of *s* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 875 of file basic_string.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::size().

5.385.3.56 template<typename _CharT, typename _Traits, typename _Alloc> size_type std::basic_string< _CharT, _Traits, _Alloc >::find_last_not_of (const basic_string< _CharT, _Traits, _Alloc > & __str, size_type __pos = npos) const [inline]

Find last position of a character not in string.

Parameters:

str String containing characters to avoid.

pos Index of character to search back from (default end).

Returns:

Index of last occurrence.

Starting from *pos*, searches backward for a character not contained in *str* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 2050 of file basic_string.h.

Referenced by std::basic_string< char >::find_last_not_of().

5.385.3.57 template<typename _CharT, typename _Traits, typename _Alloc> size_type std::basic_string< _CharT, _Traits, _Alloc >::find_last_of (_CharT __c, size_type __pos = npos) const [inline]

Find last position of a character.

Parameters:

c Character to locate.

pos Index of character to search back from (default end).

Returns:

Index of last occurrence.

Starting from *pos*, searches backward for *c* within this string. If found, returns the index where it was found. If not found, returns npos.

Note: equivalent to rfind(c, pos).

Definition at line 1977 of file basic_string.h.

5.385.3.58 template<typename _CharT, typename _Traits, typename _Alloc> size_type std::basic_string< _CharT, _Traits, _Alloc >::find_last_of (const _CharT * __s, size_type __pos = npos) const [inline]

Find last position of a character of C string.

Parameters:

s C string containing characters to locate.

pos Index of character to search back from (default end).

Returns:

Index of last occurrence.

Starting from *pos*, searches backward for one of the characters of *s* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 1958 of file basic_string.h.

5.385.3.59 template<typename _CharT, typename _Traits , typename _Alloc > basic_string< _CharT, _Traits, _Alloc >::size_type std::basic_string< _CharT, _Traits, _Alloc >::find_last_of (const _CharT * __s, size_type __pos, size_type __n) const [inline]

Find last position of a character of C substring.

Parameters:

s C string containing characters to locate.

pos Index of character to search back from.

n Number of characters from s to search for.

Returns:

Index of last occurrence.

Starting from *pos*, searches backward for one of the first *n* characters of *s* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 831 of file basic_string.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::size().

5.385.3.60 template<typename _CharT, typename _Traits, typename _Alloc> size_type std::basic_string< _CharT, _Traits, _Alloc >::find_last_of (const basic_string< _CharT, _Traits, _Alloc > & *__str*, size_type *__pos* = npos) const [inline]

Find last position of a character of string.

Parameters:

str String containing characters to locate.

pos Index of character to search back from (default end).

Returns:

Index of last occurrence.

Starting from *pos*, searches backward for one of the characters of *str* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 1930 of file basic_string.h.

Referenced by std::basic_string< char >::find_last_of().

5.385.3.61 template<typename _CharT, typename _Traits, typename _Alloc> allocator_type std::basic_string< _CharT, _Traits, _Alloc >::get_allocator () const [inline]

Return copy of allocator used to construct this string.

Definition at line 1739 of file basic_string.h.

Referenced by std::basic_string< _CharT, _Traits, _Alloc >::assign(), std::basic_string< _CharT, _Traits, _Alloc >::reserve(), and std::basic_string< _CharT, _Traits, _Alloc >::swap().

5.385.3.62 template<typename _CharT, typename _Traits, typename _Alloc> iterator std::basic_string< _CharT, _Traits, _Alloc >::insert (iterator __p, _CharT __c) [inline]

Insert one character.

Parameters:

p Iterator referencing position in string to insert at.

c The character to insert.

Returns:

Iterator referencing newly inserted char.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Inserts character *c* at position referenced by *p*. If adding character causes the length to exceed max_size(), length_error is thrown. If *p* is beyond end of string, out_of_range is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1279 of file basic_string.h.

5.385.3.63 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::insert (size_type __pos, size_type __n, _CharT __c) [inline]

Insert multiple characters.

Parameters:

pos Index in string to insert at.

n Number of characters to insert

c The character to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

std::out_of_range If *pos* is beyond the end of this string.

Inserts *n* copies of character *c* starting at index *pos*. If adding characters causes the length to exceed max_size(), length_error is thrown. If *pos* > length(), out_of_range is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1262 of file basic_string.h.

5.385.3.64 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::insert (size_type __pos, const _CharT * __s) [inline]

Insert a C string.

Parameters:

pos Iterator referencing location in string to insert at.

s The C string to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

std::out_of_range If *pos* is beyond the end of this string.

Inserts the first *n* characters of *s* starting at *pos*. If adding characters causes the length to exceed max_size(), length_error is thrown. If *pos* is beyond end(), out_of_range is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1239 of file basic_string.h.

5.385.3.65 template<typename _CharT, typename _Traits , typename _Alloc > basic_string< _CharT, _Traits, _Alloc > & std::basic_string< _CharT, _Traits, _Alloc >::insert (size_type __pos, const _CharT * __s, size_type __n) [inline]

Insert a C substring.

Parameters:

pos Iterator referencing location in string to insert at.

s The C string to insert.

n The number of characters to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

std::out_of_range If *pos* is beyond the end of this string.

Inserts the first *n* characters of *s* starting at *pos*. If adding characters causes the length to exceed max_size(), length_error is thrown. If *pos* is beyond end(), out_of_range is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 360 of file basic_string.tcc.

5.385.3.66 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::insert (size_type *__pos1*, const basic_string< _CharT, _Traits, _Alloc > & *__str*, size_type *__pos2*, size_type *__n*) `[inline]`

Insert a substring.

Parameters:

pos1 Iterator referencing location in string to insert at.

str The string to insert.

pos2 Start of characters in str to insert.

n Number of characters to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

std::out_of_range If *pos1* > size() or *pos2* > *str.size()*.

Starting at *pos1*, insert *n* character of *str* beginning with *pos2*. If adding characters causes the length to exceed max_size(), length_error is thrown. If *pos1* is beyond the end of this string or *pos2* is beyond the end of *str*, out_of_range is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1198 of file basic_string.h.

Referenced by std::basic_string< char >::insert().

5.385.3.67 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::insert (size_type *__pos1*, const basic_string< _CharT, _Traits, _Alloc > & *__str*) [inline]

Insert value of a string.

Parameters:

pos1 Iterator referencing location in string to insert at.

str The string to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Inserts value of *str* starting at *pos1*. If adding characters causes the length to exceed max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1176 of file basic_string.h.

Referenced by std::basic_string< char >::insert().

5.385.3.68 template<typename _CharT, typename _Traits, typename _Alloc> void std::basic_string< _CharT, _Traits, _Alloc >::insert (iterator *__p*, initializer_list< _CharT > *__l*) [inline]

Insert an initializer_list of characters.

Parameters:

p Iterator referencing location in string to insert at.

l The initializer_list of characters to insert.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Definition at line 1157 of file basic_string.h.

5.385.3.69 template<typename _CharT, typename _Traits, typename _Alloc> template<class _InputIterator > void std::basic_string< _CharT, _Traits, _Alloc >::insert (iterator __p, _InputIterator __beg, _InputIterator __end) [inline]

Insert a range of characters.

Parameters:

p Iterator referencing location in string to insert at.

beg Start of range.

end End of range.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Inserts characters in range [beg,end). If adding characters causes the length to exceed max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1146 of file basic_string.h.

5.385.3.70 template<typename _CharT, typename _Traits, typename _Alloc> void std::basic_string< _CharT, _Traits, _Alloc >::insert (iterator __p, size_type __n, _CharT __c) [inline]

Insert multiple characters.

Parameters:

p Iterator referencing location in string to insert at.

n Number of characters to insert

c The character to insert.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Inserts *n* copies of character *c* starting at the position referenced by iterator *p*. If adding characters causes the length to exceed max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1130 of file basic_string.h.

5.385.3.71 template<typename _CharT, typename _Traits, typename _Alloc> size_type std::basic_string< _CharT, _Traits, _Alloc >::length () const [inline]

Returns the number of characters in the string, not including any null-termination.

Definition at line 706 of file basic_string.h.

Referenced by std::basic_string< _CharT, _Traits, _Alloc >::compare(), std::collate< _CharT >::do_compare(), std::collate< _CharT >::do_transform(), std::match_results< _Bi_iter >::length(), and std::regex_traits< _Ch_type >::length().

5.385.3.72 template<typename _CharT, typename _Traits, typename _Alloc> size_type std::basic_string< _CharT, _Traits, _Alloc >::max_size () const [inline]

Returns the size() of the largest possible string.

Definition at line 711 of file basic_string.h.

Referenced by std::getline(), std::operator>>(), and std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow().

5.385.3.73 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::operator+= (initializer_list< _CharT > __*l*) [inline]

Append an initializer_list of characters.

Parameters:

l The initializer_list of characters to be appended.

Returns:

Reference to this string.

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 911 of file basic_string.h.

5.385.3.74 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::operator+= (_CharT __*c*) [inline]

Append a character.

Parameters:

c The character to append.

Returns:

Reference to this string.

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 898 of file basic_string.h.

5.385.3.75 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::operator+= (const _CharT * __*s*) [inline]

Append a C string.

Parameters:

s The C string to append.

Returns:

Reference to this string.

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 889 of file basic_string.h.

5.385.3.76 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::operator+= (const basic_string< _CharT, _Traits, _Alloc > & __*str*) [inline]

Append a string to this string.

Parameters:

str The string to append.

Returns:

Reference to this string.

Definition at line 880 of file basic_string.h.

5.385.3.77 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::operator= (initializer_list< _CharT > __l) [inline]

Set value to string constructed from initializer list.

Parameters:

l std::initializer_list.

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 577 of file basic_string.h.

5.385.3.78 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::operator= (basic_string< _CharT, _Traits, _Alloc > && __str) [inline]

Move assign the value of *str* to this string.

Parameters:

str Source string.

The contents of *str* are moved into this string (without copying). *str* is a valid, but unspecified string.

Definition at line 565 of file basic_string.h.

5.385.3.79 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::operator= (_CharT __c) [inline]

Set value to string of length 1.

Parameters:

c Source character.

Assigning to a character makes this string length 1 and (*this)[0] == *c*.

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 550 of file basic_string.h.

5.385.3.80 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::operator= (const _CharT * __s) [inline]

Copy contents of *s* into this string.

Parameters:

s Source null-terminated string.

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 539 of file basic_string.h.

5.385.3.81 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::operator= (const basic_string< _CharT, _Traits, _Alloc > & __str) [inline]

Assign the value of *str* to this string.

Parameters:

str Source string.

Definition at line 531 of file basic_string.h.

5.385.3.82 template<typename _CharT, typename _Traits, typename _Alloc> reference std::basic_string< _CharT, _Traits, _Alloc >::operator[ ] (size_type __pos) [inline]

Subscript access to the data contained in the string.

Parameters:

pos The index of the character to access.

Returns:

Read/write reference to the character.

This operator allows for easy, array-style, data access. Note that data access with this operator is unchecked and out_of_range lookups are not defined. (For checked lookups see at().) Unshares the string.

Definition at line 825 of file basic_string.h.

5.385.3.83 template<typename _CharT, typename _Traits, typename _Alloc> const_reference std::basic_string< _CharT, _Traits, _Alloc >::operator[ ] (size_type *__pos*) const [inline]

Subscript access to the data contained in the string.

Parameters:

pos The index of the character to access.

Returns:

Read-only (constant) reference to the character.

This operator allows for easy, array-style, data access. Note that data access with this operator is unchecked and out_of_range lookups are not defined. (For checked lookups see at().)

Definition at line 808 of file basic_string.h.

5.385.3.84 template<typename _CharT, typename _Traits, typename _Alloc> void std::basic_string< _CharT, _Traits, _Alloc >::push_back (_CharT *__c*) [inline]

Append a single character.

Parameters:

c Character to append.

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 999 of file basic_string.h.

Referenced by std::collate< _CharT >::do_transform(), std::operator>>(), and std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow().

5.385.3.85 template<typename _CharT, typename _Traits, typename _Alloc> const_reverse_iterator std::basic_string< _CharT, _Traits, _Alloc >::rbegin () const [inline]

Returns a read-only (constant) reverse iterator that points to the last character in the string. Iteration is done in reverse element order.

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 638 of file basic_string.h.

5.385.3.86 template<typename _CharT, typename _Traits, typename _Alloc> reverse_iterator std::basic_string< _CharT, _Traits, _Alloc >::rbegin () [inline]

Returns a read/write reverse iterator that points to the last character in the string. Iteration is done in reverse element order. Unshares the string.

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 629 of file basic_string.h.

5.385.3.87 template<typename _CharT, typename _Traits, typename _Alloc> const_reverse_iterator std::basic_string< _CharT, _Traits, _Alloc >::rend () const [inline]

Returns a read-only (constant) reverse iterator that points to one before the first character in the string. Iteration is done in reverse element order.

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 656 of file basic_string.h.

5.385.3.88 template<typename _CharT, typename _Traits, typename _Alloc> reverse_iterator std::basic_string< _CharT, _Traits, _Alloc >::rend () [inline]

Returns a read/write reverse iterator that points to one before the first character in the string. Iteration is done in reverse element order. Unshares the string.

Reimplemented in __gnu_debug::basic_string< _CharT, _Traits, _Allocator >.

Definition at line 647 of file basic_string.h.

5.385.3.89 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::replace (iterator *__i1*, iterator *__i2*, initializer_list< _CharT > *__l*) [inline]

Replace range of characters with initializer_list.

Parameters:

i1 Iterator referencing start of range to replace.

i2 Iterator referencing end of range to replace.

l The initializer_list of characters to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [i1,i2). In place, characters in the range [k1,k2) are inserted. If the length of result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1615 of file basic_string.h.

Referenced by std::basic_string< char >::replace().

5.385.3.90 template<typename _CharT, typename _Traits, typename _Alloc> template<class _InputIterator > basic_string& std::basic_string< _CharT, _Traits, _Alloc >::replace (iterator *__i1*, iterator *__i2*, _InputIterator *__k1*, _InputIterator *__k2*) `[inline]`

Replace range of characters with range.

Parameters:

i1 Iterator referencing start of range to replace.

i2 Iterator referencing end of range to replace.

k1 Iterator referencing start of range to insert.

k2 Iterator referencing end of range to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [i1,i2). In place, characters in the range [k1,k2) are inserted. If the length of result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1547 of file basic_string.h.

5.385.3.91 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::replace (iterator __i1, iterator __i2, size_type __n, _CharT __c) [inline]

Replace range of characters with multiple characters.

Parameters:

i1 Iterator referencing start of range to replace.

i2 Iterator referencing end of range to replace.

n Number of characters to insert.

c Character to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [i1,i2). In place, *n* copies of *c* are inserted. If the length of result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1524 of file basic_string.h.

5.385.3.92 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::replace (iterator __i1, iterator __i2, const _CharT * __s) [inline]

Replace range of characters with C string.

Parameters:

i1 Iterator referencing start of range to replace.

i2 Iterator referencing end of range to replace.

s C string value to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [i1,i2). In place, the characters of *s* are inserted. If the length of result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1503 of file basic_string.h.

5.385.3.93 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::replace (iterator __i1, iterator __i2, const _CharT * __s, size_type __n) [inline]

Replace range of characters with C substring.

Parameters:

i1 Iterator referencing start of range to replace.

i2 Iterator referencing end of range to replace.

s C string value to insert.

n Number of characters from s to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [i1,i2). In place, the first *n* characters of *s* are inserted. If the length of result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1482 of file basic_string.h.

5.385.3.94 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::replace (iterator __i1, iterator __i2, const basic_string< _CharT, _Traits, _Alloc > & __str) [inline]

Replace range of characters with string.

Parameters:

i1 Iterator referencing start of range to replace.

i2 Iterator referencing end of range to replace.

str String value to insert.

Returns:

Reference to this string.

Exceptions:

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [i1,i2). In place, the value of *str* is inserted. If the length of result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1464 of file basic_string.h.

Referenced by std::basic_string< char >::replace().

5.385.3.95 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::replace (size_type *__pos*, size_type *__n1*, size_type *__n2*, _CharT *__c*) [inline]

Replace characters with multiple characters.

Parameters:

pos Index of first character to replace.

n1 Number of characters to be replaced.

n2 Number of characters to insert.

c Character to insert.

Returns:

Reference to this string.

Exceptions:

std::out_of_range If *pos* > size().

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [pos,pos + n1) from this string. In place, *n2* copies of *c* are inserted. If *pos* is beyond end of string, out_of_range is thrown. If the length of result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1446 of file basic_string.h.

5.385.3.96 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::replace (size_type __pos, size_type __n1, const _CharT * __s) [inline]

Replace characters with value of a C string.

Parameters:

pos Index of first character to replace.

n1 Number of characters to be replaced.

s C string to insert.

Returns:

Reference to this string.

Exceptions:

std::out_of_range If *pos* > size().

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [pos,pos + n1) from this string. In place, the first *n* characters of *s* are inserted. If *pos* is beyond end of string, out_of_range is thrown. If the length of result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1423 of file basic_string.h.

5.385.3.97 template<typename _CharT, typename _Traits , typename _Alloc > basic_string< _CharT, _Traits, _Alloc > & std::basic_string< _CharT, _Traits, _Alloc >::replace (size_type __pos, size_type __n1, const _CharT * __s, size_type __n2) [inline]

Replace characters with value of a C substring.

Parameters:

pos Index of first character to replace.

n1 Number of characters to be replaced.

s C string to insert.

n2 Number of characters from *s* to use.

Returns:

Reference to this string.

Exceptions:

std::out_of_range If *pos1* > size().

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [pos,pos + n1) from this string. In place, the first *n2* characters of *s* are inserted, or all of *s* if *n2* is too large. If *pos* is beyond end of string, out_of_range is thrown. If the length of result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 414 of file basic_string.tcc.

5.385.3.98 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::replace (size_type *__pos1*, size_type *__n1*, const basic_string< _CharT, _Traits, _Alloc > & *__str*, size_type *__pos2*, size_type *__n2*) `[inline]`

Replace characters with value from another string.

Parameters:

pos1 Index of first character to replace.

n1 Number of characters to be replaced.

str String to insert.

pos2 Index of first character of str to use.

n2 Number of characters from str to use.

Returns:

Reference to this string.

Exceptions:

std::out_of_range If *pos1* > size() or *pos2* > str.size().

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [pos1,pos1 + n) from this string. In place, the value of *str* is inserted. If *pos* is beyond end of string, out_of_range is thrown. If the length of the result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1380 of file basic_string.h.

Referenced by std::basic_string< char >::replace().

5.385.3.99 template<typename _CharT, typename _Traits, typename _Alloc> basic_string& std::basic_string< _CharT, _Traits, _Alloc >::replace (size_type __pos, size_type __n, const basic_string< _CharT, _Traits, _Alloc > & __str) [inline]

Replace characters with value from another string.

Parameters:

pos Index of first character to replace.

n Number of characters to be replaced.

str String to insert.

Returns:

Reference to this string.

Exceptions:

std::out_of_range If *pos* is beyond the end of this string.

std::length_error If new length exceeds `max_size()`.

Removes the characters in the range [pos,pos+n) from this string. In place, the value of *str* is inserted. If *pos* is beyond end of string, out_of_range is thrown. If the length of the result exceeds max_size(), length_error is thrown. The value of the string doesn't change if an error is thrown.

Definition at line 1358 of file basic_string.h.

Referenced by std::basic_string< char >::replace().

5.385.3.100 template<typename _CharT , typename _Traits , typename _Alloc > void std::basic_string< _CharT, _Traits, _Alloc >::reserve (size_type __res_arg = 0) [inline]

Attempt to preallocate enough memory for specified number of characters.

Parameters:

res_arg Number of characters required.

Exceptions:

std::length_error If *res_arg* exceeds `max_size()`.

This function attempts to reserve enough memory for the string to hold the specified number of characters. If the number requested is more than max_size(), length_error is thrown.

The advantage of this function is that if optimal code is a necessity and the user can determine the string length that will be required, the user can reserve the memory in advance, and thus prevent a possible reallocation of memory and copying of string data.

Definition at line 502 of file basic_string.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::capacity(), std::basic_string< _CharT, _Traits, _Alloc >::get_allocator(), and std::basic_string< _CharT, _Traits, _Alloc >::size().

Referenced by std::basic_string< _CharT, _Traits, _Alloc >::append(), std::num_get< _CharT, _InIter >::do_get(), std::operator>>(), and std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow().

5.385.3.101 template<typename _CharT, typename _Traits, typename _Alloc> void std::basic_string< _CharT, _Traits, _Alloc >::resize (size_type __n) [inline]

Resizes the string to the specified number of characters.

Parameters:

n Number of characters the string should contain.

This function will resize the string to the specified length. If the new size is smaller than the string's current size the string is truncated, otherwise the string is extended and new characters are default-constructed. For basic types such as char, this means setting them to 0.

Definition at line 738 of file basic_string.h.

Referenced by std::basic_string< char >::resize().

5.385.3.102 template<typename _CharT, typename _Traits , typename _Alloc > void std::basic_string< _CharT, _Traits, _Alloc >::resize (size_type __n, _CharT __c) [inline]

Resizes the string to the specified number of characters.

Parameters:

n Number of characters the string should contain.

c Character to fill any new elements.

This function will resize the string to the specified number of characters. If the number is smaller than the string's current size the string is truncated, otherwise the string is extended and new elements are set to *c*.

Definition at line 640 of file basic_string.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::append(), std::basic_string< _CharT, _Traits, _Alloc >::erase(), and std::basic_string< _CharT, _Traits, _Alloc >::size().

Referenced by std::money_get< _CharT, _InIter >::do_get().

5.385.3.103 template<typename _CharT, typename _Traits , typename _Alloc > basic_string< _CharT, _Traits, _Alloc >::size_type std::basic_string< _CharT, _Traits, _Alloc >::rfind (_CharT __c, size_type __pos = npos) const [inline]

Find last position of a character.

Parameters:

c Character to locate.

pos Index of character to search back from (default end).

Returns:

Index of last occurrence.

Starting from *pos*, searches backward for *c* within this string. If found, returns the index where it was found. If not found, returns npos.

Definition at line 799 of file basic_string.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::size().

5.385.3.104 template<typename _CharT, typename _Traits, typename _Alloc> size_type std::basic_string< _CharT, _Traits, _Alloc >::rfind (const _CharT * __s, size_type __pos = npos) const [inline]

Find last position of a C string.

Parameters:

s C string to locate.

pos Index of character to start search at (default end).

Returns:

Index of start of last occurrence.

Starting from *pos*, searches backward for the value of *s* within this string. If found, returns the index where it begins. If not found, returns npos.

Definition at line 1839 of file basic_string.h.

5.385.3.105 template<typename _CharT, typename _Traits , typename _Alloc > basic_string< _CharT, _Traits, _Alloc >::size_type std::basic_string< _CharT, _Traits, _Alloc >::rfind (const _CharT * *__s*, size_type *__pos*, size_type *__n*) const [inline]

Find last position of a C substring.

Parameters:

s C string to locate.

pos Index of character to search back from.

n Number of characters from s to search for.

Returns:

Index of start of last occurrence.

Starting from *pos*, searches backward for the first *n* characters in *s* within this string. If found, returns the index where it begins. If not found, returns npos.

Definition at line 778 of file basic_string.tcc.

References std::min(), and std::basic_string< _CharT, _Traits, _Alloc >::size().

5.385.3.106 template<typename _CharT, typename _Traits, typename _Alloc> size_type std::basic_string< _CharT, _Traits, _Alloc >::rfind (const basic_string< _CharT, _Traits, _Alloc > & *__str*, size_type *__pos* = npos) const [inline]

Find last position of a string.

Parameters:

str String to locate.

pos Index of character to search back from (default end).

Returns:

Index of start of last occurrence.

Starting from *pos*, searches backward for value of *str* within this string. If found, returns the index where it begins. If not found, returns npos.

Definition at line 1811 of file basic_string.h.

Referenced by std::basic_string< char >::rfind().

5.385.3.107 template<typename _CharT, typename _Traits, typename _Alloc> void std::basic_string< _CharT, _Traits, _Alloc >::shrink_to_fit () [inline]

A non-binding request to reduce capacity() to size().

Definition at line 744 of file basic_string.h.

5.385.3.108 template<typename _CharT, typename _Traits, typename _Alloc> size_type std::basic_string< _CharT, _Traits, _Alloc >::size () const [inline]

Returns the number of characters in the string, not including any null-termination.

Definition at line 700 of file basic_string.h.

Referenced by std::basic_string< _CharT, _Traits, _Alloc >::append(), std::basic_string< _CharT, _Traits, _Alloc >::assign(), std::bitset< _S_match_flag_last >::bitset(), std::basic_string< _CharT, _Traits, _Alloc >::compare(), std::basic_string< char >::compare(), std::basic_string< _CharT, _Traits, _Alloc >::find(), std::basic_string< char >::find(), std::basic_string< _CharT, _Traits, _Alloc >::find_first_not_of(), std::basic_string< char >::find_first_not_of(), std::basic_string< _CharT, _Traits, _Alloc >::find_first_of(), std::basic_string< char >::find_first_of(), std::basic_string< _CharT, _Traits, _Alloc >::find_last_not_of(), std::basic_string< char >::find_last_not_of(), std::basic_string< _CharT, _Traits, _Alloc >::find_last_of(), std::basic_string< char >::find_last_of(), std::basic_string< char >::insert(), std::operator+(), std::basic_string< char >::replace(), std::basic_string< _CharT, _Traits, _Alloc >::reserve(), std::basic_string< _CharT, _Traits, _Alloc >::resize(), std::basic_string< _CharT, _Traits, _Alloc >::rfind(), std::basic_string< char >::rfind(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::str(), and std::regex_traits< _Ch_type >::transform().

5.385.3.109 template<typename _CharT, typename _Traits, typename _Alloc> basic_string std::basic_string< _CharT, _Traits, _Alloc >::substr (size_type *__pos* = 0, size_type *__n* = npos) const [inline]

Get a substring.

Parameters:

pos Index of first character (default 0).

n Number of characters in substring (default remainder).

Returns:

The new string.

Exceptions:

std::out_of_range If pos > size().

Construct and return a new string using the *n* characters starting at *pos*. If the string is too short, use the remainder of the characters. If *pos* is beyond the end of the string, out_of_range is thrown.

Definition at line 2111 of file basic_string.h.

5.385.3.110 template<typename _CharT , typename _Traits , typename _Alloc > void std::basic_string< _CharT, _Traits, _Alloc >::swap (basic_string< _CharT, _Traits, _Alloc > & __s) [inline]

Swap contents with another string.

Parameters:

s String to swap with.

Exchanges the contents of this string with that of *s* in constant time.

Definition at line 519 of file basic_string.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::get_allocator().

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), and std::swap().

5.385.4 Member Data Documentation

5.385.4.1 template<typename _CharT, typename _Traits, typename _Alloc> const basic_string< _CharT, _Traits, _Alloc >::size_type std::basic_string< _CharT, _Traits, _Alloc >::npos [inline, static]

Value returned by various member functions when they fail.

Definition at line 270 of file basic_string.h.

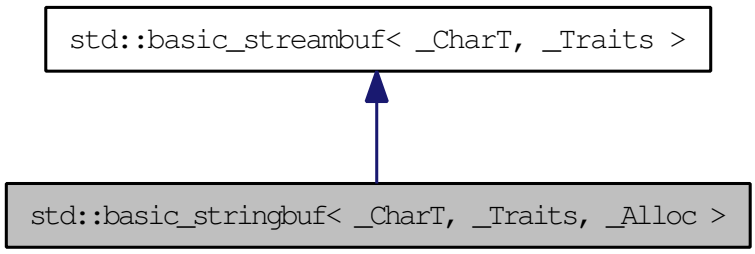
The documentation for this class was generated from the following files:

- basic_string.h
- basic_string.tcc

5.386 std::basic_stringbuf< _CharT, _Traits, _Alloc > Class Template Reference

The actual work of input and output (for std::string).

This class associates either or both of its input and output sequences with a sequence of characters, which can be initialized from, or made available as, a `std::basic_string`. (Paraphrased from [27.7.1]/1.). Inheritance diagram for std::basic_stringbuf< _CharT, _Traits, _Alloc >:



Public Types

- typedef __string_type::size_type **__size_type**
- typedef basic_streambuf< char_type, traits_type > **__streambuf_type**
- typedef basic_string< char_type, _Traits, _Alloc > **__string_type**
- typedef _Alloc **allocator_type**
- typedef _CharT char_type
- typedef traits_type::int_type int_type
- typedef traits_type::off_type off_type
- typedef traits_type::pos_type pos_type
- typedef _Traits traits_type

Public Member Functions

- basic_stringbuf (const __string_type &__str, ios_base::openmode __mode=ios_base::in|ios_base::out)
- basic_stringbuf (ios_base::openmode __mode=ios_base::in|ios_base::out)
- streamsize in_avail ()
- int_type sbumpc ()
- int_type sgetc ()
- streamsize sgetn (char_type *__s, streamsize __n)
- int_type snextc ()

- int_type sputbackc (char_type __c)
- int_type sputc (char_type __c)
- streamsize sputn (const char_type *__s, streamsize __n)
- void stossc ()
- void str (const __string_type &__s)
- __string_type str () const
- int_type sungetc ()

Protected Member Functions

- void **_M_stringbuf_init** (ios_base::openmode __mode)
- void **_M_sync** (char_type *__base, __size_type __i, __size_type __o)
- void **_M_update_egptr** ()
- void gbump (int __n)
- virtual void imbue (const locale &)
- virtual int_type overflow (int_type __c=traits_type::eof())
- virtual int_type pbackfail (int_type __c=traits_type::eof())
- void pbump (int __n)
- virtual pos_type seekoff (off_type __off, ios_base::seekdir __way, ios_base::openmode __mode=ios_base::in|ios_base::out)
- virtual pos_type seekpos (pos_type __sp, ios_base::openmode __mode=ios_base::in|ios_base::out)
- virtual __streambuf_type * setbuf (char_type *__s, streamsize __n)
- void setg (char_type *__gbeg, char_type *__gnext, char_type *__gend)
- void setp (char_type *__pbeg, char_type *__pend)
- virtual streamsize showmanyc ()
- virtual int sync ()
- virtual int_type uflow ()
- virtual int_type underflow ()
- virtual streamsize xsgetn (char_type *__s, streamsize __n)
- virtual streamsize xsputn (const char_type *__s, streamsize __n)

Protected Attributes

- ios_base::openmode _M_mode
- __string_type **_M_string**

Friends

- template<bool _IsMove, typename _CharT2 >
  __gnu_cxx::__enable_if< __is_char< _CharT2 >::__value, _CharT2 * >::__-
  type **__copy_move_a2** (istreambuf_iterator< _CharT2 >, istreambuf_iterator<
  _CharT2 >, _CharT2 *)
- streamsize **__copy_streambufs_eof** (__streambuf_type *, __streambuf_type *,
  bool &)
- class **basic_ios**< **char_type, traits_type** >
- class **basic_istream**< **char_type, traits_type** >
- class **basic_ostream**< **char_type, traits_type** >
- template<typename _CharT2 >
  __gnu_cxx::__enable_if< __is_char< _CharT2 >::__value, istreambuf_-
  iterator< _CharT2 > >::__type **find** (istreambuf_iterator< _CharT2 >,
  istreambuf_iterator< _CharT2 >, const _CharT2 &)
- template<typename _CharT2 , typename _Traits2 , typename _Alloc >
  basic_istream< _CharT2, _Traits2 > & **getline** (basic_istream< _CharT2, _-
  Traits2 > &, basic_string< _CharT2, _Traits2, _Alloc > &, _CharT2)
- class **istreambuf_iterator**< **char_type, traits_type** >
- template<typename _CharT2 , typename _Traits2 , typename _Alloc >
  basic_istream< _CharT2, _Traits2 > & **operator>>** (basic_istream< _CharT2,
  _Traits2 > &, basic_string< _CharT2, _Traits2, _Alloc > &)
- template<typename _CharT2 , typename _Traits2 >
  basic_istream< _CharT2, _Traits2 > & **operator>>** (basic_istream< _CharT2,
  _Traits2 > &, _CharT2 *)
- class **ostreambuf_iterator**< **char_type, traits_type** >

- locale _M_buf_locale
- char_type * _M_in_beg
- char_type * _M_in_cur
- char_type * _M_in_end
- char_type * _M_out_beg
- char_type * _M_out_cur
- char_type * _M_out_end
- locale getloc () const
- locale pubimbue (const locale &__loc)
- pos_type pubseekoff (off_type __off, ios_base::seekdir __way, ios_-
  base::openmode __mode=ios_base::in|ios_base::out)
- pos_type pubseekpos (pos_type __sp, ios_base::openmode __mode=ios_-
  base::in|ios_base::out)
- __streambuf_type * pubsetbuf (char_type *__s, streamsize __n)
- int pubsync ()
- char_type * eback () const

- char_type * egptr () const
- char_type * epptr () const
- char_type * gptr () const
- char_type * pbase () const
- char_type * pptr () const

5.386.1 Detailed Description

template<typename _CharT, typename _Traits, typename _Alloc> class std::basic_stringbuf< _CharT, _Traits, _Alloc >

The actual work of input and output (for std::string).

This class associates either or both of its input and output sequences with a sequence of characters, which can be initialized from, or made available as, a `std::basic_string`. (Paraphrased from [27.7.1]/1.). For this class, open modes (of type `ios_base::openmode`) have `in` set if the input sequence can be read, and `out` set if the output sequence can be written.

Definition at line 58 of file sstream.

5.386.2 Member Typedef Documentation

5.386.2.1 template<typename _CharT, typename _Traits, typename _Alloc> typedef basic_streambuf<char_type, traits_type> std::basic_stringbuf< _CharT, _Traits, _Alloc >::__streambuf_type

This is a non-standard type.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 71 of file sstream.

5.386.2.2 template<typename _CharT, typename _Traits, typename _Alloc> typedef _CharT std::basic_stringbuf< _CharT, _Traits, _Alloc >::char_type

These are standard types. They permit a standardized way of referring to names of (or names dependant on) the template parameters, which are specific to the implementation.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 62 of file sstream.

5.386.2.3 template<typename _CharT, typename _Traits, typename _Alloc> typedef traits_type::int_type std::basic_stringbuf< _CharT, _Traits, _Alloc >::int_type

This is a non-standard type.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 67 of file sstream.

5.386.2.4 template<typename _CharT, typename _Traits, typename _Alloc> typedef traits_type::off_type std::basic_stringbuf< _CharT, _Traits, _Alloc >::off_type

This is a non-standard type.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 69 of file sstream.

5.386.2.5 template<typename _CharT, typename _Traits, typename _Alloc> typedef traits_type::pos_type std::basic_stringbuf< _CharT, _Traits, _Alloc >::pos_type

This is a non-standard type.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 68 of file sstream.

5.386.2.6 template<typename _CharT, typename _Traits, typename _Alloc> typedef _Traits std::basic_stringbuf< _CharT, _Traits, _Alloc >::traits_type

This is a non-standard type.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 63 of file sstream.

5.386.3 Constructor & Destructor Documentation

5.386.3.1 template<typename _CharT, typename _Traits, typename _Alloc> std::basic_stringbuf< _CharT, _Traits, _Alloc >::basic_stringbuf (ios_base::openmode *__mode* = ios_base::in | ios_base::out) [inline, explicit]

Starts with an empty string buffer.

Parameters:

mode Whether the buffer can read, or write, or both.

The default constructor initializes the parent class using its own default ctor.

Definition at line 92 of file sstream.

5.386.3.2 template<typename _CharT, typename _Traits, typename _Alloc> std::basic_stringbuf< _CharT, _Traits, _Alloc >::basic_stringbuf (const __string_type & *__str*, ios_base::openmode *__mode* = ios_base::in | ios_base::out) [inline, explicit]

Starts with an existing string buffer.

Parameters:

str A string to copy as a starting buffer.

mode Whether the buffer can read, or write, or both.

This constructor initializes the parent class using its own default ctor.

Definition at line 105 of file sstream.

5.386.4 Member Function Documentation

5.386.4.1 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::eback () const [inline, protected, inherited]

Access to the get area. These functions are only available to other protected functions, including derived classes.

- eback() returns the beginning pointer for the input sequence
- gptr() returns the next pointer for the input sequence

- egptr() returns the end pointer for the input sequence

Definition at line 460 of file streambuf.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::underflow(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.386.4.2 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::egptr () const [inline, protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 466 of file streambuf.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::showmanyc(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::underflow(), std::basic_filebuf< _CharT, _Traits >::underflow(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.386.4.3 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::epptr () const [inline, protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 513 of file streambuf.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_streambuf< _CharT, _Traits >::xsputn(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.386.4.4 template<typename _CharT, typename _Traits> void std::basic_streambuf< _CharT, _Traits >::gbump (int __n) [inline, protected, inherited]

Moving the read position.

Parameters:

n The delta by which to move.

This just advances the read position without returning any data.

Definition at line 476 of file streambuf.

Referenced by std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.386.4.5 template<typename _CharT, typename _Traits> locale std::basic_streambuf< _CharT, _Traits >::getloc () const [inline, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 222 of file streambuf.

5.386.4.6 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::gptr () const [inline, protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 463 of file streambuf.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::showmanyc(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::underflow(), std::basic_filebuf< _CharT, _Traits >::underflow(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.386.4.7 template<typename _CharT, typename _Traits> virtual void std::basic_streambuf< _CharT, _Traits >::imbue (const locale &) [inline, protected, virtual, inherited]

Changes translations.

Parameters:

loc A new locale.

Translations done during I/O which depend on the current locale are changed by this call. The standard adds, *Between invocations of this function a class derived from streambuf can safely cache results of calls to locale functions and to members of facets so obtained.*

Note:

Base class version does nothing.

Reimplemented in std::basic_filebuf< _CharT, _Traits >, std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >, and std::basic_filebuf< char_type, traits_type >.

Definition at line 554 of file streambuf.

5.386.4.8 template<typename _CharT, typename _Traits> streamsize std::basic_streambuf< _CharT, _Traits >::in_avail () [inline, inherited]

Looking ahead into the stream.

Returns:

The number of characters available.

If a read position is available, returns the number of characters available for reading before the buffer must be refilled. Otherwise returns the derived `showmanyc()`.

Definition at line 262 of file streambuf.

5.386.4.9 template<class _CharT , class _Traits , class _Alloc > basic_stringbuf< _CharT, _Traits, _Alloc >::int_type std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow (int_type = traits_type::eof()) [inline, protected, virtual]

Consumes data from the buffer; writes to the controlled sequence.

Parameters:

c An additional character to consume.

Returns:

eof() to indicate failure, something else (usually *c*, or not_eof())

Informally, this function is called when the output buffer is full (or does not exist, as buffering need not actually be done). If a buffer exists, it is *consumed*, with *some effect* on the controlled sequence. (Typically, the buffer is written out to the sequence verbatim.) In either case, the character *c* is also written out, if *c* is not `eof()`.

For a formal definition of this function, see a good text such as Langer & Kreft, or [27.5.2.4.5]/3-7.

A functioning output streambuf can be created by overriding only this function (no buffer area will be used).

Note:

Base class version does nothing, returns eof().

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 80 of file sstream.tcc.

References std::basic_stringbuf< _CharT, _Traits, _Alloc >::_M_mode, std::basic_string< _CharT, _Traits, _Alloc >::assign(), std::basic_string< _CharT, _Traits, _Alloc >::capacity(), std::basic_string< _CharT, _Traits, _Alloc >::data(), std::basic_streambuf< _CharT, _Traits >::eback(), std::basic_streambuf< _CharT, _Traits >::epptr(), std::basic_streambuf< _CharT, _Traits >::gptr(), std::max(), std::basic_string< _CharT, _Traits, _Alloc >::max_size(), std::min(), std::ios_base::out, std::basic_streambuf< _CharT, _Traits >::pbase(), std::basic_streambuf< _CharT, _Traits >::pbump(), std::basic_streambuf< _CharT, _Traits >::pptr(), std::basic_string< _CharT, _Traits, _Alloc >::push_back(), std::basic_string< _CharT, _Traits, _Alloc >::reserve(), and std::basic_string< _CharT, _Traits, _Alloc >::swap().

5.386.4.10 template<class _CharT , class _Traits , class _Alloc > basic_stringbuf< _CharT, _Traits, _Alloc >::int_type std::basic_stringbuf< _CharT, _Traits, _Alloc >::pbackfail (int_type = traits_type::eof()) [inline, protected, virtual]

Tries to back up the input sequence.

Parameters:

c The character to be inserted back into the sequence.

Returns:

eof() on failure, *some other value* on success

Postcondition:

The constraints of `gptr()`, `eback()`, and `pptr()` are the same as for `underflow()`.

Note:

Base class version does nothing, returns eof().

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 46 of file sstream.tcc.

5.386.4.11 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::pbase () const [inline, protected, inherited]

Access to the put area. These functions are only available to other protected functions, including derived classes.

- pbase() returns the beginning pointer for the output sequence
- pptr() returns the next pointer for the output sequence
- epptr() returns the end pointer for the output sequence

Definition at line 507 of file streambuf.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::sync(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.386.4.12 template<typename _CharT, typename _Traits> void std::basic_streambuf< _CharT, _Traits >::pbump (int __n) [inline, protected, inherited]

Moving the write position.

Parameters:

n The delta by which to move.

This just advances the write position without returning any data.

Definition at line 523 of file streambuf.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), and std::basic_streambuf< _CharT, _Traits >::xsputn().

5.386.4.13 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::pptr () const [inline, protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 510 of file streambuf.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::sync(), std::basic_streambuf< _CharT, _Traits >::xsputn(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.386.4.14 template<typename _CharT, typename _Traits> locale std::basic_streambuf< _CharT, _Traits >::pubimbue (const locale & __loc) [inline, inherited]

Entry point for imbue().

Parameters:

loc The new locale.

Returns:

The previous locale.

Calls the derived imbue(loc).

Definition at line 205 of file streambuf.

5.386.4.15 template<typename _CharT, typename _Traits> pos_type std::basic_streambuf< _CharT, _Traits >::pubseekoff (off_type *__off*, ios_base::seekdir *__way*, ios_base::openmode *__mode* = ios_base::in | ios_base::out) [inline, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 239 of file streambuf.

5.386.4.16 template<typename _CharT, typename _Traits> pos_type std::basic_streambuf< _CharT, _Traits >::pubseekpos (pos_type *__sp*, ios_base::openmode *__mode* = ios_base::in | ios_base::out) [inline, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 244 of file streambuf.

5.386.4.17 template<typename _CharT, typename _Traits> __streambuf_type* std::basic_streambuf< _CharT, _Traits >::pubsetbuf (char_type * *__s*, streamsize *__n*) [inline, inherited]

Entry points for derived buffer functions. The public versions of `pubfoo` dispatch to the protected derived `foo` member functions, passing the arguments (if any) and returning the result unchanged.

Definition at line 235 of file streambuf.

5.386.4.18 template<typename _CharT, typename _Traits> int std::basic_streambuf< _CharT, _Traits >::pubsync () [inline, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 249 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::sync().

5.386.4.19 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::sbumpc () [inline, inherited]

Getting the next character.

Returns:

The next character, or eof.

If the input read position is available, returns that character and increments the read pointer, otherwise calls and returns `uflow()`.

Definition at line 294 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), and std::istreambuf_iterator< _CharT, _Traits >::operator++().

5.386.4.20 template<class _CharT , class _Traits , class _Alloc > basic_stringbuf< _CharT, _Traits, _Alloc >::pos_type std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff (off_type, ios_base::seekdir, ios_base::openmode = ios_base::in | ios_base::out) [inline, protected, virtual]

Alters the stream positions. Each derived class provides its own appropriate behavior.

Note:

Base class version does nothing, returns a `pos_type` that represents an invalid stream position.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 149 of file sstream.tcc.

References std::basic_stringbuf< _CharT, _Traits, _Alloc >::_M_mode, std::ios_base::cur, std::basic_streambuf< _CharT, _Traits >::eback(), std::basic_streambuf< _CharT, _Traits >::egptr(), std::ios_base::end, std::basic_streambuf< _CharT, _Traits >::gbump(), std::basic_streambuf< _CharT, _Traits >::gptr(), std::ios_base::in, std::ios_base::out, std::basic_streambuf< _CharT, _Traits >::pbase(), std::basic_streambuf< _CharT, _Traits >::pbump(), and std::basic_streambuf< _CharT, _Traits >::pptr().

5.386.4.21 template<class _CharT , class _Traits , class _Alloc > basic_stringbuf< _CharT, _Traits, _Alloc >::pos_type std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos (pos_type, ios_base::openmode = ios_base::in | ios_base::out) [inline, protected, virtual]

Alters the stream positions. Each derived class provides its own appropriate behavior.

Note:

Base class version does nothing, returns a `pos_type` that represents an invalid stream position.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 196 of file sstream.tcc.

References std::basic_stringbuf< _CharT, _Traits, _Alloc >::_M_mode, std::basic_streambuf< _CharT, _Traits >::eback(), std::basic_streambuf< _CharT, _Traits >::egptr(), std::basic_streambuf< _CharT, _Traits >::gbump(), std::basic_streambuf< _CharT, _Traits >::gptr(), std::ios_base::in, std::ios_base::out, std::basic_streambuf< _CharT, _Traits >::pbase(), std::basic_streambuf< _CharT, _Traits >::pbump(), and std::basic_streambuf< _CharT, _Traits >::pptr().

5.386.4.22 template<typename _CharT, typename _Traits, typename _Alloc> virtual __streambuf_type* std::basic_stringbuf< _CharT, _Traits, _Alloc >::setbuf (char_type * __s, streamsize __n) [inline, protected, virtual]

Manipulates the buffer.

Parameters:

s Pointer to a buffer area.

n Size of *s*.

Returns:

`this`

If no buffer has already been created, and both *s* and *n* are non-zero, then `s` is used as a buffer; see http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch25s02.html for more.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 196 of file sstream.

References std::basic_string< _CharT, _Traits, _Alloc >::clear().

5.386.4.23 template<typename _CharT, typename _Traits> void std::basic_streambuf< _CharT, _Traits >::setg (char_type * *__gbeg*, char_type * *__gnext*, char_type * *__gend*) [inline, protected, inherited]

Setting the three read area pointers.

Parameters:

gbeg A pointer.

gnext A pointer.

gend A pointer.

Postcondition:

gbeg == `eback()`, *gnext* == `gptr()`, and *gend* == `egptr()`

Definition at line 487 of file streambuf.

5.386.4.24 template<typename _CharT, typename _Traits> void std::basic_streambuf< _CharT, _Traits >::setp (char_type * *__pbeg*, char_type * *__pend*) [inline, protected, inherited]

Setting the three write area pointers.

Parameters:

pbeg A pointer.

pend A pointer.

Postcondition:

pbeg == `pbase()`, *pbeg* == `pptr()`, and *pend* == `epptr()`

Definition at line 533 of file streambuf.

5.386.4.25 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::sgetc () [inline, inherited]

Getting the next character.

Returns:

The next character, or eof.

If the input read position is available, returns that character, otherwise calls and returns `underflow()`. Does not move the read position after fetching the character.

Definition at line 316 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), and std::basic_istream< _CharT, _Traits >::sentry::sentry().

5.386.4.26 template<typename _CharT, typename _Traits> streamsize std::basic_streambuf< _CharT, _Traits >::sgetn (char_type * __s, streamsize __n) [inline, inherited]

Entry point for xsgetn.

Parameters:

s A buffer area.

n A count.

Returns xsgetn(s,n). The effect is to fill *s*[0] through *s*[n-1] with characters from the input sequence, if possible.

Definition at line 335 of file streambuf.

5.386.4.27 template<typename _CharT, typename _Traits, typename _Alloc> virtual streamsize std::basic_stringbuf< _CharT, _Traits, _Alloc >::showmanyc () [inline, protected, virtual]

Investigating the data available.

Returns:

An estimate of the number of characters available in the input sequence, or -1.

If it returns a positive value, then successive calls to `underflow()` *will not return* `traits::eof()` *until at least that number of characters have been supplied. If* `showmanyc()` *returns -1, then calls to* `underflow()` *or* `uflow()` *will fail.* [27.5.2.4.3]/1

Note:

Base class version does nothing, returns zero.
The standard adds that *the intention is not only that the calls [to underflow or uflow] will not return* `eof()` *but that they will return immediately.*
The standard adds that *the morphemes of* `showmanyc` *are* ***es-how-many-see****, not* ***show-manic***.

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 164 of file sstream.

5.386.4.28 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::snextc () [inline, inherited]

Getting the next character.

Returns:

The next character, or eof.

Calls `sbumpc()`, and if that function returns `traits::eof()`, so does this function. Otherwise, `sgetc()`.

Definition at line 276 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), and std::basic_istream< _CharT, _Traits >::sentry::sentry().

5.386.4.29 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::sputbackc (char_type __c) [inline, inherited]

Pushing characters back into the input stream.

Parameters:

c The character to push back.

Returns:

The previous character, if possible.

Similar to sungetc(), but *c* is pushed onto the stream instead of *the previous character.* If successful, the next character fetched from the input stream will be *c*.

Definition at line 350 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::putback().

5.386.4.30 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::sputc (char_type __c) [inline, inherited]

Entry point for all single-character output functions.

Parameters:

c A character to output.

Returns:

c, if possible.

One of two public output functions.

If a write position is available for the output sequence (i.e., the buffer is not full), stores *c* in that position, increments the position, and returns `traits::to_int_type(c)`. If a write position is not available, returns `overflow(c)`.

Definition at line 402 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::get(), and std::ostreambuf_iterator< _CharT, _Traits >::operator=().

5.386.4.31 template<typename _CharT, typename _Traits> streamsize std::basic_streambuf< _CharT, _Traits >::sputn (const char_type * __s, streamsize __n) [inline, inherited]

Entry point for all single-character output functions.

Parameters:

s A buffer read area.

n A count.

One of two public output functions.

Returns xsputn(s,n). The effect is to write *s*[0] through *s*[n-1] to the output sequence, if possible.

Definition at line 428 of file streambuf.

5.386.4.32 template<typename _CharT, typename _Traits> void std::basic_streambuf< _CharT, _Traits >::stossc () [inline, inherited]

Tosses a character. Advances the read pointer, ignoring the character that would have been read.

See http://gcc.gnu.org/ml/libstdc++/2002-05/msg00168.html

Definition at line 761 of file streambuf.

5.386.4.33 template<typename _CharT, typename _Traits, typename _Alloc> void std::basic_stringbuf< _CharT, _Traits, _Alloc >::str (const __string_type & __*s*) [inline]

Setting a new buffer.

Parameters:

s The string to use as a new sequence.

Deallocates any previous stored sequence, then copies *s* to use as a new one.

Definition at line 144 of file sstream.

References std::basic_string< _CharT, _Traits, _Alloc >::assign(), std::basic_string< _CharT, _Traits, _Alloc >::data(), and std::basic_string< _CharT, _Traits, _Alloc >::size().

5.386.4.34 template<typename _CharT, typename _Traits, typename _Alloc> __string_type std::basic_stringbuf< _CharT, _Traits, _Alloc >::str () const [inline]

Copying out the string buffer.

Returns:

A copy of one of the underlying sequences.

If the buffer is only created in input mode, the underlying character sequence is equal to the input sequence; otherwise, it is equal to the output sequence. [27.7.1.2]/1

Definition at line 120 of file sstream.

5.386.4.35 template<typename _CharT, typename _Traits> int_type std::basic_streambuf< _CharT, _Traits >::sungetc () [inline, inherited]

Moving backwards in the input stream.

Returns:

The previous character, if possible.

If a putback position is available, this function decrements the input pointer and returns that character. Otherwise, calls and returns pbackfail(). The effect is to *unget* the last character *gotten*.

Definition at line 375 of file streambuf.

Referenced by std::basic_istream< _CharT, _Traits >::unget().

5.386.4.36 template<typename _CharT, typename _Traits> virtual int std::basic_streambuf< _CharT, _Traits >::sync (void) [inline, protected, virtual, inherited]

Synchronizes the buffer arrays with the controlled sequences.

Returns:

-1 on failure.

Each derived class provides its own appropriate behavior, including the definition of *failure*.

Note:

Base class version does nothing, returns zero.

Reimplemented in std::basic_filebuf< _CharT, _Traits >, __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >, std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >, and std::basic_filebuf< char_type, traits_type >.

Definition at line 605 of file streambuf.

5.386.4.37 template<typename _CharT, typename _Traits> virtual int_type std::basic_streambuf< _CharT, _Traits >::uflow () [inline, protected, virtual, inherited]

Fetches more data from the controlled sequence.

Returns:

The first character from the *pending sequence*.

Informally, this function does the same thing as `underflow()`, and in fact is required to call that function. It also returns the new character, like `underflow()` does. However, this function also moves the read position forward by one.

Reimplemented in __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >.

Definition at line 678 of file streambuf.

5.386.4.38 template<class _CharT , class _Traits , class _Alloc > basic_stringbuf< _CharT, _Traits, _Alloc >::int_type std::basic_stringbuf< _CharT, _Traits, _Alloc >::underflow () [inline, protected, virtual]

Fetches more data from the controlled sequence.

Returns:

The first character from the *pending sequence*.

Informally, this function is called when the input buffer is exhausted (or does not exist, as buffering need not actually be done). If a buffer exists, it is *refilled*. In either case, the next available character is returned, or `traits::eof()` to indicate a null pending sequence.

For a formal definition of the pending sequence, see a good text such as Langer & Kreft, or [27.5.2.4.3]/7-14.

A functioning input streambuf can be created by overriding only this function (no buffer area will be used). For an example, see http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch25.html

Note:

Base class version does nothing, returns eof().

Reimplemented from std::basic_streambuf< _CharT, _Traits >.

Definition at line 131 of file sstream.tcc.

References std::basic_stringbuf< _CharT, _Traits, _Alloc >::_M_mode, std::basic_streambuf< _CharT, _Traits >::egptr(), std::basic_streambuf< _CharT, _Traits >::gptr(), and std::ios_base::in.

5.386.4.39 template<typename _CharT , typename _Traits > streamsize std::basic_streambuf< _CharT, _Traits >::xsgetn (char_type * __s, streamsize __n) [inline, protected, virtual, inherited]

Multiple character extraction.

Parameters:

s A buffer area.

n Maximum number of characters to assign.

Returns:

The number of characters assigned.

Fills *s*[0] through *s*[n-1] with characters from the input sequence, as if by `sbumpc()`. Stops when either *n* characters have been copied, or when `traits::eof()` would be copied.

It is expected that derived classes provide a more efficient implementation by overriding this definition.

Reimplemented in std::basic_filebuf< _CharT, _Traits >, __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >, std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >, and std::basic_filebuf< char_type, traits_type >.

Definition at line 45 of file streambuf.tcc.

References std::min().

5.386.4.40 template<typename _CharT , typename _Traits > streamsize std::basic_streambuf< _CharT, _Traits >::xsputn (const char_type * __s, streamsize __n) [inline, protected, virtual, inherited]

Multiple character insertion.

Parameters:

s A buffer area.

n Maximum number of characters to write.

Returns:

The number of characters written.

Writes *s*[0] through *s*[n-1] to the output sequence, as if by `sputc()`. Stops when either *n* characters have been copied, or when `sputc()` would return `traits::eof()`.

It is expected that derived classes provide a more efficient implementation by overriding this definition.

Reimplemented in std::basic_filebuf< _CharT, _Traits >, __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >, std::basic_filebuf< _CharT, encoding_char_traits< _CharT > >, and std::basic_filebuf< char_type, traits_type >.

Definition at line 79 of file streambuf.tcc.

References std::basic_streambuf< _CharT, _Traits >::epptr(), std::min(), std::basic_streambuf< _CharT, _Traits >::overflow(), std::basic_streambuf< _CharT, _Traits >::pbump(), and std::basic_streambuf< _CharT, _Traits >::pptr().

5.386.5 Member Data Documentation

5.386.5.1 template<typename _CharT, typename _Traits> locale std::basic_streambuf< _CharT, _Traits >::_M_buf_locale [protected, inherited]

Current locale setting.

Definition at line 188 of file streambuf.

Referenced by std::basic_filebuf< _CharT, _Traits >::basic_filebuf().

5.386.5.2 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_in_beg [protected, inherited]

This is based on _IO_FILE, just reordered to be more consistent, and is intended to be the most minimal abstraction for an internal buffer.

- get == input == read
- put == output == write

Definition at line 180 of file streambuf.

5.386.5.3 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_in_cur [protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 181 of file streambuf.

5.386.5.4 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_in_end [protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 182 of file streambuf.

5.386.5.5 template<typename _CharT, typename _Traits, typename _Alloc> ios_base::openmode std::basic_stringbuf< _CharT, _Traits, _Alloc >::_M_mode [protected]

Place to stash in || out || in | out settings for current stringbuf.

Definition at line 77 of file sstream.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), and std::basic_stringbuf< _CharT, _Traits, _Alloc >::underflow().

5.386.5.6 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_out_beg [protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 183 of file streambuf.

5.386.5.7 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_out_cur [protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 184 of file streambuf.

5.386.5.8 template<typename _CharT, typename _Traits> char_type* std::basic_streambuf< _CharT, _Traits >::_M_out_end [protected, inherited]

Locale access.

Returns:

The current locale in effect.

If pubimbue(loc) has been called, then the most recent `loc` is returned. Otherwise the global locale in effect at the time of construction is returned.

Definition at line 185 of file streambuf.

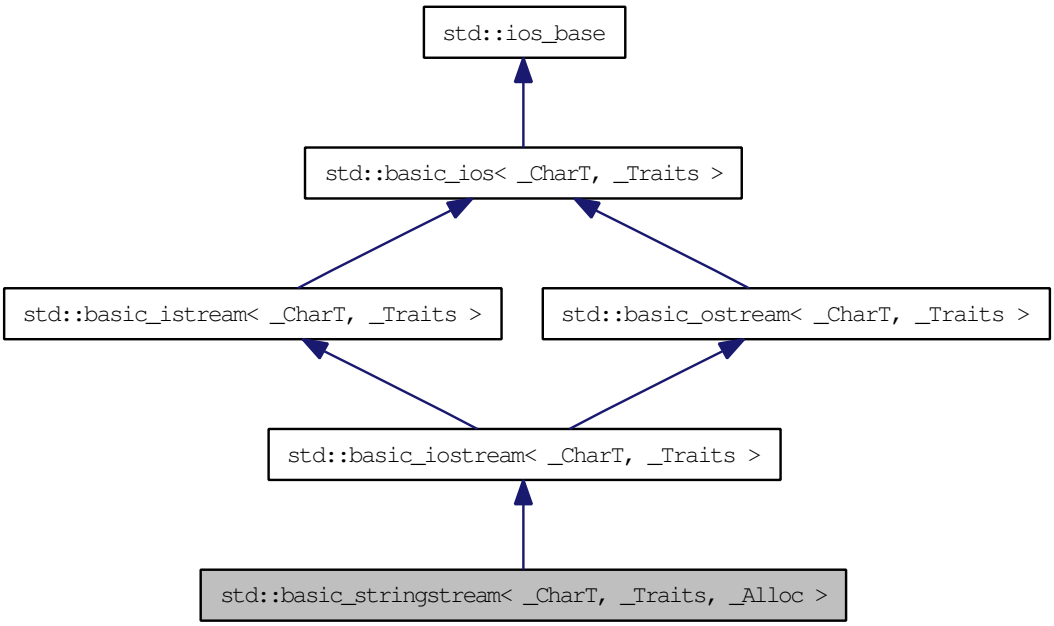
The documentation for this class was generated from the following files:

- sstream
- sstream.tcc

5.387 std::basic_stringstream< _CharT, _Traits, _Alloc > Class Template Reference

Controlling input and output for std::string.

This class supports reading from and writing to objects of type std::basic_string, using the inherited functions from std::basic_iostream. To control the associated sequence, an instance of std::basic_stringbuf is used, which this page refers to as `sb`. Inheritance diagram for std::basic_stringstream< _CharT, _Traits, _Alloc >:



Public Types

- typedef ctype< _CharT > __ctype_type
- typedef ctype< _CharT > __ctype_type
- typedef basic_ios< _CharT, _Traits > **__ios_type**
- typedef basic_ios< _CharT, _Traits > **__ios_type**
- typedef basic_iostream< char_type, traits_type > **__iostream_type**
- typedef basic_istream< _CharT, _Traits > **__istream_type**
- typedef num_get< _CharT, istreambuf_iterator< _CharT, _Traits > > __num_get_type
- typedef num_put< _CharT, ostreambuf_iterator< _CharT, _Traits > > __num_put_type

- typedef basic_ostream< _CharT, _Traits > **__ostream_type**
- typedef basic_streambuf< _CharT, _Traits > **__streambuf_type**
- typedef basic_streambuf< _CharT, _Traits > **__streambuf_type**
- typedef basic_string< _CharT, _Traits, _Alloc > **__string_type**
- typedef basic_stringbuf< _CharT, _Traits, _Alloc > **__stringbuf_type**
- typedef _Alloc **allocator_type**
- typedef _CharT char_type
- enum event { **erase_event**, **imbue_event**, **copyfmt_event** }
- typedef void(* event_callback)(event, ios_base &, int)
- typedef _Ios_Fmtflags fmtflags
- typedef traits_type::int_type int_type
- typedef int **io_state**
- typedef _Ios_Iostate iostate
- typedef traits_type::off_type off_type
- typedef int **open_mode**
- typedef _Ios_Openmode openmode
- typedef traits_type::pos_type pos_type
- typedef int **seek_dir**
- typedef _Ios_Seekdir seekdir
- typedef std::streamoff **streamoff**
- typedef std::streampos **streampos**
- typedef _Traits traits_type

Public Member Functions

- basic_stringstream (const __string_type &__str, ios_base::openmode __m=ios_base::out|ios_base::in)
- basic_stringstream (ios_base::openmode __m=ios_base::out|ios_base::in)
- ~basic_stringstream ()
- const locale & _M_getloc () const
- void **_M_setstate** (iostate __state)
- bool bad () const
- void clear (iostate __state=goodbit)
- basic_ios & copyfmt (const basic_ios &__rhs)
- bool eof () const
- void exceptions (iostate __except)
- iostate exceptions () const
- bool fail () const
- char_type fill (char_type __ch)
- char_type fill () const
- fmtflags flags (fmtflags __fmtfl)
- fmtflags flags () const

- __ostream_type & flush ()
- streamsize gcount () const
- template<>
  basic_istream< wchar_t > & **getline** (char_type *__s, streamsize __n, char_type __delim)
- template<>
  basic_istream< char > & **getline** (char_type *__s, streamsize __n, char_type __delim)
- locale getloc () const
- bool good () const
- template<>
  basic_istream< wchar_t > & **ignore** (streamsize __n, int_type __delim)
- template<>
  basic_istream< wchar_t > & **ignore** (streamsize __n)
- template<>
  basic_istream< char > & **ignore** (streamsize __n, int_type __delim)
- template<>
  basic_istream< char > & **ignore** (streamsize __n)
- locale imbue (const locale &__loc)
- long & iword (int __ix)
- char narrow (char_type __c, char __dfault) const
- streamsize precision (streamsize __prec)
- streamsize precision () const
- void *& pword (int __ix)
- basic_streambuf< _CharT, _Traits > * rdbuf (basic_streambuf< _CharT, _Traits > *__sb)
- __stringbuf_type * rdbuf () const
- iostate rdstate () const
- void register_callback (event_callback __fn, int __index)
- __ostream_type & seekp (off_type, ios_base::seekdir)
- __ostream_type & seekp (pos_type)
- fmtflags setf (fmtflags __fmtfl, fmtflags __mask)
- fmtflags setf (fmtflags __fmtfl)
- void setstate (iostate __state)
- void str (const __string_type &__s)
- __string_type str () const
- pos_type tellp ()
- basic_ostream< _CharT, _Traits > * tie (basic_ostream< _CharT, _Traits > *__tiestr)
- basic_ostream< _CharT, _Traits > * tie () const
- void unsetf (fmtflags __mask)
- char_type widen (char __c) const
- streamsize width (streamsize __wide)

- streamsize width () const

Unformatted Output Functions

All the unformatted output functions have some common behavior. Each starts by constructing a temporary object of type std::basic_ostream::sentry. This has several effects, concluding with the setting of a status flag; see the sentry documentation for more.

If the sentry status is good, the function tries to generate whatever data is appropriate for the type of the argument.

If an exception is thrown during insertion, ios_base::badbit will be turned on in the stream's error state. If badbit is on in the stream's exceptions mask, the exception will be rethrown without completing its actions.

- void _M_write (const char_type *__s, streamsize __n)
- __ostream_type & put (char_type __c)
- __ostream_type & write (const char_type *__s, streamsize __n)

Unformatted Input Functions

All the unformatted input functions have some common behavior. Each starts by constructing a temporary object of type std::basic_istream::sentry with the second argument (noskipws) set to true. This has several effects, concluding with the setting of a status flag; see the sentry documentation for more.

If the sentry status is good, the function tries to extract whatever data is appropriate for the type of the argument.

The number of characters extracted is stored for later retrieval by gcount().

If an exception is thrown during extraction, ios_base::badbit will be turned on in the stream's error state without causing an ios_base::failure to be thrown. The original exception will then be rethrown.

- __istream_type & get (__streambuf_type &__sb)
- __istream_type & get (__streambuf_type &__sb, char_type __delim)
- __istream_type & get (char_type *__s, streamsize __n)
- __istream_type & get (char_type *__s, streamsize __n, char_type __delim)
- __istream_type & get (char_type &__c)
- int_type get ()
- __istream_type & getline (char_type *__s, streamsize __n)
- __istream_type & getline (char_type *__s, streamsize __n, char_type __delim)
- __istream_type & ignore (streamsize __n, int_type __delim)
- __istream_type & ignore (streamsize __n)
- __istream_type & ignore ()
- int_type peek ()
- __istream_type & putback (char_type __c)
- __istream_type & read (char_type *__s, streamsize __n)
- streamsize readsome (char_type *__s, streamsize __n)

- __istream_type & seekg (off_type, ios_base::seekdir)
- __istream_type & seekg (pos_type)
- int sync ()
- pos_type tellg ()
- __istream_type & unget ()

Arithmetic Inserters

All the `operator<<` functions (aka formatted output functions) have some common behavior. Each starts by constructing a temporary object of type std::basic_ostream::sentry. This can have several effects, concluding with the setting of a status flag; see the sentry documentation for more.

If the sentry status is good, the function tries to generate whatever data is appropriate for the type of the argument.

If an exception is thrown during insertion, ios_base::badbit will be turned on in the stream's error state without causing an ios_base::failure to be thrown. The original exception will then be rethrown.

- __ostream_type & operator<< (__streambuf_type *__sb)
- __ostream_type & operator<< (const void *__p)
- __ostream_type & operator<< (long double __f)
- __ostream_type & operator<< (float __f)
- __ostream_type & operator<< (double __f)
- __ostream_type & operator<< (unsigned long long __n)
- __ostream_type & operator<< (long long __n)
- __ostream_type & operator<< (unsigned int __n)
- __ostream_type & operator<< (int __n)
- __ostream_type & operator<< (unsigned short __n)
- __ostream_type & operator<< (short __n)
- __ostream_type & operator<< (bool __n)
- __ostream_type & operator<< (unsigned long __n)
- __ostream_type & operator<< (long __n)

- __ostream_type & operator<< (ios_base &(*__pf)(ios_base &))
- __ostream_type & operator<< (__ios_type &(*__pf)(__ios_type &))
- __ostream_type & operator<< (__ostream_type &(*__pf)(__ostream_type &))

Arithmetic Extractors

All the `operator>>` functions (aka formatted input functions) have some common behavior. Each starts by constructing a temporary object of type std::basic_istream::sentry with the second argument (noskipws) set to false. This has several effects, concluding with the setting of a status flag; see the sentry documentation for more.

If the sentry status is good, the function tries to extract whatever data is appropriate for the type of the argument.

If an exception is thrown during extraction, ios_base::badbit will be turned on in the stream's error state without causing an ios_base::failure to be thrown. The original exception will then be rethrown.

- __istream_type & operator>> (__streambuf_type *__sb)
- __istream_type & operator>> (void *&__p)
- __istream_type & operator>> (long double &__f)
- __istream_type & operator>> (double &__f)
- __istream_type & operator>> (float &__f)
- __istream_type & operator>> (unsigned long long &__n)
- __istream_type & operator>> (long long &__n)
- __istream_type & operator>> (unsigned long &__n)
- __istream_type & operator>> (long &__n)
- __istream_type & operator>> (unsigned int &__n)
- __istream_type & operator>> (int &__n)
- __istream_type & operator>> (unsigned short &__n)
- __istream_type & operator>> (short &__n)
- __istream_type & operator>> (bool &__n)

- __istream_type & operator>> (ios_base &(*__pf)(ios_base &))
- __istream_type & operator>> (__ios_type &(*__pf)(__ios_type &))
- __istream_type & operator>> (__istream_type &(*__pf)(__istream_type &))

Static Public Member Functions

- static bool sync_with_stdio (bool __sync=true)
- static int xalloc () throw ()

Static Public Attributes

- static const fmtflags adjustfield
- static const openmode app
- static const openmode ate
- static const iostate badbit
- static const fmtflags basefield
- static const seekdir beg
- static const openmode binary
- static const fmtflags boolalpha
- static const seekdir cur
- static const fmtflags dec
- static const seekdir end
- static const iostate eofbit
- static const iostate failbit
- static const fmtflags fixed

- static const fmtflags floatfield
- static const iostate goodbit
- static const fmtflags hex
- static const openmode in
- static const fmtflags internal
- static const fmtflags left
- static const fmtflags oct
- static const openmode out
- static const fmtflags right
- static const fmtflags scientific
- static const fmtflags showbase
- static const fmtflags showpoint
- static const fmtflags showpos
- static const fmtflags skipws
- static const openmode trunc
- static const fmtflags unitbuf
- static const fmtflags uppercase

Protected Types

- enum { **_S_local_word_size** }

Protected Member Functions

- void **_M_cache_locale** (const locale &__loc)
- void **_M_call_callbacks** (event __ev) throw ()
- void **_M_dispose_callbacks** (void) throw ()
- template<typename _ValueT >
  __istream_type & **_M_extract** (_ValueT &__v)
- _Words & **_M_grow_words** (int __index, bool __iword)
- void **_M_init** () throw ()
- template<typename _ValueT >
  __ostream_type & **_M_insert** (_ValueT __v)
- void init (basic_streambuf< _CharT, _Traits > *__sb)

Protected Attributes

- _Callback_list * **_M_callbacks**
- const __ctype_type * **_M_ctype**
- iostate **_M_exception**
- char_type **_M_fill**

- bool **_M_fill_init**
- fmtflags **_M_flags**
- streamsize _M_gcount
- locale **_M_ios_locale**
- _Words **_M_local_word** [_S_local_word_size]
- const __num_get_type * **_M_num_get**
- const __num_put_type * **_M_num_put**
- streamsize **_M_precision**
- basic_streambuf< _CharT, _Traits > * **_M_streambuf**
- iostate **_M_streambuf_state**
- basic_ostream< _CharT, _Traits > * **_M_tie**
- streamsize **_M_width**
- _Words * **_M_word**
- int **_M_word_size**
- _Words **_M_word_zero**

Friends

- class **sentry**
- class **sentry**

- typedef num_put< _CharT, ostreambuf_iterator< _CharT, _Traits > > __num_put_type
- operator void * () const
- bool operator! () const

5.387.1 Detailed Description

template<typename _CharT, typename _Traits, typename _Alloc> class std::basic_stringstream< _CharT, _Traits, _Alloc >

Controlling input and output for std::string.

This class supports reading from and writing to objects of type std::basic_string, using the inherited functions from std::basic_iostream. To control the associated sequence, an instance of std::basic_stringbuf is used, which this page refers to as `sb`.

Definition at line 476 of file sstream.

5.387.2 Member Typedef Documentation

5.387.2.1 template<typename _CharT, typename _Traits> typedef ctype<_CharT> std::basic_ostream< _CharT, _Traits >::__ctype_type [inherited]

These are non-standard types.

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 71 of file ostream.

5.387.2.2 template<typename _CharT, typename _Traits> typedef ctype<_CharT> std::basic_istream< _CharT, _Traits >::__ctype_type [inherited]

These are non-standard types.

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 71 of file istream.

5.387.2.3 template<typename _CharT, typename _Traits> typedef num_get<_CharT, istreambuf_iterator<_CharT, _Traits> > std::basic_istream< _CharT, _Traits >::__num_get_type [inherited]

These are non-standard types.

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 70 of file istream.

5.387.2.4 template<typename _CharT, typename _Traits> typedef num_put<_CharT, ostreambuf_iterator<_CharT, _Traits> > std::basic_ostream< _CharT, _Traits >::__num_put_type [inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 70 of file ostream.

5.387.2.5 template<typename _CharT, typename _Traits> typedef num_put<_CharT, ostreambuf_iterator<_CharT, _Traits> > std::basic_ios< _CharT, _Traits >::__num_put_type [inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Reimplemented in std::basic_ostream< _CharT, _Traits >, std::basic_ostream< char, _Traits >, and std::basic_ostream< char >.

Definition at line 84 of file basic_ios.h.

5.387.2.6 template<typename _CharT , typename _Traits , typename _Alloc > typedef _CharT std::basic_stringstream< _CharT, _Traits, _Alloc >::char_type

These are standard types. They permit a standardized way of referring to names of (or names dependant on) the template parameters, which are specific to the implementation.

Reimplemented from std::basic_iostream< _CharT, _Traits >.

Definition at line 480 of file sstream.

5.387.2.7 typedef void(* std::ios_base::event_callback)(event, ios_base &, int) [inherited]

The type of an event callback function.

Parameters:

event One of the members of the event enum.

ios_base Reference to the ios_base object.

int The integer provided when the callback was registered.

Event callbacks are user defined functions that get called during several ios_base and basic_ios functions, specifically imbue(), copyfmt(), and ~ios().

Definition at line 444 of file ios_base.h.

5.387.2.8 typedef _Ios_Fmtflags std::ios_base::fmtflags [inherited]

This is a bitmask type. `_Ios_Fmtflags` is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type fmtflags are:

- boolalpha
- dec
- fixed
- hex
- internal
- left
- oct
- right
- scientific
- showbase
- showpoint
- showpos
- skipws
- unitbuf
- uppercase
- adjustfield
- basefield
- floatfield

Definition at line 263 of file ios_base.h.

5.387.2.9 template<typename _CharT , typename _Traits , typename _Alloc > typedef traits_type::int_type std::basic_stringstream< _CharT, _Traits, _Alloc >::int_type

These are non-standard types.

Reimplemented from std::basic_iostream< _CharT, _Traits >.

Definition at line 485 of file sstream.

5.387.2.10 typedef _Ios_Iostate std::ios_base::iostate [inherited]

This is a bitmask type. *_Ios_Iostate* is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type iostate are:

- badbit
- eofbit
- failbit
- goodbit

Definition at line 338 of file ios_base.h.

5.387.2.11 template<typename _CharT , typename _Traits , typename _Alloc > typedef traits_type::off_type std::basic_stringstream< _CharT, _Traits, _Alloc >::off_type

These are non-standard types.

Reimplemented from std::basic_iostream< _CharT, _Traits >.

Definition at line 487 of file sstream.

5.387.2.12 typedef _Ios_Openmode std::ios_base::openmode [inherited]

This is a bitmask type. *_Ios_Openmode* is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type openmode are:

- app
- ate
- binary
- in
- out
- trunc

Definition at line 369 of file ios_base.h.

5.387.2.13 template<typename _CharT , typename _Traits , typename _Alloc > typedef traits_type::pos_type std::basic_stringstream< _CharT, _Traits, _Alloc >::pos_type

These are non-standard types.

Reimplemented from std::basic_iostream< _CharT, _Traits >.

Definition at line 486 of file sstream.

5.387.2.14 typedef _Ios_Seekdir std::ios_base::seekdir [inherited]

This is an enumerated type. `_Ios_Seekdir` is implementation-defined. Defined values of type seekdir are:

- beg
- cur, equivalent to `SEEK_CUR` in the C standard library.
- end, equivalent to `SEEK_END` in the C standard library.

Definition at line 401 of file ios_base.h.

5.387.2.15 template<typename _CharT , typename _Traits , typename _Alloc > typedef _Traits std::basic_stringstream< _CharT, _Traits, _Alloc >::traits_type

These are non-standard types.

Reimplemented from std::basic_iostream< _CharT, _Traits >.

Definition at line 481 of file sstream.

5.387.3 Member Enumeration Documentation

5.387.3.1 enum std::ios_base::event [inherited]

The set of events that may be passed to an event callback. erase_event is used during ~ios() and copyfmt(). imbue_event is used during imbue(). copyfmt_event is used during copyfmt().

Definition at line 427 of file ios_base.h.

5.387.4 Constructor & Destructor Documentation

5.387.4.1 template<typename _CharT , typename _Traits , typename _Alloc > std::basic_stringstream< _CharT, _Traits, _Alloc >::basic_stringstream (ios_base::openmode *__m* = ios_base::out | ios_base::in) [inline, explicit]

Default constructor starts with an empty string buffer.

Parameters:

mode Whether the buffer can read, or write, or both.

Initializes `sb` using `mode`, and passes `&sb` to the base class initializer. Does not allocate any buffer.

That's a lie. We initialize the base class with NULL, because the string class does its own memory management.

Definition at line 510 of file sstream.

5.387.4.2 template<typename _CharT , typename _Traits , typename _Alloc > std::basic_stringstream< _CharT, _Traits, _Alloc >::basic_stringstream (const __string_type & *__str*, ios_base::openmode *__m* = ios_base::out | ios_base::in) [inline, explicit]

Starts with an existing string buffer.

Parameters:

str A string to copy as a starting buffer.

mode Whether the buffer can read, or write, or both.

Initializes `sb` using *str* and `mode`, and passes `&sb` to the base class initializer.

That's a lie. We initialize the base class with NULL, because the string class does its own memory management.

Definition at line 526 of file sstream.

5.387.4.3 template<typename _CharT , typename _Traits , typename _Alloc > std::basic_stringstream< _CharT, _Traits, _Alloc >::~basic_stringstream () [inline]

The destructor does nothing. The buffer is deallocated by the stringbuf object, not the formatting stream.

Definition at line 537 of file sstream.

5.387.5 Member Function Documentation

5.387.5.1 const locale& std::ios_base::_M_getloc () const [inline, inherited]

Locale access.

Returns:

A reference to the current locale.

Like getloc above, but returns a reference instead of generating a copy.

Definition at line 705 of file ios_base.h.

Referenced by std::money_get< _CharT, _InIter >::do_get(), std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_date(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_time(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::time_put< _CharT, _OutIter >::do_put(), std::num_put< _CharT, _OutIter >::do_put(), and std::time_put< _CharT, _OutIter >::put().

5.387.5.2 template<typename _CharT, typename _Traits> void std::basic_ostream< _CharT, _Traits >::_M_write (const char_type * __s, streamsize __n) [inline, inherited]

Simple insertion.

Parameters:

c The character to insert.

Returns:

*this

Tries to insert *c*.

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 287 of file ostream.

Referenced by std::basic_ostream< _CharT, _Traits >::write().

5.387.5.3 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::bad () const [inline, inherited]

Fast error checking.

Returns:

True if the badbit is set.

Note that other iostate flags may also be set.

Definition at line 201 of file basic_ios.h.

5.387.5.4 template<typename _CharT , typename _Traits > void std::basic_ios< _CharT, _Traits >::clear (iostate *__state* = goodbit) [inline, inherited]

[Re]sets the error state.

Parameters:

state The new state flag(s) to set.

See std::ios_base::iostate for the possible bit values. Most users will not need to pass an argument.

Definition at line 40 of file basic_ios.tcc.

Referenced by std::basic_ios< _CharT, _Traits >::rdbuf().

5.387.5.5 template<typename _CharT , typename _Traits > basic_ios< _CharT, _Traits > & std::basic_ios< _CharT, _Traits >::copyfmt (const basic_ios< _CharT, _Traits > & *__rhs*) [inline, inherited]

Copies fields of __rhs into this.

Parameters:

__rhs The source values for the copies.

Returns:

Reference to this object.

All fields of __rhs are copied into this object except that rdbuf() and rdstate() remain unchanged. All values in the pword and iword arrays are copied. Before copying, each callback is invoked with erase_event. After copying, each (new) callback is invoked with copyfmt_event. The final step is to copy exceptions().

Definition at line 62 of file basic_ios.tcc.

References std::basic_ios< _CharT, _Traits >::exceptions(), std::basic_ios< _CharT, _Traits >::fill(), std::ios_base::flags(), std::ios_base::getloc(), std::ios_base::precision(), std::basic_ios< _CharT, _Traits >::tie(), and std::ios_base::width().

5.387.5.6 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::eof () const [inline, inherited]

Fast error checking.

Returns:

True if the eofbit is set.

Note that other iostate flags may also be set.

Definition at line 180 of file basic_ios.h.

Referenced by std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_istream< _CharT, _Traits >::putback(), and std::basic_istream< _CharT, _Traits >::unget().

5.387.5.7 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::exceptions (iostate *__except*) [inline, inherited]

Throwing exceptions on errors.

Parameters:

except The new exceptions mask.

By default, error flags are set silently. You can set an exceptions mask for each stream; if a bit in the mask becomes set in the error flags, then an exception of type std::ios_base::failure is thrown.

If the error flag is already set when the exceptions mask is added, the exception is immediately thrown. Try running the following under GCC 3.1 or later:

```
#include <iostream>
#include <fstream>
#include <exception>

int main()
{
    std::set_terminate (__gnu_cxx::__verbose_terminate_handler);

    std::ifstream f ("/etc/motd");

    std::cerr << "Setting badbit\n";
    f.setstate (std::ios_base::badbit);

    std::cerr << "Setting exception mask\n";
    f.exceptions (std::ios_base::badbit);
}
```

Definition at line 247 of file basic_ios.h.

5.387.5.8 template<typename _CharT, typename _Traits> iostate std::basic_ios< _CharT, _Traits >::exceptions () const [inline, inherited]

Throwing exceptions on errors.

Returns:

The current exceptions mask.

This changes nothing in the stream. See the one-argument version of exceptions(iostate) for the meaning of the return value.

Definition at line 212 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.387.5.9 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::fail () const [inline, inherited]

Fast error checking.

Returns:

True if either the badbit or the failbit is set.

Checking the badbit in fail() is historical practice. Note that other iostate flags may also be set.

Definition at line 191 of file basic_ios.h.

Referenced by std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_ostream< _CharT, _Traits >::tellp(), and std::regex_traits< _Ch_type >::value().

5.387.5.10 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::fill (char_type *__ch*) [inline, inherited]

Sets a new *empty* character.

Parameters:

ch The new character.

Returns:

The previous fill character.

The fill character is used to fill out space when P+ characters have been requested (e.g., via setw), Q characters are actually used, and Q<P. It defaults to a space (' ') in the current locale.

Definition at line 380 of file basic_ios.h.

5.387.5.11 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::fill () const [inline, inherited]

Retrieves the *empty* character.

Returns:

The current fill character.

It defaults to a space (' ') in the current locale.

Definition at line 360 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.387.5.12 fmtflags std::ios_base::flags (fmtflags *__fmtfl*) [inline, inherited]

Setting new format flags all at once.

Parameters:

fmtfl The new flags to set.

Returns:

The previous format control flags.

This function overwrites all the format flags with *fmtfl*.

Definition at line 561 of file ios_base.h.

5.387.5.13 fmtflags std::ios_base::flags () const [inline, inherited]

Access to format flags.

Returns:

The format control flags for both input and output.

Definition at line 550 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::num_get< _CharT, _InIter >::do_get(), std::num_put< _CharT, _OutIter >::do_put(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator<<(), and std::operator>>().

5.387.5.14 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::flush () [inline, inherited]

Synchronizing the stream buffer.

Returns:

∗this

If `rdbuf()` is a null pointer, changes nothing.

Otherwise, calls `rdbuf()->pubsync()`, and if that returns -1, sets badbit.

Definition at line 211 of file ostream.tcc.

References std::ios_base::badbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

Referenced by std::flush().

5.387.5.15 template<typename _CharT, typename _Traits> streamsize std::basic_istream< _CharT, _Traits >::gcount () const [inline, inherited]

Character counting.

Returns:

The number of characters extracted by the previous unformatted input function dispatched for this stream.

Definition at line 249 of file istream.

5.387.5.16 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::get (__streambuf_type & *__sb*) [inline, inherited]

Extraction into another streambuf.

Parameters:

sb A streambuf in which to store data.

Returns:

∗this

Returns `get`(sb,widen('\n')).

Definition at line 366 of file istream.

5.387.5.17 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::get (__streambuf_type & *__sb*, char_type *__delim*) [inline, inherited]

Extraction into another streambuf.

Parameters:

sb A streambuf in which to store data.

delim A "stop" character.

Returns:

∗this

Characters are extracted and inserted into *sb* until one of the following happens:

- the input sequence reaches EOF
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted)
- the next character equals *delim* (in this case, the character is not extracted)
- an exception occurs (and in this case is caught)

If no characters are stored, failbit is set in the stream's error state.

Definition at line 356 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), std::basic_streambuf< _CharT, _Traits >::snextc(), and std::basic_streambuf< _CharT, _Traits >::sputc().

5.387.5.18 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::get (char_type * __s, streamsize __n) [inline, inherited]

Simple multiple-character extraction.

Parameters:

s Pointer to an array.

n Maximum number of characters to store in *s*.

Returns:

*this

Returns `get`(s,n,widen('\n')).

Definition at line 333 of file istream.

5.387.5.19 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::get (char_type * __s, streamsize __n, char_type __delim) [inline, inherited]

Simple multiple-character extraction.

Parameters:

s Pointer to an array.

n Maximum number of characters to store in *s*.

delim A "stop" character.

Returns:

*this

Characters are extracted and stored into *s* until one of the following happens:

- `n-1` characters are stored
- the input sequence reaches EOF
- the next character equals *delim*, in which case the character is not extracted

If no characters are stored, failbit is set in the stream's error state.

In any case, a null character is stored into the next location in the array.

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 309 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), and std::basic_streambuf< _CharT, _Traits >::snextc().

5.387.5.20 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::get (char_type & __c) [inline, inherited]

Simple extraction.

Parameters:

c The character in which to store data.

Returns:

∗this

Tries to extract a character and store it in *c*. If none are available, sets failbit and returns traits::eof().

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 272 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.387.5.21 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits >::int_type std::basic_istream< _CharT, _Traits >::get (void) [inline, inherited]

Simple extraction.

Returns:

A character, or eof().

Tries to extract a character. If none are available, sets failbit and returns traits::eof().

Definition at line 236 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.387.5.22 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::getline (char_type * __s, streamsize __n) [inline, inherited]

String extraction.

Parameters:

s A character array in which to store the data.

n Maximum number of characters to extract.

Returns:

*this

Returns `getline`(s,n,widen('\n')).

Definition at line 406 of file istream.

Referenced by std::basic_istream< char >::getline().

5.387.5.23 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::getline (char_type * __s, streamsize __n, char_type __delim) [inline, inherited]

String extraction.

Parameters:

s A character array in which to store the data.

n Maximum number of characters to extract.

delim A "stop" character.

Returns:

*this

Extracts and stores characters into *s* until one of the following happens. Note that these criteria are required to be tested in the order listed here, to allow an input line to exactly fill the *s* array without setting failbit.

1. the input sequence reaches end-of-file, in which case eofbit is set in the stream error state
2. the next character equals `delim`, in which case the character is extracted (and therefore counted in `gcount()`) but not stored
3. `n-1` characters are stored, in which case failbit is set in the stream error state

If no characters are extracted, failbit is set. (An empty line of input should therefore not cause failbit to be set.)

In any case, a null character is stored in the next location in the array.

Definition at line 400 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_streambuf< _CharT, _Traits >::sbumpc(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), and std::basic_streambuf< _CharT, _Traits >::snextc().

5.387.5.24 locale std::ios_base::getloc () const [inline, inherited]

Locale access.

Returns:

A copy of the current locale.

If `imbue(loc)` has previously been called, then this function returns `loc`. Otherwise, it returns a copy of `std::locale()`, the global C++ locale.

Definition at line 694 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::money_put< _CharT, _OutIter >::do_put(), std::basic_ios< _CharT, _Traits >::imbue(), std::operator>>(), and std::ws().

5.387.5.25 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::good () const [inline, inherited]

Fast error checking.

Returns:

True if no error flags are set.

A wrapper around rdstate.

Definition at line 170 of file basic_ios.h.

5.387.5.26 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::ignore (streamsize __n, int_type __delim) [inline, inherited]

Extraction into another streambuf.

Parameters:

sb A streambuf in which to store data.

Returns:

∗this

Returns `get`(sb,widen('\n')).

Definition at line 555 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_streambuf< _CharT, _Traits >::sbumpc(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), and std::basic_streambuf< _CharT, _Traits >::snextc().

5.387.5.27 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::ignore (streamsize __n) [inline, inherited]

Extraction into another streambuf.

Parameters:

sb A streambuf in which to store data.

Returns:

∗this

Returns `get`(sb,widen('\n')).

Definition at line 493 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), std::basic_streambuf< _CharT, _Traits >::sgetc(), and std::basic_streambuf< _CharT, _Traits >::snextc().

5.387.5.28 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::ignore (void) [inline, inherited]

Discarding characters.

Parameters:

n Number of characters to discard.

delim A "stop" character.

Returns:

*this

Extracts characters and throws them away until one of the following happens:

- if *n* != `std::numeric_limits<int>::max()`, *n* characters are extracted
- the input sequence reaches end-of-file
- the next character equals *delim* (in this case, the character is extracted); note that this condition will never occur if *delim* equals `traits::eof()`.

NB: Provide three overloads, instead of the single function (with defaults) mandated by the Standard: this leads to a better performing implementation, while still conforming to the Standard.

Definition at line 460 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_streambuf< _CharT, _Traits >::sbumpc(), and std::basic_ios< _CharT, _Traits >::setstate().

5.387.5.29 template<typename _CharT , typename _Traits > locale std::basic_ios< _CharT, _Traits >::imbue (const locale & *__loc*) [inline, inherited]

Moves to a new locale.

Parameters:

loc The new locale.

Returns:

The previous locale.

Calls `ios_base::imbue(loc)`, and if a stream buffer is associated with this stream, calls that buffer's `pubimbue(loc)`.

Additional l10n notes are at `http://gcc.gnu.org/onlinedocs/libstdc++/manual/localization.html`

Reimplemented from std::ios_base.

Definition at line 113 of file basic_ios.tcc.

References std::ios_base::getloc(), and std::basic_ios< _CharT, _Traits >::rdbuf().

Referenced by std::operator<<().

5.387.5.30 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::init (basic_streambuf< _CharT, _Traits > * *__sb*) [inline, protected, inherited]

All setup is performed here. This is called from the public constructor. It is not virtual and cannot be redefined.

Definition at line 125 of file basic_ios.tcc.

References std::ios_base::badbit, and std::ios_base::goodbit.

5.387.5.31 long& std::ios_base::iword (int *__ix*) [inline, inherited]

Access to integer array.

Parameters:

__ix Index into the array.

Returns:

A reference to an integer associated with the index.

The iword function provides access to an array of integers that can be used for any purpose. The array grows as required to hold the supplied index. All integers in the array are initialized to 0.

The implementation reserves several indices. You should use xalloc to obtain an index that is safe to use. Also note that since the array can grow dynamically, it is not safe to hold onto the reference.

Definition at line 740 of file ios_base.h.

5.387.5.32 template<typename _CharT, typename _Traits> char std::basic_ios< _CharT, _Traits >::narrow (char_type __c, char __dfault) const [inline, inherited]

Squeezes characters.

Parameters:

c The character to narrow.

dfault The character to narrow.

Returns:

The narrowed character.

Maps a character of `char_type` to a character of `char`, if possible.
Returns the result of

```
std::use_facet<ctype<char_type> >(getloc()).narrow(c,dfault)
```

Additional l10n notes are at http://gcc.gnu.org/onlinedocs/libstdc++/manual/localizati

Definition at line 420 of file basic_ios.h.

5.387.5.33 template<typename _CharT, typename _Traits> std::basic_ios< _CharT, _Traits >::operator void * () const [inline, inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Definition at line 111 of file basic_ios.h.

5.387.5.34 template<typename _CharT, typename _Traits> bool std::basic_ios< _CharT, _Traits >::operator! () const [inline, inherited]

The quick-and-easy status check. This allows you to write constructs such as `if (!a_stream) ...` and `while (a_stream) ...`

Definition at line 115 of file basic_ios.h.

5.387.5.35 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::operator<< (__streambuf_type * *__sb*) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 120 of file ostream.tcc.

References std::ios_base::badbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.387.5.36 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (const void * *__p*) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 225 of file ostream.

5.387.5.37 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (long double __f) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 221 of file ostream.

5.387.5.38 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (float __f) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 213 of file ostream.

5.387.5.39 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (double __f) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,

- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 209 of file ostream.

5.387.5.40 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (unsigned long long __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 204 of file ostream.

5.387.5.41 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (long long __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 200 of file ostream.

5.387.5.42 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (unsigned int __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 191 of file ostream.

5.387.5.43 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::operator<< (int __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 106 of file ostream.tcc.

References std::ios_base::basefield, std::ios_base::flags(), std::ios_base::hex, and std::ios_base::oct.

5.387.5.44 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (unsigned short __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 180 of file ostream.

5.387.5.45 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::operator<< (short __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 92 of file ostream.tcc.

References std::ios_base::basefield, std::ios_base::flags(), std::ios_base::hex, and std::ios_base::oct.

5.387.5.46 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (bool __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 173 of file ostream.

5.387.5.47 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (unsigned long __n) [inline, inherited]

Extracting from another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from *sb* and inserted into `*this` until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output sequence fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs while getting a character from *sb*, which sets failbit in the error state

If the function inserts no characters, failbit is set.

Definition at line 169 of file ostream.

5.387.5.48 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (long __n) [inline, inherited]

Basic arithmetic inserters.

Parameters:

A variable of builtin type.

Returns:

`*this` if successful

These functions use the stream's current locale (specifically, the `num_get` facet) to perform numeric formatting.

Definition at line 165 of file ostream.

5.387.5.49 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (ios_base &(*)(ios_base &) __pf) [inline, inherited]

Interface for manipulators. Manipulators such as `std::endl` and `std::hex` use these functions in constructs like "std::cout << std::endl". For more information, see the iomanip header.

Definition at line 127 of file ostream.

5.387.5.50 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (__ios_type &(*)(__ios_type &) __pf) [inline, inherited]

Interface for manipulators. Manipulators such as `std::endl` and `std::hex` use these functions in constructs like "std::cout << std::endl". For more information, see the iomanip header.

Definition at line 117 of file ostream.

5.387.5.51 template<typename _CharT, typename _Traits> __ostream_type& std::basic_ostream< _CharT, _Traits >::operator<< (__ostream_type &(*)(__ostream_type &) *__pf*) [inline, inherited]

Interface for manipulators. Manipulators such as `std::endl` and `std::hex` use these functions in constructs like "std::cout << std::endl". For more information, see the iomanip header.

Definition at line 108 of file ostream.

5.387.5.52 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::operator>> (__streambuf_type * *__sb*) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 204 of file istream.tcc.

References std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.387.5.53 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (void *& __p) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 215 of file istream.

5.387.5.54 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (long double & __f) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,

- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 211 of file istream.

5.387.5.55 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (double & __f) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 207 of file istream.

5.387.5.56 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (float & __f) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 203 of file istream.

5.387.5.57 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (unsigned long long & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 198 of file istream.

5.387.5.58 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (long long & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 194 of file istream.

5.387.5.59 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (unsigned long & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,

- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 189 of file istream.

5.387.5.60 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (long & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 185 of file istream.

5.387.5.61 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (unsigned int & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 181 of file istream.

5.387.5.62 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::operator>> (int & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 159 of file istream.tcc.

References std::ios_base::badbit, std::ios_base::failbit, std::num_get< _CharT, _InIter >::get(), std::ios_base::goodbit, and std::basic_ios< _CharT, _Traits >::setstate().

5.387.5.63 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (unsigned short & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,
- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 174 of file istream.

5.387.5.64 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::operator>> (short & __n) [inline, inherited]

Extracting into another streambuf.

Parameters:

sb A pointer to a streambuf

This function behaves like one of the basic arithmetic extractors, in that it also constructs a sentry object and has the same error handling behavior.

If *sb* is NULL, the stream will set failbit in its error state.

Characters are extracted from this stream and inserted into the *sb* streambuf until one of the following occurs:

- the input stream reaches end-of-file,

- insertion into the output buffer fails (in this case, the character that would have been inserted is not extracted), or
- an exception occurs (and in this case is caught)

If the function inserts no characters, failbit is set.

Definition at line 114 of file istream.tcc.

References std::ios_base::badbit, std::ios_base::failbit, std::num_get< _CharT, _InIter >::get(), std::ios_base::goodbit, and std::basic_ios< _CharT, _Traits >::setstate().

5.387.5.65 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (bool & __n) [inline, inherited]

Basic arithmetic extractors.

Parameters:

A variable of builtin type.

Returns:

`*this` if successful

These functions use the stream's current locale (specifically, the `num_get` facet) to parse the input data.

Definition at line 167 of file istream.

5.387.5.66 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (ios_base &(*)(ios_base &) __pf) [inline, inherited]

Interface for manipulators. Manipulators such as `std::ws` and `std::dec` use these functions in constructs like `std::cin >> std::ws`. For more information, see the iomanip header.

Definition at line 131 of file istream.

5.387.5.67 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (__ios_type &(*)(__ios_type &) __pf) [inline, inherited]

Interface for manipulators. Manipulators such as `std::ws` and `std::dec` use these functions in constructs like `std::cin >> std::ws`. For more information, see the iomanip header.

Definition at line 124 of file istream.

5.387.5.68 template<typename _CharT, typename _Traits> __istream_type& std::basic_istream< _CharT, _Traits >::operator>> (__istream_type &(*)(__istream_type &) *__pf*) [inline, inherited]

Interface for manipulators. Manipulators such as `std::ws` and `std::dec` use these functions in constructs like `std::cin >> std::ws`. For more information, see the iomanip header.

Definition at line 120 of file istream.

5.387.5.69 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits >::int_type std::basic_istream< _CharT, _Traits >::peek (void) [inline, inherited]

Looking ahead in the stream.

Returns:

The next character, or eof().

If, after constructing the sentry object, `good()` is false, returns `traits::eof()`. Otherwise reads but does not extract the next input character.

Definition at line 620 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::eofbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.387.5.70 streamsize std::ios_base::precision (streamsize *__prec*) [inline, inherited]

Changing flags.

Parameters:

prec The new precision value.

Returns:

The previous value of precision().

Definition at line 629 of file ios_base.h.

5.387.5.71 streamsize std::ios_base::precision () const [inline, inherited]

Flags access.

Returns:

The precision to generate on certain output operations.

Be careful if you try to give a definition of *precision* here; see DR 189.

Definition at line 620 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), and std::operator<<().

5.387.5.72 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::put (char_type __c) [inline, inherited]

Simple insertion.

Parameters:

c The character to insert.

Returns:

∗this

Tries to insert c.

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 149 of file ostream.tcc.

References std::ios_base::badbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

Referenced by std::endl(), and std::ends().

5.387.5.73 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::putback (char_type __c) [inline, inherited]

Unextracting a single character.

Parameters:

c The character to push back into the input stream.

Returns:

∗this

If `rdbuf()` is not null, calls `rdbuf()->sputbackc(c)`.

If `rdbuf()` is null or if `sputbackc()` fails, sets badbit in the error state.

Note:

Since no characters are extracted, the next call to `gcount()` will return 0, as required by DR 60.

Definition at line 711 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), and std::basic_streambuf< _CharT, _Traits >::sputbackc().

Referenced by std::operator>>().

5.387.5.74 void∗& std::ios_base::pword (int *__ix*) [inline, inherited]

Access to void pointer array.

Parameters:

__ix Index into the array.

Returns:

A reference to a void∗ associated with the index.

The pword function provides access to an array of pointers that can be used for any purpose. The array grows as required to hold the supplied index. All pointers in the array are initialized to 0.

The implementation reserves several indices. You should use xalloc to obtain an index that is safe to use. Also note that since the array can grow dynamically, it is not safe to hold onto the reference.

Definition at line 761 of file ios_base.h.

5.387.5.75 template<typename _CharT, typename _Traits> basic_streambuf< _CharT, _Traits > * std::basic_ios< _CharT, _Traits >::rdbuf (basic_streambuf< _CharT, _Traits > * *__sb*) [inline, inherited]

Changing the underlying buffer.

Parameters:

sb The new stream buffer.

Returns:

The previous stream buffer.

Associates a new buffer with the current stream, and clears the error state.

Due to historical accidents which the LWG refuses to correct, the I/O library suffers from a design error: this function is hidden in derived classes by overrides of the zero-argument `rdbuf()`, which is non-virtual for hysterical raisins. As a result, you must use explicit qualifications to access this function via any derived class. For example:

```
std::fstream     foo;         // or some other derived type
std::streambuf*  p = .....;

foo.ios::rdbuf(p);            // ios == basic_ios<char>
```

Definition at line 52 of file basic_ios.tcc.

References std::basic_ios< _CharT, _Traits >::clear().

5.387.5.76 template<typename _CharT , typename _Traits , typename _Alloc > __stringbuf_type* std::basic_stringstream< _CharT, _Traits, _Alloc >::rdbuf () const [inline]

Accessing the underlying buffer.

Returns:

The current basic_stringbuf buffer.

This hides both signatures of std::basic_ios::rdbuf().

Reimplemented from std::basic_ios< _CharT, _Traits >.

Definition at line 548 of file sstream.

5.387.5.77 template<typename _CharT, typename _Traits> iostate std::basic_ios< _CharT, _Traits >::rdstate () const [inline, inherited]

Returns the error state of the stream buffer.

Returns:

A bit pattern (well, isn't everything?)

See std::ios_base::iostate for the possible bit values. Most users will call one of the interpreting wrappers, e.g., good().

Definition at line 127 of file basic_ios.h.

5.387.5.78 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::read (char_type * __s, streamsize __n) [inline, inherited]

Extraction without delimiters.

Parameters:

s A character array.

n Maximum number of characters to store.

Returns:

*this

If the stream state is `good()`, extracts characters and stores them into *s* until one of the following happens:

- *n* characters are stored
- the input sequence reaches end-of-file, in which case the error state is set to `failbit|eofbit`.

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 650 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.387.5.79 template<typename _CharT , typename _Traits > streamsize std::basic_istream< _CharT, _Traits >::readsome (char_type * __s, streamsize __n) [inline, inherited]

Extraction until the buffer is exhausted, but no more.

Parameters:

s A character array.

n Maximum number of characters to store.

Returns:

The number of characters extracted.

Extracts characters and stores them into *s* depending on the number of characters remaining in the streambuf's buffer, `rdbuf()->in_avail()`, called `A` here:

- if `A == -1`, sets eofbit and extracts no characters
- if `A == 0`, extracts no characters
- if `A > 0`, extracts `min(A,n)`

The goal is to empty the current buffer, and to not request any more from the external input sequence controlled by the streambuf.

Definition at line 679 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::ios_base::eofbit, std::ios_base::goodbit, std::min(), std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.387.5.80 void std::ios_base::register_callback (event_callback __fn, int __index) [inherited]

Add the callback __fn with parameter __index.

Parameters:

__fn The function to add.

__index The integer to pass to the function when invoked.

Registers a function as an event callback with an integer parameter to be passed to the function when invoked. Multiple copies of the function are allowed. If there are multiple callbacks, they are invoked in the order they were registered.

5.387.5.81 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::seekg (off_type *__off*, ios_base::seekdir *__dir*) [inline, inherited]

Changing the current read position.

Parameters:

off A file offset object.

dir The direction in which to seek.

Returns:

*this

If `fail()` is not true, calls `rdbuf()->pubseekoff(off,dir)`. If that function fails, sets failbit.

Note:

This function does not count the number of characters extracted, if any, and therefore does not affect the next call to `gcount()`.

Definition at line 870 of file istream.tcc.

References std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::failbit, std::ios_base::goodbit, std::ios_base::in, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.387.5.82 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::seekg (pos_type *__pos*) [inline, inherited]

Changing the current read position.

Parameters:

pos A file position object.

Returns:

*this

If `fail()` is not true, calls `rdbuf()->pubseekpos(pos)`. If that function fails, sets failbit.

Note:

This function does not count the number of characters extracted, if any, and therefore does not affect the next call to `gcount()`.

Definition at line 837 of file istream.tcc.

References std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::failbit, std::ios_base::goodbit, std::ios_base::in, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.387.5.83 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::seekp (off_type *__off*, ios_base::seekdir *__dir*) [inline, inherited]

Changing the current write position.

Parameters:

off A file offset object.

dir The direction in which to seek.

Returns:

*this

If `fail()` is not true, calls `rdbuf()->pubseekoff(off,dir)`. If that function fails, sets failbit.

Definition at line 290 of file ostream.tcc.

References std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::failbit, std::ios_base::goodbit, std::ios_base::out, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.387.5.84 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::seekp (pos_type *__pos*) [inline, inherited]

Changing the current write position.

Parameters:

pos A file position object.

Returns:

*this

If `fail()` is not true, calls `rdbuf()->pubseekpos(pos)`. If that function fails, sets failbit.

Definition at line 258 of file ostream.tcc.

References std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::failbit, std::ios_base::goodbit, std::ios_base::out, std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.387.5.85 fmtflags std::ios_base::setf (fmtflags *__fmtfl*, fmtflags *__mask*) [inline, inherited]

Setting new format flags.

Parameters:

fmtfl Additional flags to set.

mask The flags mask for *fmtfl*.

Returns:

The previous format control flags.

This function clears *mask* in the format flags, then sets *fmtfl* & *mask*. An example mask is `ios_base::adjustfield`.

Definition at line 594 of file ios_base.h.

5.387.5.86 fmtflags std::ios_base::setf (fmtflags *__fmtfl*) [inline, inherited]

Setting new format flags.

Parameters:

fmtfl Additional flags to set.

Returns:

The previous format control flags.

This function sets additional flags in format control. Flags that were previously set remain set.

Definition at line 577 of file ios_base.h.

Referenced by std::boolalpha(), std::dec(), std::fixed(), std::hex(), std::internal(), std::left(), std::oct(), std::right(), std::scientific(), std::showbase(), std::showpoint(), std::showpos(), std::skipws(), std::unitbuf(), and std::uppercase().

5.387.5.87 template<typename _CharT, typename _Traits> void std::basic_ios< _CharT, _Traits >::setstate (iostate __*state*) [inline, inherited]

Sets additional flags in the error state.

Parameters:

state The additional state flag(s) to set.

See std::ios_base::iostate for the possible bit values.

Definition at line 147 of file basic_ios.h.

Referenced by std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::basic_istream< _CharT, _Traits >::operator>>(), std::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), std::basic_istream< _CharT, _Traits >::unget(), and std::ws().

5.387.5.88 template<typename _CharT , typename _Traits , typename _Alloc > void std::basic_stringstream< _CharT, _Traits, _Alloc >::str (const __string_type & __*s*) [inline]

Setting a new buffer.

Parameters:

s The string to use as a new sequence.

Calls `rdbuf()->str(s)`.

Definition at line 566 of file sstream.

5.387.5.89 template<typename _CharT , typename _Traits , typename _Alloc > __string_type std::basic_stringstream< _CharT, _Traits, _Alloc >::str () const [inline]

Copying out the string buffer.

Returns:

`rdbuf()->str()`

Definition at line 556 of file sstream.

5.387.5.90 template<typename _CharT , typename _Traits > int std::basic_istream< _CharT, _Traits >::sync (void) [inline, inherited]

Synchronizing the stream buffer.

Returns:

0 on success, -1 on failure

If `rdbuf()` is a null pointer, returns -1.

Otherwise, calls `rdbuf()->pubsync()`, and if that returns -1, sets badbit and returns -1.

Otherwise, returns 0.

Note:

This function does not count the number of characters extracted, if any, and therefore does not affect the next call to `gcount()`.

Definition at line 777 of file istream.tcc.

References std::ios_base::badbit, std::ios_base::goodbit, std::basic_streambuf< _CharT, _Traits >::pubsync(), std::basic_ios< _CharT, _Traits >::rdbuf(), and std::basic_ios< _CharT, _Traits >::setstate().

5.387.5.91 static bool std::ios_base::sync_with_stdio (bool *__sync* = true) [static, inherited]

Interaction with the standard C I/O objects.

Parameters:

sync Whether to synchronize or not.

Returns:

True if the standard streams were previously synchronized.

The synchronization referred to is *only* that between the standard C facilities (e.g., stdout) and the standard C++ objects (e.g., cout). User-declared streams are unaffected. See http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch28s02.html

5.387.5.92 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits >::pos_type std::basic_istream< _CharT, _Traits >::tellg (void) [inline, inherited]

Getting the current read position.

Returns:

A file position object.

If `fail()` is not false, returns `pos_type`(-1) to indicate failure. Otherwise returns `rdbuf()->pubseekoff(0,cur,in)`.

Note:

This function does not count the number of characters extracted, if any, and therefore does not affect the next call to `gcount()`.

Definition at line 813 of file istream.tcc.

References std::ios_base::badbit, std::ios_base::cur, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::in, and std::basic_ios< _CharT, _Traits >::rdbuf().

5.387.5.93 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits >::pos_type std::basic_ostream< _CharT, _Traits >::tellp () [inline, inherited]

Getting the current write position.

Returns:

A file position object.

If `fail()` is not false, returns `pos_type`(-1) to indicate failure. Otherwise returns `rdbuf()->pubseekoff(0,cur,out)`.

Definition at line 237 of file ostream.tcc.

References std::ios_base::badbit, std::ios_base::cur, std::basic_ios< _CharT, _Traits >::fail(), std::ios_base::out, and std::basic_ios< _CharT, _Traits >::rdbuf().

5.387.5.94 template<typename _CharT, typename _Traits> basic_ostream<_CharT, _Traits>* std::basic_ios< _CharT, _Traits >::tie (basic_ostream< _CharT, _Traits > * *__tiestr*) [inline, inherited]

Ties this stream to an output stream.

Parameters:

tiestr The output stream.

Returns:

The previously tied output stream, or NULL if the stream was not tied.

This sets up a new tie; see tie() for more.

Definition at line 297 of file basic_ios.h.

5.387.5.95 template<typename _CharT, typename _Traits> basic_ostream<_CharT, _Traits>* std::basic_ios< _CharT, _Traits >::tie () const [inline, inherited]

Fetches the current *tied* stream.

Returns:

A pointer to the tied stream, or NULL if the stream is not tied.

A stream may be *tied* (or synchronized) to a second output stream. When this stream performs any I/O, the tied stream is first flushed. For example, `std::cin` is tied to `std::cout`.

Definition at line 285 of file basic_ios.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt().

5.387.5.96 template<typename _CharT , typename _Traits > basic_istream< _CharT, _Traits > & std::basic_istream< _CharT, _Traits >::unget (void) [inline, inherited]

Unextracting the previous character.

Returns:

*this

If `rdbuf()` is not null, calls `rdbuf()->sungetc(c)`.

If `rdbuf()` is null or if `sungetc()` fails, sets badbit in the error state.

Note:

Since no characters are extracted, the next call to `gcount()` will return 0, as required by DR 60.

Definition at line 744 of file istream.tcc.

References std::basic_istream< _CharT, _Traits >::_M_gcount, std::ios_base::badbit, std::basic_ios< _CharT, _Traits >::eof(), std::ios_base::goodbit, std::basic_ios< _CharT, _Traits >::rdbuf(), std::basic_ios< _CharT, _Traits >::setstate(), and std::basic_streambuf< _CharT, _Traits >::sungetc().

5.387.5.97 void std::ios_base::unsetf (fmtflags *__mask*) [inline, inherited]

Clearing format flags.

Parameters:

mask The flags to unset.

This function clears *mask* in the format flags.

Definition at line 609 of file ios_base.h.

Referenced by std::noboolalpha(), std::noshowbase(), std::noshowpoint(), std::noshowpos(), std::noskipws(), std::nounitbuf(), and std::nouppercase().

5.387.5.98 template<typename _CharT, typename _Traits> char_type std::basic_ios< _CharT, _Traits >::widen (char *__c*) const [inline, inherited]

Widens characters.

Parameters:

c The character to widen.

Returns:

The widened character.

Maps a character of `char` to a character of `char_type`.
Returns the result of

```
std::use_facet<ctype<char_type> >(getloc()).widen(c)
```

Additional l10n notes are at http://gcc.gnu.org/onlinedocs/libstdc++/manual/localizati

Definition at line 439 of file basic_ios.h.

Referenced by std::endl(), std::getline(), and std::operator>>().

5.387.5.99 streamsize std::ios_base::width (streamsize __*wide*) [inline, inherited]

Changing flags.

Parameters:

wide The new width value.

Returns:

The previous value of width().

Definition at line 652 of file ios_base.h.

5.387.5.100 streamsize std::ios_base::width () const [inline, inherited]

Flags access.

Returns:

The minimum field width to generate on output operations.

Minimum field width refers to the number of characters.

Definition at line 643 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::num_put< _CharT, _OutIter >::do_put(), and std::operator>>().

5.387.5.101 template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & std::basic_ostream< _CharT, _Traits >::write (const char_type * __*s*, streamsize __*n*) [inline, inherited]

Character string insertion.

Parameters:

s The array to insert.

n Maximum number of characters to insert.

Returns:

*this

Characters are copied from *s* and inserted into the stream until one of the following happens:

- *n* characters are inserted
- inserting into the output sequence fails (in this case, badbit will be set in the stream's error state)

Note:

This function is not overloaded on signed char and unsigned char.

Definition at line 183 of file ostream.tcc.

References std::basic_ostream< _CharT, _Traits >::_M_write(), and std::ios_base::badbit.

5.387.5.102 static int std::ios_base::xalloc () throw () [static, inherited]

Access to unique indices.

Returns:

An integer different from all previous calls.

This function returns a unique integer every time it is called. It can be used for any purpose, but is primarily intended to be a unique index for the iword and pword functions. The expectation is that an application calls xalloc in order to obtain an index in the iword and pword arrays that can be used without fear of conflict.

The implementation maintains a static variable that is incremented and returned on each invocation. xalloc is guaranteed to return an index that is safe to use in the iword and pword arrays.

5.387.6 Member Data Documentation

5.387.6.1 template<typename _CharT, typename _Traits> streamsize std::basic_istream< _CharT, _Traits >::_M_gcount [protected, inherited]

The number of characters extracted in the previous unformatted function; see gcount().

Definition at line 79 of file istream.

Referenced by std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(),

std::basic_istream< _CharT, _Traits >::peek(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), and std::basic_istream< _CharT, _Traits >::unget().

5.387.6.2 const fmtflags std::ios_base::adjustfield [static, inherited]

A mask of left|right|internal. Useful for the 2-arg form of `setf`.

Definition at line 318 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

5.387.6.3 const openmode std::ios_base::app [static, inherited]

Seek to end before each write.

Definition at line 372 of file ios_base.h.

5.387.6.4 const openmode std::ios_base::ate [static, inherited]

Open and seek to end immediately after opening.

Definition at line 375 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::open().

5.387.6.5 const iostate std::ios_base::badbit [static, inherited]

Indicates a loss of integrity in an input or output sequence (such as an irrecoverable read error from a file).

Definition at line 342 of file ios_base.h.

Referenced by std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ios< _CharT, _Traits >::init(), std::operator<<(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_ostream< _CharT, _Traits >::tellp(), std::basic_istream< _CharT, _Traits >::unget(), and std::basic_ostream< _CharT, _Traits >::write().

5.387.6.6 const fmtflags std::ios_base::basefield [static, inherited]

A mask of dec|oct|hex. Useful for the 2-arg form of `setf`.

Definition at line 321 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), and std::basic_ostream< _CharT, _Traits >::operator<<().

5.387.6.7 const seekdir std::ios_base::beg [static, inherited]

Request a seek relative to the beginning of the stream.

Definition at line 404 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::seekpos().

5.387.6.8 const openmode std::ios_base::binary [static, inherited]

Perform input and output in binary mode (as opposed to text mode). This is probably not what you think it is; see http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch27s02.html.

Definition at line 380 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::showmanyc().

5.387.6.9 const fmtflags std::ios_base::boolalpha [static, inherited]

Insert/extract `bool` in alphabetic rather than numeric format.

Definition at line 266 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), and std::num_put< _CharT, _OutIter >::do_put().

5.387.6.10 const seekdir std::ios_base::cur [static, inherited]

Request a seek relative to the current position within the sequence.

Definition at line 407 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_istream< _CharT, _Traits >::tellg(), and std::basic_ostream< _CharT, _Traits >::tellp().

5.387.6.11 const fmtflags std::ios_base::dec [static, inherited]

Converts integer input or generates integer output in decimal base.

Definition at line 269 of file ios_base.h.

5.387.6.12 const seekdir std::ios_base::end [static, inherited]

Request a seek relative to the current end of the sequence.

Definition at line 410 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::open(), and std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff().

5.387.6.13 const iostate std::ios_base::eofbit [static, inherited]

Indicates that an input operation reached the end of an input sequence.

Definition at line 345 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_date(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_time(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), and std::ws().

5.387.6.14 const iostate std::ios_base::failbit [static, inherited]

Indicates that an input operation failed to read the expected characters, or that an output operation failed to generate the desired characters.

Definition at line 350 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::basic_istream< _CharT, _Traits >::operator>>(), std::operator>>(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::seekg(), and std::basic_ostream< _CharT, _Traits >::seekp().

5.387.6.15 const fmtflags std::ios_base::fixed [static, inherited]

Generate floating-point output in fixed-point notation.

Definition at line 272 of file ios_base.h.

5.387.6.16 const fmtflags std::ios_base::floatfield [static, inherited]

A mask of scientific|fixed. Useful for the 2-arg form of `setf`.

Definition at line 324 of file ios_base.h.

5.387.6.17 const iostate std::ios_base::goodbit [static, inherited]

Indicates all is well.

Definition at line 353 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ios< _CharT, _Traits >::init(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), and std::basic_istream< _CharT, _Traits >::unget().

5.387.6.18 const fmtflags std::ios_base::hex [static, inherited]

Converts integer input or generates integer output in hexadecimal base.

Definition at line 275 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::num_put< _CharT, _OutIter >::do_put(), and std::basic_ostream< _CharT, _Traits >::operator<<().

5.387.6.19 const openmode std::ios_base::in [static, inherited]

Open for input. Default for `ifstream` and fstream.

Definition at line 383 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_-istream< _CharT, _Traits >::seekg(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_-filebuf< _CharT, _Traits >::showmanyc(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::underflow(), std::basic_-filebuf< _CharT, _Traits >::underflow(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.387.6.20 const fmtflags std::ios_base::internal [static, inherited]

Adds fill characters at a designated internal point in certain generated output, or identical to `right` if no such point is designated.

Definition at line 280 of file ios_base.h.

5.387.6.21 const fmtflags std::ios_base::left [static, inherited]

Adds fill characters on the right (final positions) of certain generated output. (I.e., the thing you print is flush left.).

Definition at line 284 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

5.387.6.22 const fmtflags std::ios_base::oct [static, inherited]

Converts integer input or generates integer output in octal base.

Definition at line 287 of file ios_base.h.

Referenced by std::basic_ostream< _CharT, _Traits >::operator<<().

5.387.6.23 const openmode std::ios_base::out [static, inherited]

Open for output. Default for `ofstream` and fstream.

Definition at line 386 of file ios_base.h.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_ostream< _-CharT, _Traits >::tellp(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.387.6.24 const fmtflags std::ios_base::right [static, inherited]

Adds fill characters on the left (initial positions) of certain generated output. (I.e., the thing you print is flush right.).

Definition at line 291 of file ios_base.h.

5.387.6.25 const fmtflags std::ios_base::scientific [static, inherited]

Generates floating-point output in scientific notation.

Definition at line 294 of file ios_base.h.

5.387.6.26 const fmtflags std::ios_base::showbase [static, inherited]

Generates a prefix indicating the numeric base of generated integer output.

Definition at line 298 of file ios_base.h.

5.387.6.27 const fmtflags std::ios_base::showpoint [static, inherited]

Generates a decimal-point character unconditionally in generated floating-point output.

Definition at line 302 of file ios_base.h.

5.387.6.28 const fmtflags std::ios_base::showpos [static, inherited]

Generates a + sign in non-negative generated numeric output.

Definition at line 305 of file ios_base.h.

5.387.6.29 const fmtflags std::ios_base::skipws [static, inherited]

Skips leading white space before certain input operations.

Definition at line 308 of file ios_base.h.

5.387.6.30 const openmode std::ios_base::trunc [static, inherited]

Open for input. Default for `ofstream`.

Definition at line 389 of file ios_base.h.

5.387.6.31 const fmtflags std::ios_base::unitbuf [static, inherited]

Flushes output after each output operation.

Definition at line 311 of file ios_base.h.

5.387.6.32 const fmtflags std::ios_base::uppercase [static, inherited]

Replaces certain lowercase letters with their uppercase equivalents in generated output.

Definition at line 315 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

The documentation for this class was generated from the following file:

- sstream

5.388 std::bernoulli_distribution Class Reference

A Bernoulli random number distribution.

Classes

- struct param_type

Public Types

- typedef bool result_type

Public Member Functions

- **bernoulli_distribution** (const param_type &__p)
- bernoulli_distribution (double __p=0.5)
- result_type max () const
- result_type min () const
- template<typename _UniformRandomNumberGenerator > result_type **operator()** (_UniformRandomNumberGenerator &__urng, const param_type &__p)
- template<typename _UniformRandomNumberGenerator > result_type operator() (_UniformRandomNumberGenerator &__urng)
- double p () const
- void param (const param_type &__param)
- param_type param () const
- void reset ()

5.388.1 Detailed Description

A Bernoulli random number distribution. Generates a sequence of true and false values with likelihood p that true will come up and $(1 - p)$ that false will appear.

Definition at line 2868 of file random.h.

5.388.2 Member Typedef Documentation

5.388.2.1 typedef bool std::bernoulli_distribution::result_type

The type of the range of the distribution.

Definition at line 2872 of file random.h.

5.388.3 Constructor & Destructor Documentation

5.388.3.1 std::bernoulli_distribution::bernoulli_distribution (double *__p* = 0.5) [inline, explicit]

Constructs a Bernoulli distribution with likelihood p.

Parameters:

__p [IN] The likelihood of a true result being returned. Must be in the interval $[0, 1]$.

Definition at line 2901 of file random.h.

5.388.4 Member Function Documentation

5.388.4.1 result_type std::bernoulli_distribution::max () const [inline]

Returns the least upper bound value of the distribution.

Definition at line 2951 of file random.h.

5.388.4.2 result_type std::bernoulli_distribution::min () const [inline]

Returns the greatest lower bound value of the distribution.

Definition at line 2944 of file random.h.

5.388.4.3 template<typename _UniformRandomNumberGenerator > result_type std::bernoulli_distribution::operator() (_UniformRandomNumberGenerator & *__urng*) [inline]

Returns the next value in the Bernoullian sequence.

Definition at line 2959 of file random.h.

References operator()(), and param().

Referenced by operator()().

5.388.4.4 double std::bernoulli_distribution::p () const [inline]

Returns the p parameter of the distribution.

Definition at line 2922 of file random.h.

5.388.4.5 void std::bernoulli_distribution::param (const param_type & *__param*) [inline]

Sets the parameter set of the distribution.

Parameters:

__param The new parameter set of the distribution.

Definition at line 2937 of file random.h.

5.388.4.6 param_type std::bernoulli_distribution::param () const [inline]

Returns the parameter set of the distribution.

Definition at line 2929 of file random.h.

Referenced by operator()(), and std::operator>>().

5.388.4.7 void std::bernoulli_distribution::reset () [inline]

Resets the distribution state. Does nothing for a Bernoulli distribution.

Definition at line 2916 of file random.h.

The documentation for this class was generated from the following file:

- random.h

5.389 std::bernoulli_distribution::param_type Struct Reference

Public Types

- typedef bernoulli_distribution **distribution_type**

Public Member Functions

- **param_type** (double __p=0.5)
- double **p** () const

5.389.1 Detailed Description

Parameter type.

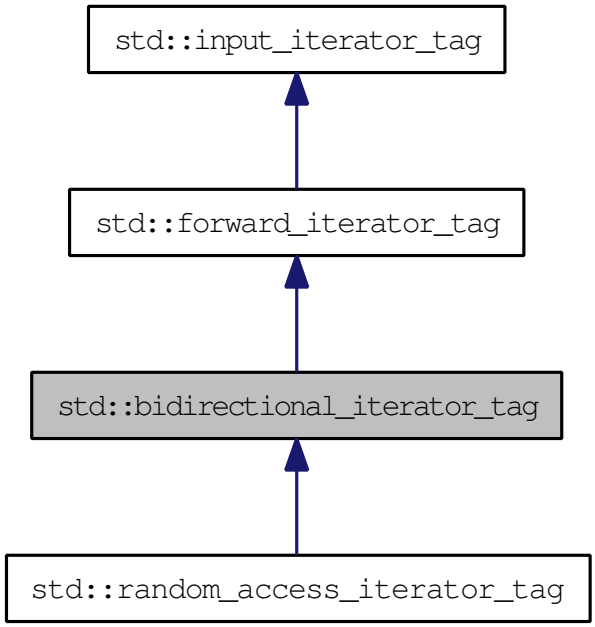
Definition at line 2874 of file random.h.

The documentation for this struct was generated from the following file:

- random.h

5.390 std::bidirectional_iterator_tag Struct Reference

Bidirectional iterators support a superset of forward iterator operations. Inheritance diagram for std::bidirectional_iterator_tag:



5.390.1 Detailed Description

Bidirectional iterators support a superset of forward iterator operations.

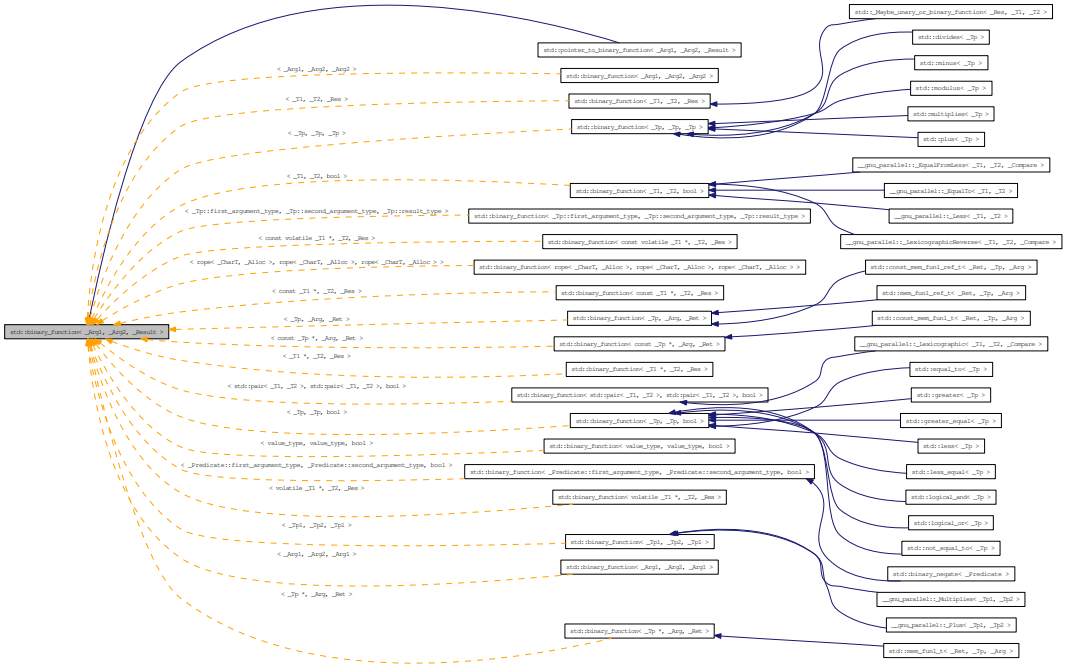
Definition at line 89 of file stl_iterator_base_types.h.

The documentation for this struct was generated from the following file:

- stl_iterator_base_types.h

5.391 std::binary_function< _Arg1, _Arg2, _Result > Struct Template Reference

Inheritance diagram for std::binary_function< _Arg1, _Arg2, _Result >:



Public Types

- typedef _Arg1 first_argument_type
- typedef _Result result_type
- typedef _Arg2 second_argument_type

5.391.1 Detailed Description

template<typename _Arg1, typename _Arg2, typename _Result> struct std::binary_function< _Arg1, _Arg2, _Result >

This is one of the functor base classes.

Definition at line 112 of file stl_function.h.

5.391.2 Member Typedef Documentation

5.391.2.1 template<typename _Arg1, typename _Arg2, typename _Result> typedef _Arg1 std::binary_function< _Arg1, _Arg2, _Result >::first_argument_type

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.391.2.2 template<typename _Arg1, typename _Arg2, typename _Result> typedef _Result std::binary_function< _Arg1, _Arg2, _Result >::result_type

type of the return type

Definition at line 118 of file stl_function.h.

5.391.2.3 template<typename _Arg1, typename _Arg2, typename _Result> typedef _Arg2 std::binary_function< _Arg1, _Arg2, _Result >::second_argument_type

the type of the second argument

Definition at line 117 of file stl_function.h.

The documentation for this struct was generated from the following file:

- stl_function.h

5.392 std::binary_negate< _Predicate > Class Template Reference

One of the negation functors. Inheritance diagram for std::binary_negate< _Predicate >:

Public Types

- typedef _Predicate::first_argument_type first_argument_type
- typedef bool result_type
- typedef _Predicate::second_argument_type second_argument_type

Public Member Functions

- **binary_negate** (const _Predicate &__x)
- bool **operator()** (const typename _Predicate::first_argument_type &__x, const typename _Predicate::second_argument_type &__y) const

Protected Attributes

- _Predicate **_M_pred**

5.392.1 Detailed Description

template<typename _Predicate> class std::binary_negate< _Predicate >

One of the negation functors.

Definition at line 369 of file stl_function.h.

5.392.2 Member Typedef Documentation

5.392.2.1 typedef _Predicate::first_argument_type std::binary_function< _Predicate::first_argument_type , _Predicate::second_argument_type , bool >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.392.2.2 typedef bool std::binary_function< _Predicate::first_argument_type , _Predicate::second_argument_type , bool >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.392.2.3 typedef _Predicate::second_argument_type std::binary_function< _Predicate::first_argument_type , _Predicate::second_argument_type , bool >::second_argument_type [inherited]

the type of the second argument

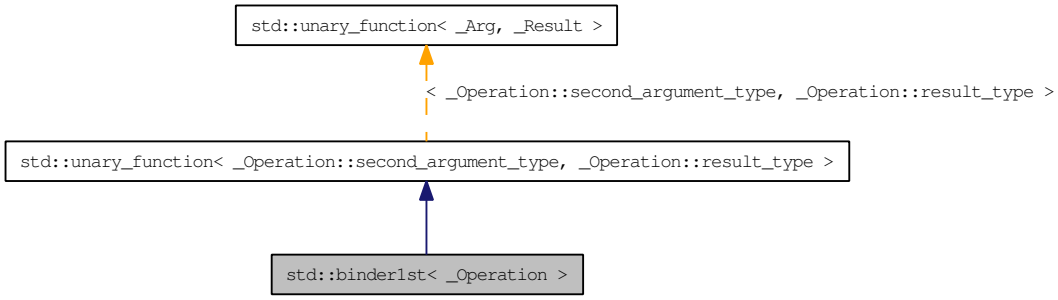
Definition at line 117 of file stl_function.h.

The documentation for this class was generated from the following file:

- stl_function.h

5.393 std::binder1st< _Operation > Class Template Reference

One of the binder functors. Inheritance diagram for std::binder1st< _Operation >:



Public Types

- typedef _Operation::second_argument_type argument_type
- typedef _Operation::result_type result_type

Public Member Functions

- **binder1st** (const _Operation &__x, const typename _Operation::first_argument_type &__y)
- _Operation::result_type **operator()** (typename _Operation::second_argument_type &__x) const
- _Operation::result_type **operator()** (const typename _Operation::second_argument_type &__x) const

Protected Attributes

- _Operation **op**
- _Operation::first_argument_type **value**

5.393.1 Detailed Description

template<typename _Operation> class std::binder1st< _Operation >

One of the binder functors.

Definition at line 98 of file binders.h.

5.393.2 Member Typedef Documentation

5.393.2.1 typedef _Operation::second_argument_type std::unary_function< _Operation::second_argument_type , _Operation::result_type >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.393.2.2 typedef _Operation::result_type std::unary_function< _Operation::second_argument_type , _Operation::result_type >::result_type [inherited]

`result_type` is the return type

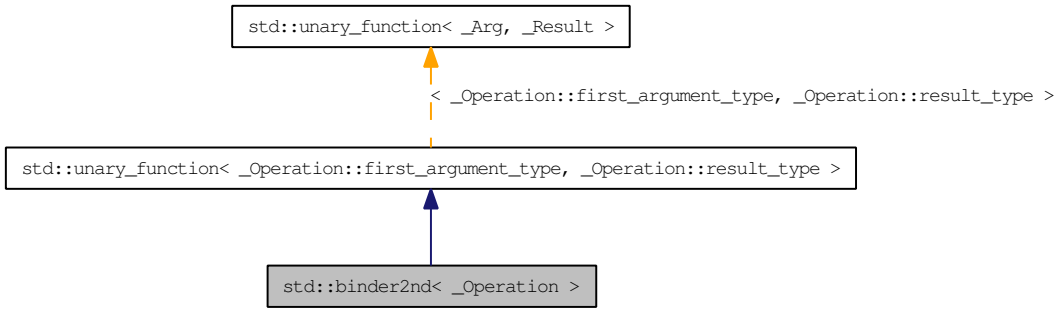
Definition at line 105 of file stl_function.h.

The documentation for this class was generated from the following file:

- binders.h

5.394 std::binder2nd< _Operation > Class Template Reference

One of the binder functors. Inheritance diagram for std::binder2nd< _Operation >:



Public Types

- typedef _Operation::first_argument_type argument_type
- typedef _Operation::result_type result_type

Public Member Functions

- **binder2nd** (const _Operation &__x, const typename _Operation::second_argument_type &__y)
- _Operation::result_type **operator()** (typename _Operation::first_argument_type &__x) const
- _Operation::result_type **operator()** (const typename _Operation::first_argument_type &__x) const

Protected Attributes

- _Operation **op**
- _Operation::second_argument_type **value**

5.394.1 Detailed Description

template<typename _Operation> class std::binder2nd< _Operation >

One of the binder functors.

Definition at line 133 of file binders.h.

5.394.2 Member Typedef Documentation

5.394.2.1 typedef _Operation::first_argument_type std::unary_function< _Operation::first_argument_type , _Operation::result_type >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.394.2.2 typedef _Operation::result_type std::unary_function< _Operation::first_argument_type , _Operation::result_type >::result_type [inherited]

`result_type` is the return type

Definition at line 105 of file stl_function.h.

The documentation for this class was generated from the following file:

- binders.h

5.395 std::binomial_distribution< _IntType > Class Template Reference

A discrete binomial random number distribution.

Classes

- struct param_type

Public Types

- typedef _IntType result_type

Public Member Functions

- **binomial_distribution** (const param_type &__p)
- **binomial_distribution** (_IntType __t=_IntType(1), double __p=0.5)
- result_type max () const
- result_type min () const
- template<typename _UniformRandomNumberGenerator >
  result_type operator() (_UniformRandomNumberGenerator &__urng, const param_type &__p)
- template<typename _UniformRandomNumberGenerator >
  result_type **operator()** (_UniformRandomNumberGenerator &__urng)
- double p () const
- void param (const param_type &__param)
- param_type param () const
- void reset ()
- _IntType t () const

Friends

- template<typename _IntType1 , typename _CharT , typename _Traits >
  std::basic_ostream< _CharT, _Traits > & operator<< (std::basic_ostream< _CharT, _Traits > &, const std::binomial_distribution< _IntType1 > &)
- template<typename _IntType1 , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & operator>> (std::basic_istream< _CharT, _Traits > &, std::binomial_distribution< _IntType1 > &)

5.395.1 Detailed Description

template<typename _IntType = int> class std::binomial_distribution< _IntType >

A discrete binomial random number distribution. The formula for the binomial probability density function is $p(i|t,p) = \binom{n}{i} p^i (1-p)^{t-i}$ where t and p are the parameters of the distribution.

Definition at line 3023 of file random.h.

5.395.2 Member Typedef Documentation

5.395.2.1 template<typename _IntType = int> typedef _IntType std::binomial_distribution< _IntType >::result_type

The type of the range of the distribution.

Definition at line 3030 of file random.h.

5.395.3 Member Function Documentation

5.395.3.1 template<typename _IntType = int> result_type std::binomial_distribution< _IntType >::max () const [inline]

Returns the least upper bound value of the distribution.

Definition at line 3129 of file random.h.

Referenced by std::binomial_distribution< _IntType >::operator()().

5.395.3.2 template<typename _IntType = int> result_type std::binomial_distribution< _IntType >::min () const [inline]

Returns the greatest lower bound value of the distribution.

Definition at line 3122 of file random.h.

5.395.3.3 template<typename _IntType > template<typename _UniformRandomNumberGenerator > binomial_distribution< _IntType >::result_type std::binomial_distribution< _IntType >::operator() (_UniformRandomNumberGenerator & *__urng*, const param_type & *__param*) [inline]

A rejection algorithm when t * p >= 8 and a simple waiting time method - the second in the referenced book - otherwise. NB: The former is available only if _GLIBCXX_USE_C99_MATH_TR1 is defined.

Reference: Devroye, L. Non-Uniform Random Variates Generation. Springer-Verlag, New York, 1986, Ch. X, Sect. 4 (+ Errata!).

Definition at line 1380 of file random.tcc.

References std::abs(), std::log(), and std::binomial_distribution< _IntType >::max().

5.395.3.4 template<typename _IntType = int> double std::binomial_distribution< _IntType >::p () const [inline]

Returns the distribution p parameter.

Definition at line 3100 of file random.h.

5.395.3.5 template<typename _IntType = int> void std::binomial_distribution< _IntType >::param (const param_type & *__param*) [inline]

Sets the parameter set of the distribution.

Parameters:

__param The new parameter set of the distribution.

Definition at line 3115 of file random.h.

5.395.3.6 template<typename _IntType = int> param_type std::binomial_distribution< _IntType >::param () const [inline]

Returns the parameter set of the distribution.

Definition at line 3107 of file random.h.

5.395.3.7 template<typename _IntType = int> void std::binomial_distribution< _IntType >::reset () [inline]

Resets the distribution state.

Definition at line 3086 of file random.h.

References std::normal_distribution< _RealType >::reset().

5.395.3.8 template<typename _IntType = int> _IntType std::binomial_distribution< _IntType >::t () const [inline]

Returns the distribution `t` parameter.

Definition at line 3093 of file random.h.

5.395.4 Friends And Related Function Documentation

5.395.4.1 template<typename _IntType = int> template<typename _IntType1 , typename _CharT , typename _Traits > std::basic_ostream<_CharT, _Traits>& operator<< (std::basic_ostream< _CharT, _Traits > &, const std::binomial_distribution< _IntType1 > &) [friend]

Inserts a binomial_distribution random number distribution `__x` into the output stream `__os`.

Parameters:

__os An output stream.

__x A binomial_distribution random number distribution.

Returns:

The output stream with the state of `__x` inserted or in an error state.

5.395.4.2 template<typename _IntType = int> template<typename _IntType1 , typename _CharT , typename _Traits > std::basic_istream<_CharT, _Traits>& operator>> (std::basic_istream< _CharT, _Traits > &, std::binomial_distribution< _IntType1 > &) [friend]

Extracts a binomial_distribution random number distribution `__x` from the input stream `__is`.

Parameters:

__is An input stream.

__x A binomial_distribution random number generator engine.

Returns:

The input stream with `__x` extracted or in an error state.

The documentation for this class was generated from the following files:

- random.h
- random.tcc

5.396 std::binomial_distribution< _IntType >::param_type Struct Reference

Public Types

- typedef binomial_distribution< _IntType > **distribution_type**

Public Member Functions

- **param_type** (_IntType __t=_IntType(1), double __p=0.5)
- double **p** () const
- _IntType **t** () const

Friends

- class **binomial_distribution< _IntType >**

5.396.1 Detailed Description

template<typename _IntType = int> struct std::binomial_distribution< _IntType >::param_type

Parameter type.

Definition at line 3032 of file random.h.

The documentation for this struct was generated from the following files:

- random.h
- random.tcc

5.397 std::bitset< _Nb > Class Template Reference

The bitset class represents a *fixed-size* sequence of bits. Inheritance diagram for std::bitset< _Nb >:

Classes

- class reference

Public Member Functions

- bitset (const char *__str)
- template<class _CharT , class _Traits , class _Alloc >
  bitset (const std::basic_string< _CharT, _Traits, _Alloc > &__s, size_t __position, size_t __n, _CharT __zero, _CharT __one=_CharT('1'))
- template<class _CharT , class _Traits , class _Alloc >
  bitset (const std::basic_string< _CharT, _Traits, _Alloc > &__s, size_t __position, size_t __n)
- template<class _CharT , class _Traits , class _Alloc >
  bitset (const std::basic_string< _CharT, _Traits, _Alloc > &__s, size_t __position=0)
- bitset (unsigned long long __val)
- bitset ()
- size_t _Find_first () const
- size_t _Find_next (size_t __prev) const
- template<class _CharT , class _Traits >
  void **_M_copy_from_ptr** (const _CharT *, size_t, size_t, size_t, _CharT, _CharT)
- template<class _CharT , class _Traits , class _Alloc >
  void **_M_copy_from_string** (const std::basic_string< _CharT, _Traits, _Alloc > &__s, size_t __pos, size_t __n)
- template<class _CharT , class _Traits , class _Alloc >
  void **_M_copy_from_string** (const std::basic_string< _CharT, _Traits, _Alloc > &__s, size_t __pos, size_t __n, _CharT __zero, _CharT __one)
- template<class _CharT , class _Traits , class _Alloc >
  void **_M_copy_to_string** (std::basic_string< _CharT, _Traits, _Alloc > &__s) const
- template<class _CharT , class _Traits , class _Alloc >
  void **_M_copy_to_string** (std::basic_string< _CharT, _Traits, _Alloc > &, _CharT, _CharT) const

- bool all () const
- bool any () const
- size_t count () const
- bitset< _Nb > & flip (size_t __position)
- bitset< _Nb > & flip ()
- bool none () const
- bitset< _Nb > operator~ () const
- bitset< _Nb > & reset (size_t __position)
- bitset< _Nb > & reset ()
- bitset< _Nb > & set (size_t __position, bool __val=true)
- bitset< _Nb > & set ()
- size_t size () const
- bool test (size_t __position) const
- std::basic_string< char, std::char_traits< char >, std::allocator< char > > **to_string** (char __zero, char __one= '1') const
- std::basic_string< char, std::char_traits< char >, std::allocator< char > > **to_string** () const
- template<class _CharT >
  std::basic_string< _CharT, std::char_traits< _CharT >, std::allocator< _CharT > > **to_string** (_CharT __zero, _CharT __one=_CharT('1')) const
- template<class _CharT >
  std::basic_string< _CharT, std::char_traits< _CharT >, std::allocator< _CharT > > **to_string** () const
- template<class _CharT , class _Traits >
  std::basic_string< _CharT, _Traits, std::allocator< _CharT > > **to_string** (_CharT __zero, _CharT __one=_CharT('1')) const
- template<class _CharT , class _Traits >
  std::basic_string< _CharT, _Traits, std::allocator< _CharT > > **to_string** () const
- template<class _CharT , class _Traits , class _Alloc >
  std::basic_string< _CharT, _Traits, _Alloc > **to_string** (_CharT __zero, _CharT __one=_CharT('1')) const
- template<class _CharT , class _Traits , class _Alloc >
  std::basic_string< _CharT, _Traits, _Alloc > to_string () const
- unsigned long long **to_ullong** () const
- unsigned long to_ulong () const

- bitset< _Nb > & _Unchecked_flip (size_t __pos)
- bitset< _Nb > & _Unchecked_reset (size_t __pos)
- bitset< _Nb > & _Unchecked_set (size_t __pos, int __val)
- bitset< _Nb > & _Unchecked_set (size_t __pos)
- bool _Unchecked_test (size_t __pos) const
- bool operator!= (const bitset< _Nb > &__rhs) const
- bitset< _Nb > & operator&= (const bitset< _Nb > &__rhs)

- bitset< _Nb > operator<< (size_t __position) const
- bitset< _Nb > & operator<<= (size_t __position)
- bool operator== (const bitset< _Nb > &__rhs) const
- bitset< _Nb > operator>> (size_t __position) const
- bitset< _Nb > & operator>>= (size_t __position)
- bool operator[ ] (size_t __position) const
- reference operator[ ] (size_t __position)
- bitset< _Nb > & operator^= (const bitset< _Nb > &__rhs)
- bitset< _Nb > & operator|= (const bitset< _Nb > &__rhs)

Private Types

- typedef unsigned long **_WordT**

Private Member Functions

- size_t **_M_are_all_aux** () const
- void **_M_do_and** (const _Base_bitset< _Nw > &__x)
- size_t **_M_do_count** () const
- size_t **_M_do_find_first** (size_t __not_found) const
- size_t **_M_do_find_next** (size_t __prev, size_t __not_found) const
- void **_M_do_flip** ()
- void **_M_do_left_shift** (size_t __shift)
- void **_M_do_or** (const _Base_bitset< _Nw > &__x)
- void **_M_do_reset** ()
- void **_M_do_right_shift** (size_t __shift)
- void **_M_do_set** ()
- unsigned long long **_M_do_to_ullong** () const
- unsigned long **_M_do_to_ulong** () const
- void **_M_do_xor** (const _Base_bitset< _Nw > &__x)
- const _WordT * **_M_getdata** () const
- _WordT **_M_getword** (size_t __pos) const
- _WordT & **_M_getword** (size_t __pos)
- _WordT **_M_hiword** () const
- _WordT & **_M_hiword** ()
- bool **_M_is_any** () const
- bool **_M_is_equal** (const _Base_bitset< _Nw > &__x) const

Static Private Member Functions

- static _WordT **_S_maskbit** (size_t __pos)
- static size_t **_S_whichbit** (size_t __pos)
- static size_t **_S_whichbyte** (size_t __pos)
- static size_t **_S_whichword** (size_t __pos)

Private Attributes

- _WordT _M_w [_Nw]

Friends

- class **hash**
- class **reference**

5.397.1 Detailed Description

template<size_t _Nb> class std::bitset< _Nb >

The bitset class represents a *fixed-size* sequence of bits. (Note that bitset does *not* meet the formal requirements of a container. Mainly, it lacks iterators.)

The template argument, *Nb*, may be any non-negative number, specifying the number of bits (e.g., "0", "12", "1024*1024").

In the general unoptimized case, storage is allocated in word-sized blocks. Let B be the number of bits in a word, then (Nb+(B-1))/B words will be used for storage. B - NbB bits are unused. (They are the high-order bits in the highest word.) It is a class invariant that those unused bits are always zero.

If you think of bitset as *a simple array of bits*, be aware that your mental picture is reversed: a bitset behaves the same way as bits in integers do, with the bit at index 0 in the *least significant / right-hand* position, and the bit at index Nb-1 in the *most significant / left-hand* position. Thus, unlike other containers, a bitset's index *counts from right to left*, to put it very loosely.

This behavior is preserved when translating to and from strings. For example, the first line of the following program probably prints *b('a') is 0001100001* on a modern ASCII system.

```
#include <bitset>
#include <iostream>
#include <sstream>

using namespace std;

int main()
{
    long         a = 'a';
    bitset<10>   b(a);

    cout << "b('a') is " << b << endl;

    ostringstream s;
    s << b;
```

```
        string  str = s.str();
        cout << "index 3 in the string is " << str[3] << " but\n"
             << "index 3 in the bitset is " << b[3] << endl;
    }
```

Also see: http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt12ch33s02.html for a description of extensions.

Most of the actual code isn't contained in bitset<> itself, but in the base class _Base_bitset. The base class works with whole words, not with individual bits. This allows us to specialize _Base_bitset for the important special case where the bitset is only a single word.

Extra confusion can result due to the fact that the storage for _Base_bitset *is* a regular array, and is indexed as such. This is carefully encapsulated.

Definition at line 709 of file bitset.

5.397.2 Constructor & Destructor Documentation

5.397.2.1 template<size_t _Nb> std::bitset< _Nb >::bitset () [inline]

All bits set to zero.

Definition at line 803 of file bitset.

5.397.2.2 template<size_t _Nb> std::bitset< _Nb >::bitset (unsigned long long *__val*) [inline]

Initial bits bitwise-copied from a single word (others set to zero).

Definition at line 808 of file bitset.

5.397.2.3 template<size_t _Nb> template<class _CharT , class _Traits , class _Alloc > std::bitset< _Nb >::bitset (const std::basic_string< _CharT, _Traits, _Alloc > & *__s*, size_t *__position* = 0) [inline, explicit]

Use a subset of a string.

Parameters:

s A string of *0* and *1* characters.

position Index of the first character in *s* to use; defaults to zero.

Exceptions:

std::out_of_range If *pos* is bigger the size of *s*.

std::invalid_argument If a character appears in the string which is neither *0* nor *1*.

Definition at line 826 of file bitset.

5.397.2.4 template<size_t _Nb> template<class _CharT , class _Traits , class _Alloc > std::bitset< _Nb >::bitset (const std::basic_string< _CharT, _Traits, _Alloc > & *__s*, size_t *__position*, size_t *__n*) [inline]

Use a subset of a string.

Parameters:

s A string of *0* and *1* characters.

position Index of the first character in *s* to use.

n The number of characters to copy.

Exceptions:

std::out_of_range If *pos* is bigger the size of *s*.

std::invalid_argument If a character appears in the string which is neither *0* nor *1*.

Definition at line 848 of file bitset.

5.397.2.5 template<size_t _Nb> std::bitset< _Nb >::bitset (const char * *__str*) [inline, explicit]

Construct from a string.

Parameters:

str A string of *0* and *1* characters.

Exceptions:

std::invalid_argument If a character appears in the string which is neither *0* nor *1*.

Definition at line 880 of file bitset.

5.397.3 Member Function Documentation

5.397.3.1 template<size_t _Nb> bitset<_Nb>& std::bitset< _Nb >::_Unchecked_flip (size_t *__pos*) [inline]

These versions of single-bit set, reset, flip, and test are extensions from the SGI version. They do no range checking.

Definition at line 987 of file bitset.

5.397.3.2 template<size_t _Nb> bitset<_Nb>& std::bitset< _Nb >::_Unchecked_reset (size_t *__pos*) [inline]

These versions of single-bit set, reset, flip, and test are extensions from the SGI version. They do no range checking.

Definition at line 980 of file bitset.

5.397.3.3 template<size_t _Nb> bitset<_Nb>& std::bitset< _Nb >::_Unchecked_set (size_t *__pos*, int *__val*) [inline]

These versions of single-bit set, reset, flip, and test are extensions from the SGI version. They do no range checking.

Definition at line 970 of file bitset.

5.397.3.4 template<size_t _Nb> bool std::bitset< _Nb >::_Unchecked_test (size_t *__pos*) const [inline]

These versions of single-bit set, reset, flip, and test are extensions from the SGI version. They do no range checking.

Definition at line 994 of file bitset.

5.397.3.5 template<size_t _Nb> bool std::bitset< _Nb >::all () const [inline]

Tests whether all the bits are on.

Returns:

True if all the bits are set.

Definition at line 1267 of file bitset.

5.397.3.6 template<size_t _Nb> bool std::bitset< _Nb >::any () const [inline]

Tests whether any of the bits are on.

Returns:

True if at least one bit is set.

Definition at line 1275 of file bitset.

5.397.3.7 template<size_t _Nb> size_t std::bitset< _Nb >::count () const [inline]

Returns the number of bits which are set.

Definition at line 1227 of file bitset.

5.397.3.8 template<size_t _Nb> bitset<_Nb>& std::bitset< _Nb >::flip (size_t *__position*) [inline]

Toggles a given bit to its opposite value.

Parameters:

position The index of the bit.

Exceptions:

std::out_of_range If *pos* is bigger the size of the set.

Definition at line 1067 of file bitset.

5.397.3.9 template<size_t _Nb> bitset<_Nb>& std::bitset< _Nb >::flip () [inline]

Toggles every bit to its opposite value.

Definition at line 1054 of file bitset.

5.397.3.10 template<size_t _Nb> bool std::bitset< _Nb >::none () const [inline]

Tests whether any of the bits are on.

Returns:

True if none of the bits are set.

Definition at line 1283 of file bitset.

5.397.3.11 template<size_t _Nb> bool std::bitset< _Nb >::operator!= (const bitset< _Nb > & *__rhs*) const [inline]

These versions of single-bit set, reset, flip, and test are extensions from the SGI version. They do no range checking.

Definition at line 1242 of file bitset.

5.397.3.12 template<size_t _Nb> bitset<_Nb>& std::bitset< _Nb >::operator&= (const bitset< _Nb > & *__rhs*) [inline]

Operations on bitsets.

Parameters:

rhs A same-sized bitset.

These should be self-explanatory.

Definition at line 901 of file bitset.

5.397.3.13 template<size_t _Nb> bitset<_Nb> std::bitset< _Nb >::operator<< (size_t *__position*) const [inline]

Self-explanatory.

Definition at line 1289 of file bitset.

5.397.3.14 template<size_t _Nb> bitset<_Nb>& std::bitset< _Nb >::operator<<= (size_t *__position*) [inline]

Operations on bitsets.

Parameters:

position The number of places to shift.

These should be self-explanatory.

Definition at line 930 of file bitset.

5.397.3.15 template<size_t _Nb> bool std::bitset< _Nb >::operator== (const bitset< _Nb > & *__rhs*) const [inline]

These comparisons for equality/inequality are, well, *bitwise*.

Definition at line 1238 of file bitset.

5.397.3.16 template<size_t _Nb> bitset<_Nb> std::bitset< _Nb >::operator>> (size_t *__position*) const [inline]

These versions of single-bit set, reset, flip, and test are extensions from the SGI version. They do no range checking.

Definition at line 1293 of file bitset.

5.397.3.17 template<size_t _Nb> bitset<_Nb>& std::bitset< _Nb >::operator>>= (size_t *__position*) [inline]

These versions of single-bit set, reset, flip, and test are extensions from the SGI version. They do no range checking.

Definition at line 943 of file bitset.

5.397.3.18 template<size_t _Nb> bool std::bitset< _Nb >::operator[ ] (size_t *__position*) const [inline]

These versions of single-bit set, reset, flip, and test are extensions from the SGI version. They do no range checking.

Definition at line 1099 of file bitset.

5.397.3.19 template<size_t _Nb> reference std::bitset< _Nb >::operator[ ] (size_t *__position*) [inline]

Array-indexing support.

Parameters:

position Index into the bitset.

Returns:

A bool for a *const bitset*. For non-const bitsets, an instance of the reference proxy class.

Note:

These operators do no range checking and throw no exceptions, as required by DR 11 to the standard.

_GLIBCXX_RESOLVE_LIB_DEFECTS Note that this implementation already resolves DR 11 (items 1 and 2), but does not do the range-checking required by that DR's resolution. -pme The DR has since been changed: range-checking is a precondition (users' responsibility), and these functions must not throw. -pme

Definition at line 1095 of file bitset.

5.397.3.20 template<size_t _Nb> bitset<_Nb>& std::bitset< _Nb >::operator^= (const bitset< _Nb > & *__rhs*) [inline]

These versions of single-bit set, reset, flip, and test are extensions from the SGI version. They do no range checking.

Definition at line 915 of file bitset.

5.397.3.21 template<size_t _Nb> bitset<_Nb>& std::bitset< _Nb >::operator|= (const bitset< _Nb > & *__rhs*) [inline]

These versions of single-bit set, reset, flip, and test are extensions from the SGI version. They do no range checking.

Definition at line 908 of file bitset.

5.397.3.22 template<size_t _Nb> bitset<_Nb> std::bitset< _Nb >::operator~ () const [inline]

See the no-argument flip().

Definition at line 1076 of file bitset.

5.397.3.23 template<size_t _Nb> bitset<_Nb>& std::bitset< _Nb >::reset (size_t *__position*) [inline]

Sets a given bit to false.

Parameters:

position The index of the bit.

Exceptions:

std::out_of_range If *pos* is bigger the size of the set.

Same as writing `set(pos,false)`.

Definition at line 1043 of file bitset.

5.397.3.24 template<size_t _Nb> bitset<_Nb>& std::bitset< _Nb >::reset () [inline]

Sets every bit to false.

Definition at line 1029 of file bitset.

5.397.3.25 template<size_t _Nb> bitset<_Nb>& std::bitset< _Nb >::set (size_t *__position*, bool *__val* = `true`) [inline]

Sets a given bit to a particular value.

Parameters:

position The index of the bit.

val Either true or false, defaults to true.

Exceptions:

std::out_of_range If *pos* is bigger the size of the set.

Definition at line 1018 of file bitset.

5.397.3.26 template<size_t _Nb> bitset<_Nb>& std::bitset< _Nb >::set () [inline]

Sets every bit to true.

Definition at line 1004 of file bitset.

5.397.3.27 template<size_t _Nb> size_t std::bitset< _Nb >::size () const [inline]

Returns the total number of bits.

Definition at line 1232 of file bitset.

5.397.3.28 template<size_t _Nb> bool std::bitset< _Nb >::test (size_t *__position*) const [inline]

Tests the value of a bit.

Parameters:

position The index of a bit.

Returns:

The value at *pos*.

Exceptions:

std::out_of_range If *pos* is bigger the size of the set.

Definition at line 1253 of file bitset.

5.397.3.29 template<size_t _Nb> template<class _CharT , class _Traits , class _Alloc > std::basic_string<_CharT, _Traits, _Alloc> std::bitset< _Nb >::to_string () const [inline]

Returns a character interpretation of the bitset.

Returns:

The string equivalent of the bits.

Note the ordering of the bits: decreasing character positions correspond to increasing bit positions (see the main class notes for an example).

Definition at line 1129 of file bitset.

5.397.3.30 template<size_t _Nb> unsigned long std::bitset< _Nb >::to_ulong () const [inline]

Returns a numerical interpretation of the bitset.

Returns:

The integral equivalent of the bits.

Exceptions:

std::overflow_error If there are too many bits to be represented in an `unsigned long`.

Definition at line 1110 of file bitset.

The documentation for this class was generated from the following file:

- bitset

5.398 std::bitset< _Nb >::reference Class Reference

Public Member Functions

- **reference** (bitset &__b, size_t __pos)
- reference & **flip** ()
- **operator bool** () const
- reference & **operator=** (const reference &__j)
- reference & **operator=** (bool __x)
- bool **operator~** () const

Friends

- class **bitset**

5.398.1 Detailed Description

template<size_t _Nb> class std::bitset< _Nb >::reference

This encapsulates the concept of a single bit. An instance of this class is a proxy for an actual bit; this way the individual bit operations are done as faster word-size bitwise instructions.

Most users will never need to use this class directly; conversions to and from bool are automatic and should be transparent. Overloaded operators help to preserve the illusion.

(On a typical system, this *bit reference* is 64 times the size of an actual bit. Ha.)

Definition at line 740 of file bitset.

The documentation for this class was generated from the following file:

- bitset

5.399 std::cauchy_distribution< _RealType > Class Template Reference

A cauchy_distribution random number distribution.

Classes

- struct param_type

Public Types

- typedef _RealType result_type

Public Member Functions

- **cauchy_distribution** (const param_type &__p)
- **cauchy_distribution** (_RealType __a=_RealType(0), _RealType __b=_RealType(1))
- _RealType **a** () const
- _RealType **b** () const
- result_type max () const
- result_type min () const
- template<typename _UniformRandomNumberGenerator > result_type **operator()** (_UniformRandomNumberGenerator &__urng, const param_type &__p)
- template<typename _UniformRandomNumberGenerator > result_type **operator()** (_UniformRandomNumberGenerator &__urng)
- void param (const param_type &__param)
- param_type param () const
- void reset ()

5.399.1 Detailed Description

template<typename _RealType = double> class std::cauchy_distribution< _RealType >

A cauchy_distribution random number distribution. The formula for the normal probability mass function is $p(x|a,b) = (\pi b(1+(\frac{x-a}{b})^2))^{-1}$

Definition at line 2416 of file random.h.

5.399.2 Member Typedef Documentation

5.399.2.1 template<typename _RealType = double> typedef _RealType std::cauchy_distribution< _RealType >::result_type

The type of the range of the distribution.

Definition at line 2423 of file random.h.

5.399.3 Member Function Documentation

5.399.3.1 template<typename _RealType = double> result_type std::cauchy_distribution< _RealType >::max () const [inline]

Returns the least upper bound value of the distribution.

Definition at line 2503 of file random.h.

5.399.3.2 template<typename _RealType = double> result_type std::cauchy_distribution< _RealType >::min () const [inline]

Returns the greatest lower bound value of the distribution.

Definition at line 2496 of file random.h.

5.399.3.3 template<typename _RealType = double> void std::cauchy_distribution< _RealType >::param (const param_type & *__param*) [inline]

Sets the parameter set of the distribution.

Parameters:

__param The new parameter set of the distribution.

Definition at line 2489 of file random.h.

5.399.3.4 template<typename _RealType = double> param_type std::cauchy_distribution< _RealType >::param () const [inline]

Returns the parameter set of the distribution.

Definition at line 2481 of file random.h.

Referenced by std::operator>>().

5.399.3.5 template<typename _RealType = double> void std::cauchy_distribution< _RealType >::reset () [inline]

Resets the distribution state.

Definition at line 2463 of file random.h.

The documentation for this class was generated from the following files:

- random.h
- random.tcc

5.400 std::cauchy_distribution< _RealType >::param_type Struct Reference

Public Types

- typedef cauchy_distribution< _RealType > **distribution_type**

Public Member Functions

- **param_type** (_RealType __a=_RealType(0), _RealType __b=_RealType(1))
- _RealType **a** () const
- _RealType **b** () const

5.400.1 Detailed Description

template<typename _RealType = double> struct std::cauchy_distribution< _RealType >::param_type

Parameter type.

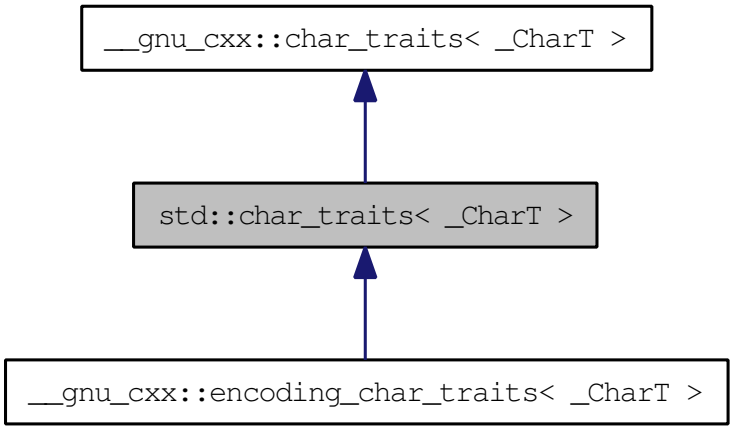
Definition at line 2425 of file random.h.

The documentation for this struct was generated from the following file:

- random.h

5.401 std::char_traits< _CharT > Struct Template Reference

Basis for explicit traits specializations. Inheritance diagram for std::char_traits< _CharT >:



Public Types

- typedef _CharT **char_type**
- typedef _Char_types< _CharT >::int_type **int_type**
- typedef _Char_types< _CharT >::off_type **off_type**
- typedef _Char_types< _CharT >::pos_type **pos_type**
- typedef _Char_types< _CharT >::state_type **state_type**

Static Public Member Functions

- static char_type * **assign** (char_type *__s, std::size_t __n, char_type __a)
- static void **assign** (char_type &__c1, const char_type &__c2)
- static int **compare** (const char_type *__s1, const char_type *__s2, std::size_t __n)
- static char_type * **copy** (char_type *__s1, const char_type *__s2, std::size_t __n)
- static int_type **eof** ()
- static bool **eq** (const char_type &__c1, const char_type &__c2)
- static bool **eq_int_type** (const int_type &__c1, const int_type &__c2)
- static const char_type * **find** (const char_type *__s, std::size_t __n, const char_type &__a)

- static std::size_t **length** (const char_type *__s)
- static bool **lt** (const char_type &__c1, const char_type &__c2)
- static char_type * **move** (char_type *__s1, const char_type *__s2, std::size_t __n)
- static int_type **not_eof** (const int_type &__c)
- static char_type **to_char_type** (const int_type &__c)
- static int_type **to_int_type** (const char_type &__c)

5.401.1 Detailed Description

template<class _CharT> struct std::char_traits< _CharT >

Basis for explicit traits specializations.

Note:

For any given actual character type, this definition is probably wrong. Since this is just a thin wrapper around __gnu_cxx::char_traits, it is possible to achieve a more appropriate definition by specializing __gnu_cxx::char_traits.

See http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt05ch13s03.html for advice on how to make use of this class for *unusual* character types. Also, check out include/ext/pod_char_traits.h.

Definition at line 231 of file char_traits.h.

The documentation for this struct was generated from the following file:

- char_traits.h

5.402 std::char_traits< __gnu_cxx::character< V, I, S > > Struct Template Reference

char_traits<__gnu_cxx::character> specialization.

Public Types

- typedef __gnu_cxx::character< V, I, S > **char_type**
- typedef char_type::int_type **int_type**
- typedef streamoff **off_type**
- typedef fpos< state_type > **pos_type**
- typedef char_type::state_type **state_type**

Static Public Member Functions

- static char_type * **assign** (char_type *__s, size_t __n, char_type __a)
- static void **assign** (char_type &__c1, const char_type &__c2)
- static int **compare** (const char_type *__s1, const char_type *__s2, size_t __n)
- static char_type * **copy** (char_type *__s1, const char_type *__s2, size_t __n)
- static int_type **eof** ()
- static bool **eq** (const char_type &__c1, const char_type &__c2)
- static bool **eq_int_type** (const int_type &__c1, const int_type &__c2)
- static const char_type * **find** (const char_type *__s, size_t __n, const char_type &__a)
- static size_t **length** (const char_type *__s)
- static bool **lt** (const char_type &__c1, const char_type &__c2)
- static char_type * **move** (char_type *__s1, const char_type *__s2, size_t __n)
- static int_type **not_eof** (const int_type &__c)
- static char_type **to_char_type** (const int_type &__i)
- static int_type **to_int_type** (const char_type &__c)

5.402.1 Detailed Description

template<typename V, typename I, typename S> struct std::char_traits< __gnu_cxx::character< V, I, S > >

char_traits<__gnu_cxx::character> specialization.

Definition at line 88 of file pod_char_traits.h.

The documentation for this struct was generated from the following file:

- pod_char_traits.h

5.403 std::char_traits< char > Struct Template Reference

21.1.3.1 char_traits specializations

Public Types

- typedef char **char_type**
- typedef int **int_type**
- typedef streamoff **off_type**
- typedef streampos **pos_type**
- typedef mbstate_t **state_type**

Static Public Member Functions

- static char_type * **assign** (char_type *__s, size_t __n, char_type __a)
- static void **assign** (char_type &__c1, const char_type &__c2)
- static int **compare** (const char_type *__s1, const char_type *__s2, size_t __n)
- static char_type * **copy** (char_type *__s1, const char_type *__s2, size_t __n)
- static int_type **eof** ()
- static bool **eq** (const char_type &__c1, const char_type &__c2)
- static bool **eq_int_type** (const int_type &__c1, const int_type &__c2)
- static const char_type * **find** (const char_type *__s, size_t __n, const char_type &__a)
- static size_t **length** (const char_type *__s)
- static bool **lt** (const char_type &__c1, const char_type &__c2)
- static char_type * **move** (char_type *__s1, const char_type *__s2, size_t __n)
- static int_type **not_eof** (const int_type &__c)
- static char_type **to_char_type** (const int_type &__c)
- static int_type **to_int_type** (const char_type &__c)

5.403.1 Detailed Description

template<> struct std::char_traits< char >

21.1.3.1 char_traits specializations

Definition at line 237 of file char_traits.h.

The documentation for this struct was generated from the following file:

- char_traits.h

5.404 std::char_traits< wchar_t > Struct Template Reference

21.1.3.2 char_traits specializations

Public Types

- typedef wchar_t **char_type**
- typedef wint_t **int_type**
- typedef streamoff **off_type**
- typedef wstreampos **pos_type**
- typedef mbstate_t **state_type**

Static Public Member Functions

- static char_type * **assign** (char_type *__s, size_t __n, char_type __a)
- static void **assign** (char_type &__c1, const char_type &__c2)
- static int **compare** (const char_type *__s1, const char_type *__s2, size_t __n)
- static char_type * **copy** (char_type *__s1, const char_type *__s2, size_t __n)
- static int_type **eof** ()
- static bool **eq** (const char_type &__c1, const char_type &__c2)
- static bool **eq_int_type** (const int_type &__c1, const int_type &__c2)
- static const char_type * **find** (const char_type *__s, size_t __n, const char_type &__a)
- static size_t **length** (const char_type *__s)
- static bool **lt** (const char_type &__c1, const char_type &__c2)
- static char_type * **move** (char_type *__s1, const char_type *__s2, size_t __n)
- static int_type **not_eof** (const int_type &__c)
- static char_type **to_char_type** (const int_type &__c)
- static int_type **to_int_type** (const char_type &__c)

5.404.1 Detailed Description

template<> struct std::char_traits< wchar_t >

21.1.3.2 char_traits specializations

Definition at line 308 of file char_traits.h.

The documentation for this struct was generated from the following file:

- char_traits.h

5.405 std::chi_squared_distribution< _RealType > Class Template Reference

A chi_squared_distribution random number distribution.

Classes

- struct param_type

Public Types

- typedef _RealType result_type

Public Member Functions

- **chi_squared_distribution** (const param_type &__p)
- **chi_squared_distribution** (_RealType __n=_RealType(1))
- result_type max () const
- result_type min () const
- _RealType **n** () const
- template<typename _UniformRandomNumberGenerator > result_type **operator()** (_UniformRandomNumberGenerator &__urng, const param_type &__p)
- template<typename _UniformRandomNumberGenerator > result_type **operator()** (_UniformRandomNumberGenerator &__urng)
- void param (const param_type &__param)
- param_type param () const
- void reset ()

Friends

- template<typename _RealType1 , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & operator<< (std::basic_ostream< _CharT, _Traits > &, const std::chi_squared_distribution< _RealType1 > &)
- template<typename _RealType1 , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & operator>> (std::basic_istream< _CharT, _Traits > &, std::chi_squared_distribution< _RealType1 > &)

5.405.1 Detailed Description

template<typename _RealType = double> class std::chi_squared_distribution< _RealType >

A chi_squared_distribution random number distribution. The formula for the normal probability mass function is $p(x|n) = \frac{x^{(n/2)-1}e^{-x/2}}{\Gamma(n/2)2^{n/2}}$

Definition at line 2278 of file random.h.

5.405.2 Member Typedef Documentation

5.405.2.1 template<typename _RealType = double> typedef _RealType std::chi_squared_distribution< _RealType >::result_type

The type of the range of the distribution.

Definition at line 2285 of file random.h.

5.405.3 Member Function Documentation

5.405.3.1 template<typename _RealType = double> result_type std::chi_squared_distribution< _RealType >::max () const [inline]

Returns the least upper bound value of the distribution.

Definition at line 2354 of file random.h.

5.405.3.2 template<typename _RealType = double> result_type std::chi_squared_distribution< _RealType >::min () const [inline]

Returns the greatest lower bound value of the distribution.

Definition at line 2347 of file random.h.

5.405.3.3 template<typename _RealType = double> void std::chi_squared_distribution< _RealType >::param (const param_type & *__param*) [inline]

Sets the parameter set of the distribution.

Parameters:

__param The new parameter set of the distribution.

Definition at line 2340 of file random.h.

5.405.3.4 template<typename _RealType = double> param_type std::chi_squared_distribution< _RealType >::param () const [inline]

Returns the parameter set of the distribution.

Definition at line 2332 of file random.h.

5.405.3.5 template<typename _RealType = double> void std::chi_squared_distribution< _RealType >::reset () [inline]

Resets the distribution state.

Definition at line 2318 of file random.h.

References std::gamma_distribution< _RealType >::reset().

5.405.4 Friends And Related Function Documentation

5.405.4.1 template<typename _RealType = double> template<typename _RealType1 , typename _CharT , typename _Traits > std::basic_ostream<_CharT, _Traits>& operator<< (std::basic_ostream< _CharT, _Traits > &, const std::chi_squared_distribution< _RealType1 > &) [friend]

Inserts a chi_squared_distribution random number distribution `__x` into the output stream `__os`.

Parameters:

__os An output stream.

__x A chi_squared_distribution random number distribution.

Returns:

The output stream with the state of `__x` inserted or in an error state.

5.405.4.2 template<typename _RealType = double> template<typename _RealType1 , typename _CharT , typename _Traits > std::basic_istream<_CharT, _Traits>& operator>> (std::basic_istream< _CharT, _Traits > &, std::chi_squared_distribution< _RealType1 > &) [friend]

Extracts a chi_squared_distribution random number distribution __x from the input stream __is.

Parameters:

__is An input stream.

__x A chi_squared_distribution random number generator engine.

Returns:

The input stream with __x extracted or in an error state.

The documentation for this class was generated from the following file:

- random.h

5.406 std::chi_squared_distribution< _RealType >::param_type Struct Reference

Public Types

- typedef chi_squared_distribution< _RealType > **distribution_type**

Public Member Functions

- **param_type** (_RealType __n=_RealType(1))
- _RealType **n** () const

5.406.1 Detailed Description

template<typename _RealType = double> struct std::chi_squared_distribution< _RealType >::param_type

Parameter type.

Definition at line 2287 of file random.h.

The documentation for this struct was generated from the following file:

- random.h

5.407 std::chrono::duration< _Rep, _Period > Struct Template Reference

duration

Public Types

- typedef _Period **period**
- typedef _Rep **rep**

Public Member Functions

- **duration** (const duration &)
- template<typename _Rep2 , typename _Period2 , typename = typename enable_if<treat_as_floating_point<rep>::value || (ratio_divide<_Period2, period>::type::den == 1 && !treat_as_floating_point<_Rep2>::value)>::type>
  duration (const duration< _Rep2, _Period2 > &__d)
- template<typename _Rep2 , typename = typename enable_if<is_convertible<_Rep2, rep>::value && (treat_as_floating_point<rep>::value || !treat_as_floating_point<_Rep2>::value)>::type>
  duration (const _Rep2 &__rep)
- rep **count** () const
- template<typename _Rep2 = rep>
  enable_if<!treat_as_floating_point< _Rep2 >::value, duration & >::type **operator%=** (const duration &__d)
- template<typename _Rep2 = rep>
  enable_if<!treat_as_floating_point< _Rep2 >::value, duration & >::type **operator%=** (const rep &__rhs)
- duration & **operator*=** (const rep &__rhs)
- duration **operator+** () const
- duration **operator++** (int)
- duration & **operator++** ()
- duration & **operator+=** (const duration &__d)
- duration **operator-** () const
- duration **operator--** (int)
- duration & **operator--** ()
- duration & **operator-=** (const duration &__d)
- duration & **operator/=** (const rep &__rhs)
- duration & **operator=** (const duration &)
- **static_assert** (_Period::num > 0,"period must be positive")
- **static_assert** (__is_ratio< _Period >::value,"period must be a specialization of ratio")
- **static_assert** (!__is_duration< _Rep >::value,"rep cannot be a duration")

Static Public Member Functions

- static const duration **max** ()
- static const duration **min** ()
- static const duration **zero** ()

5.407.1 Detailed Description

template<typename _Rep, typename _Period> struct std::chrono::duration< _-Rep, _Period >

duration

Definition at line 201 of file chrono.

The documentation for this struct was generated from the following file:

- chrono

5.408 std::chrono::duration_values< _Rep > Struct Template Reference

duration_values

Static Public Member Functions

- static const _Rep **max** ()
- static const _Rep **min** ()
- static const _Rep **zero** ()

5.408.1 Detailed Description

template<typename _Rep> struct std::chrono::duration_values< _Rep >

duration_values

Definition at line 174 of file chrono.

The documentation for this struct was generated from the following file:

- chrono

5.409 std::chrono::system_clock Struct Reference

system_clock

Public Types

- typedef chrono::seconds **duration**
- typedef duration::period **period**
- typedef duration::rep **rep**
- typedef chrono::time_point< system_clock, duration > **time_point**

Static Public Member Functions

- static time_point **from_time_t** (std::time_t __t)
- static time_point **now** () throw ()
- static std::time_t **to_time_t** (const time_point &__t)

Static Public Attributes

- static const bool **is_monotonic**

5.409.1 Detailed Description

system_clock

Definition at line 628 of file chrono.

The documentation for this struct was generated from the following file:

- chrono

5.410 std::chrono::time_point< _Clock, _Duration > Struct Template Reference

time_point

Public Types

- typedef _Clock **clock**
- typedef _Duration **duration**
- typedef duration::period **period**
- typedef duration::rep **rep**

Public Member Functions

- template<typename _Duration2 >
  time_point (const time_point< clock, _Duration2 > &__t)
- **time_point** (const duration &__dur)
- time_point & **operator+=** (const duration &__dur)
- time_point & **operator-=** (const duration &__dur)
- duration **time_since_epoch** () const

Static Public Member Functions

- static const time_point **max** ()
- static const time_point **min** ()

5.410.1 Detailed Description

template<typename _Clock, typename _Duration> struct std::chrono::time_point< _Clock, _Duration >

time_point

Definition at line 492 of file chrono.

The documentation for this struct was generated from the following file:

- chrono

5.411 std::chrono::treat_as_floating_point< _Rep > Struct Template Reference

treat_as_floating_point Inheritance diagram for std::chrono::treat_as_floating_point< _Rep >:

Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.411.1 Detailed Description

template<typename _Rep> struct std::chrono::treat_as_floating_point< _Rep >

treat_as_floating_point

Definition at line 168 of file chrono.

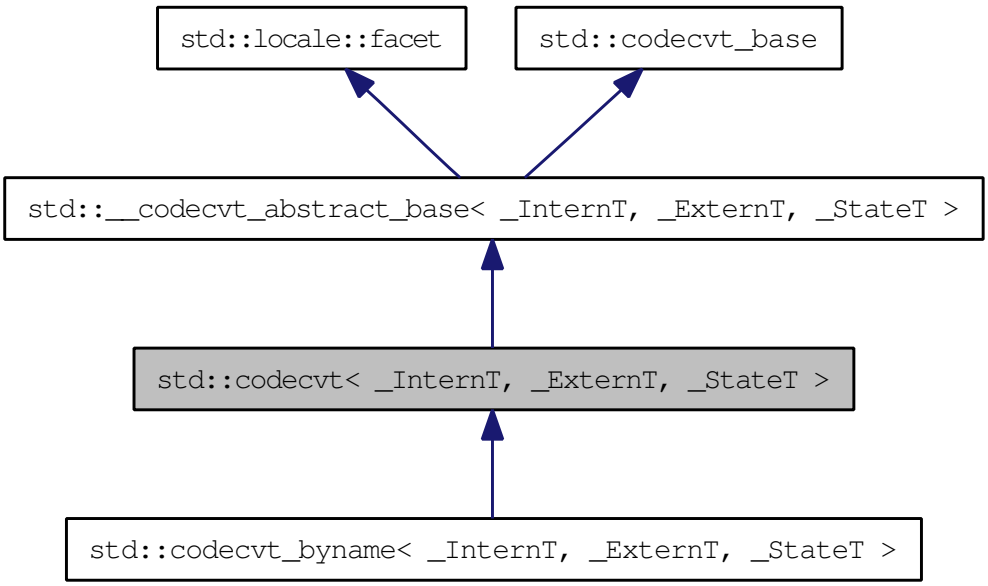
The documentation for this struct was generated from the following file:

- chrono

5.412 std::codecvt< _InternT, _ExternT, _StateT > Class Template Reference

Primary class template codecvt.

NB: Generic, mostly useless implementation. Inheritance diagram for std::codecvt< _InternT, _ExternT, _StateT >:



Public Types

- typedef _ExternT **extern_type**
- typedef _InternT **intern_type**
- typedef codecvt_base::result **result**
- typedef _StateT **state_type**

Public Member Functions

- **codecvt** (__c_locale __cloc, size_t __refs=0)
- **codecvt** (size_t __refs=0)
- bool **always_noconv** () const throw ()
- int **encoding** () const throw ()

- result in (state_type &__state, const extern_type *__from, const extern_type *__from_end, const extern_type *&__from_next, intern_type *__to, intern_type *__to_end, intern_type *&__to_next) const
- int **length** (state_type &__state, const extern_type *__from, const extern_type *__end, size_t __max) const
- int **max_length** () const throw ()
- result out (state_type &__state, const intern_type *__from, const intern_type *__from_end, const intern_type *&__from_next, extern_type *__to, extern_type *__to_end, extern_type *&__to_next) const
- result unshift (state_type &__state, extern_type *__to, extern_type *__to_end, extern_type *&__to_next) const

Static Public Attributes

- static locale::id **id**

Protected Member Functions

- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()
- virtual bool **do_always_noconv** () const throw ()
- virtual int **do_encoding** () const throw ()
- virtual result **do_in** (state_type &__state, const extern_type *__from, const extern_type *__from_end, const extern_type *&__from_next, intern_type *__to, intern_type *__to_end, intern_type *&__to_next) const
- virtual int **do_length** (state_type &, const extern_type *__from, const extern_type *__end, size_t __max) const
- virtual int **do_max_length** () const throw ()
- virtual result do_out (state_type &__state, const intern_type *__from, const intern_type *__from_end, const intern_type *&__from_next, extern_type *__to, extern_type *__to_end, extern_type *&__to_next) const
- virtual result **do_unshift** (state_type &__state, extern_type *__to, extern_type *__to_end, extern_type *&__to_next) const

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_locale __old=0)
- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Protected Attributes

- __c_locale **_M_c_locale_codecvt**

Friends

- class **locale::_Impl**

5.412.1 Detailed Description

template<typename _InternT, typename _ExternT, typename _StateT> class std::codecvt< _InternT, _ExternT, _StateT >

Primary class template codecvt.

NB: Generic, mostly useless implementation.

Definition at line 275 of file codecvt.h.

5.412.2 Member Function Documentation

5.412.2.1 template<typename _InternT , typename _ExternT , typename _StateT > virtual result std::codecvt< _InternT, _ExternT, _StateT >::do_out (state_type & *__state*, const intern_type * *__from*, const intern_type * *__from_end*, const intern_type *& *__from_next*, extern_type * *__to*, extern_type * *__to_end*, extern_type *& *__to_next*) const [protected, virtual]

Convert from internal to external character set. Converts input string of intern_type to output string of extern_type. This function is a hook for derived classes to change the value returned.

See also:

out for more information.

Implements std::__codecvt_abstract_base< _InternT, _ExternT, _StateT >.

5.412.2.2 template<typename _InternT, typename _ExternT, typename _StateT> result std::__codecvt_abstract_base< _InternT, _ExternT, _StateT >::in (state_type & *__state*, const extern_type * *__from*, const extern_type * *__from_end*, const extern_type *& *__from_next*, intern_type * *__to*, intern_type * *__to_end*, intern_type *& *__to_next*) const [inline, inherited]

Convert from external to internal character set. Converts input string of extern_type to output string of intern_type. This is analogous to mbsrtowcs. It does this by calling codecvt::do_in.

The source and destination character sets are determined by the facet's locale, internal and external types.

The characters in [from,from_end) are converted and written to [to,to_end). from_next and to_next are set to point to the character following the last successfully converted character, respectively. If the result needed no conversion, from_next and to_next are not affected.

The *state* argument should be initialized if the input is at the beginning and carried from a previous call if continuing conversion. There are no guarantees about how *state* is used.

The result returned is a member of codecvt_base::result. If all the input is converted, returns codecvt_base::ok. If no conversion is necessary, returns codecvt_base::noconv. If the input ends early or there is insufficient space in the output, returns codecvt_base::partial. Otherwise the conversion failed and codecvt_base::error is returned.

Parameters:

state Persistent conversion state data.

from Start of input.

from_end End of input.

from_next Returns start of unconverted data.

to Start of output buffer.

to_end End of output buffer.

to_next Returns start of unused output area.

Returns:

codecvt_base::result.

Definition at line 195 of file codecvt.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::underflow().

5.412.2.3 template<typename _InternT, typename _ExternT, typename _StateT> result std::__codecvt_abstract_base< _InternT, _ExternT, _StateT >::out (state_type & *__state*, const intern_type * *__from*, const intern_type * *__from_end*, const intern_type *& *__from_next*, extern_type * *__to*, extern_type * *__to_end*, extern_type *& *__to_next*) const [inline, inherited]

Convert from internal to external character set. Converts input string of intern_type to output string of extern_type. This is analogous to wcsrtombs. It does this by calling codecvt::do_out.

The source and destination character sets are determined by the facet's locale, internal and external types.

The characters in [from,from_end) are converted and written to [to,to_end). from_next and to_next are set to point to the character following the last successfully converted character, respectively. If the result needed no conversion, from_next and to_next are not affected.

The *state* argument should be initialized if the input is at the beginning and carried from a previous call if continuing conversion. There are no guarantees about how *state* is used.

The result returned is a member of codecvt_base::result. If all the input is converted, returns codecvt_base::ok. If no conversion is necessary, returns codecvt_base::noconv. If the input ends early or there is insufficient space in the output, returns codecvt_base::partial. Otherwise the conversion failed and codecvt_base::error is returned.

Parameters:

state Persistent conversion state data.

from Start of input.

from_end End of input.

from_next Returns start of unconverted data.

to Start of output buffer.

to_end End of output buffer.

to_next Returns start of unused output area.

Returns:

codecvt_base::result.

Definition at line 115 of file codecvt.h.

5.412.2.4 template<typename _InternT, typename _ExternT, typename _StateT> result std::__codecvt_abstract_base< _InternT, _ExternT, _StateT >::unshift (state_type & *__state*, extern_type * *__to*, extern_type * *__to_end*, extern_type *& *__to_next*) const [inline, inherited]

Reset conversion state. Writes characters to output that would restore *state* to initial conditions. The idea is that if a partial conversion occurs, then the converting the characters written by this function would leave the state in initial conditions, rather than partial conversion state. It does this by calling codecvt::do_unshift().

For example, if 4 external characters always converted to 1 internal character, and input to in() had 6 external characters with state saved, this function would write two characters to the output and set the state to initialized conditions.

The source and destination character sets are determined by the facet's locale, internal and external types.

The result returned is a member of codecvt_base::result. If the state could be reset and data written, returns codecvt_base::ok. If no conversion is necessary, returns codecvt_base::noconv. If the output has insufficient space, returns codecvt_base::partial. Otherwise the reset failed and codecvt_base::error is returned.

Parameters:

state Persistent conversion state data.

to Start of output buffer.

to_end End of output buffer.

to_next Returns start of unused output area.

Returns:

codecvt_base::result.

Definition at line 154 of file codecvt.h.

The documentation for this class was generated from the following file:

- codecvt.h

5.413 std::codecvt< _InternT, _ExternT, encoding_state > Class Template Reference

codecvt<InternT, _ExternT, encoding_state> specialization. Inheritance diagram for std::codecvt< _InternT, _ExternT, encoding_state >:

Public Types

- typedef state_type::descriptor_type **descriptor_type**
- typedef _ExternT **extern_type**
- typedef _InternT **intern_type**
- typedef codecvt_base::result **result**
- typedef __gnu_cxx::encoding_state **state_type**

Public Member Functions

- **codecvt** (state_type &__enc, size_t __refs=0)
- **codecvt** (size_t __refs=0)
- bool **always_noconv** () const throw ()
- int **encoding** () const throw ()
- result in (state_type &__state, const extern_type *__from, const extern_type *__from_end, const extern_type *&__from_next, intern_type *__to, intern_type *__to_end, intern_type *&__to_next) const
- int **length** (state_type &__state, const extern_type *__from, const extern_type *__end, size_t __max) const
- int **max_length** () const throw ()
- result out (state_type &__state, const intern_type *__from, const intern_type *__from_end, const intern_type *&__from_next, extern_type *__to, extern_type *__to_end, extern_type *&__to_next) const
- result unshift (state_type &__state, extern_type *__to, extern_type *__to_end, extern_type *&__to_next) const

Static Public Attributes

- static locale::id **id**

Protected Member Functions

- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()
- virtual bool **do_always_noconv** () const throw ()
- virtual int **do_encoding** () const throw ()
- virtual result **do_in** (state_type &__state, const extern_type *__from, const extern_type *__from_end, const extern_type *&__from_next, intern_type *__to, intern_type *__to_end, intern_type *&__to_next) const
- virtual int **do_length** (state_type &, const extern_type *__from, const extern_type *__end, size_t __max) const
- virtual int **do_max_length** () const throw ()
- virtual result do_out (state_type &__state, const intern_type *__from, const intern_type *__from_end, const intern_type *&__from_next, extern_type *__to, extern_type *__to_end, extern_type *&__to_next) const
- virtual result **do_unshift** (state_type &__state, extern_type *__to, extern_type *__to_end, extern_type *&__to_next) const

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_locale __old=0)
- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Friends

- class **locale::_Impl**

5.413.1 Detailed Description

template<typename _InternT, typename _ExternT> class std::codecvt< _InternT, _ExternT, encoding_state >

codecvt<InternT, _ExternT, encoding_state> specialization.

Definition at line 226 of file codecvt_specializations.h.

5.413.2 Member Function Documentation

5.413.2.1 template<typename _InternT , typename _ExternT > codecvt_base::result std::codecvt< _InternT, _ExternT, encoding_state >::do_out (state_type & *__state*, const intern_type * *__from*, const intern_type * *__from_end*, const intern_type *& *__from_next*, extern_type * *__to*, extern_type * *__to_end*, extern_type *& *__to_next*) const [inline, protected, virtual]

Convert from internal to external character set. Converts input string of intern_type to output string of extern_type. This function is a hook for derived classes to change the value returned.

See also:

out for more information.

Implements std::__codecvt_abstract_base< _InternT, _ExternT, encoding_state >.

Definition at line 302 of file codecvt_specializations.h.

5.413.2.2 result std::__codecvt_abstract_base< _InternT , _ExternT , encoding_state >::in (state_type & *__state*, const extern_type * *__from*, const extern_type * *__from_end*, const extern_type *& *__from_next*, intern_type * *__to*, intern_type * *__to_end*, intern_type *& *__to_next*) const [inline, inherited]

Convert from external to internal character set. Converts input string of extern_type to output string of intern_type. This is analogous to mbsrtowcs. It does this by calling codecvt::do_in.

The source and destination character sets are determined by the facet's locale, internal and external types.

The characters in [from,from_end) are converted and written to [to,to_end). from_next and to_next are set to point to the character following the last successfully converted character, respectively. If the result needed no conversion, from_next and to_next are not affected.

The *state* argument should be initialized if the input is at the beginning and carried from a previous call if continuing conversion. There are no guarantees about how *state* is used.

The result returned is a member of codecvt_base::result. If all the input is converted, returns codecvt_base::ok. If no conversion is necessary, returns codecvt_base::noconv. If the input ends early or there is insufficient space in the output, returns codecvt_base::partial. Otherwise the conversion failed and codecvt_base::error is returned.

Parameters:

state Persistent conversion state data.

from Start of input.

from_end End of input.

from_next Returns start of unconverted data.

to Start of output buffer.

to_end End of output buffer.

to_next Returns start of unused output area.

Returns:

codecvt_base::result.

Definition at line 195 of file codecvt.h.

5.413.2.3 result std::__codecvt_abstract_base< _InternT , _ExternT , encoding_state >::out (state_type & *__state*, const intern_type * *__from*, const intern_type * *__from_end*, const intern_type *& *__from_next*, extern_type * *__to*, extern_type * *__to_end*, extern_type *& *__to_next*) const [inline, inherited]

Convert from internal to external character set. Converts input string of intern_type to output string of extern_type. This is analogous to wcsrtombs. It does this by calling codecvt::do_out.

The source and destination character sets are determined by the facet's locale, internal and external types.

The characters in [from,from_end) are converted and written to [to,to_end). from_next and to_next are set to point to the character following the last successfully converted character, respectively. If the result needed no conversion, from_next and to_next are not affected.

The *state* argument should be initialized if the input is at the beginning and carried from a previous call if continuing conversion. There are no guarantees about how *state* is used.

The result returned is a member of codecvt_base::result. If all the input is converted, returns codecvt_base::ok. If no conversion is necessary, returns codecvt_base::noconv. If the input ends early or there is insufficient space in the output, returns codecvt_base::partial. Otherwise the conversion failed and codecvt_base::error is returned.

Parameters:

state Persistent conversion state data.

from Start of input.

from_end End of input.

from_next Returns start of unconverted data.

to Start of output buffer.

to_end End of output buffer.

to_next Returns start of unused output area.

Returns:

codecvt_base::result.

Definition at line 115 of file codecvt.h.

5.413.2.4 result std::__codecvt_abstract_base< _InternT , _ExternT , encoding_state >::unshift (state_type & *__state*, extern_type * *__to*, extern_type * *__to_end*, extern_type *& *__to_next*) const [inline, inherited]

Reset conversion state. Writes characters to output that would restore *state* to initial conditions. The idea is that if a partial conversion occurs, then the converting the characters written by this function would leave the state in initial conditions, rather than partial conversion state. It does this by calling codecvt::do_unshift().

For example, if 4 external characters always converted to 1 internal character, and input to in() had 6 external characters with state saved, this function would write two characters to the output and set the state to initialized conditions.

The source and destination character sets are determined by the facet's locale, internal and external types.

The result returned is a member of codecvt_base::result. If the state could be reset and data written, returns codecvt_base::ok. If no conversion is necessary, returns codecvt_base::noconv. If the output has insufficient space, returns codecvt_base::partial. Otherwise the reset failed and codecvt_base::error is returned.

Parameters:

state Persistent conversion state data.

to Start of output buffer.

to_end End of output buffer.

to_next Returns start of unused output area.

Returns:

codecvt_base::result.

Definition at line 154 of file codecvt.h.

The documentation for this class was generated from the following file:

- codecvt_specializations.h

5.414 std::codecvt< char, char, mbstate_t > Class Template Reference

class codecvt<char, char, mbstate_t> specialization. Inheritance diagram for std::codecvt< char, char, mbstate_t >:

Public Types

- typedef char **extern_type**
- typedef char **intern_type**
- typedef codecvt_base::result **result**
- typedef mbstate_t **state_type**

Public Member Functions

- **codecvt** (__c_locale __cloc, size_t __refs=0)
- **codecvt** (size_t __refs=0)
- bool **always_noconv** () const throw ()
- int **encoding** () const throw ()
- result in (state_type &__state, const extern_type *__from, const extern_type *__from_end, const extern_type *&__from_next, intern_type *__to, intern_type *__to_end, intern_type *&__to_next) const
- int **length** (state_type &__state, const extern_type *__from, const extern_type *__end, size_t __max) const
- int **max_length** () const throw ()
- result out (state_type &__state, const intern_type *__from, const intern_type *__from_end, const intern_type *&__from_next, extern_type *__to, extern_type *__to_end, extern_type *&__to_next) const
- result unshift (state_type &__state, extern_type *__to, extern_type *__to_end, extern_type *&__to_next) const

Static Public Attributes

- static locale::id **id**

Protected Member Functions

- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()
- virtual bool **do_always_noconv** () const throw ()
- virtual int **do_encoding** () const throw ()
- virtual result **do_in** (state_type &__state, const extern_type *__from, const extern_type *__from_end, const extern_type *&__from_next, intern_type *__to, intern_type *__to_end, intern_type *&__to_next) const
- virtual int **do_length** (state_type &, const extern_type *__from, const extern_type *__end, size_t __max) const
- virtual int **do_max_length** () const throw ()
- virtual result do_out (state_type &__state, const intern_type *__from, const intern_type *__from_end, const intern_type *&__from_next, extern_type *__to, extern_type *__to_end, extern_type *&__to_next) const
- virtual result **do_unshift** (state_type &__state, extern_type *__to, extern_type *__to_end, extern_type *&__to_next) const

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_locale __old=0)
- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Protected Attributes

- __c_locale **_M_c_locale_codecvt**

Friends

- class **locale::_Impl**

5.414.1 Detailed Description

template<> class std::codecvt< char, char, mbstate_t >

class codecvt<char, char, mbstate_t> specialization.

Definition at line 337 of file codecvt.h.

5.414.2 Member Function Documentation

5.414.2.1 virtual result std::codecvt< char, char, mbstate_t >::do_out (state_type & *__state*, const intern_type * *__from*, const intern_type * *__from_end*, const intern_type *& *__from_next*, extern_type * *__to*, extern_type * *__to_end*, extern_type *& *__to_next*) const [protected, virtual]

Convert from internal to external character set. Converts input string of intern_type to output string of extern_type. This function is a hook for derived classes to change the value returned.

See also:

out for more information.

Implements std::__codecvt_abstract_base< char, char, mbstate_t >.

5.414.2.2 result std::__codecvt_abstract_base< char , char , mbstate_t >::in (state_type & *__state*, const extern_type * *__from*, const extern_type * *__from_end*, const extern_type *& *__from_next*, intern_type * *__to*, intern_type * *__to_end*, intern_type *& *__to_next*) const [inline, inherited]

Convert from external to internal character set. Converts input string of extern_type to output string of intern_type. This is analogous to mbsrtowcs. It does this by calling codecvt::do_in.

The source and destination character sets are determined by the facet's locale, internal and external types.

The characters in [from,from_end) are converted and written to [to,to_end). from_next and to_next are set to point to the character following the last successfully converted character, respectively. If the result needed no conversion, from_next and to_next are not affected.

The *state* argument should be initialized if the input is at the beginning and carried from a previous call if continuing conversion. There are no guarantees about how *state* is used.

The result returned is a member of codecvt_base::result. If all the input is converted, returns codecvt_base::ok. If no conversion is necessary, returns codecvt_base::noconv. If the input ends early or there is insufficient space in the output, returns codecvt_base::partial. Otherwise the conversion failed and codecvt_base::error is returned.

Parameters:

state Persistent conversion state data.

from Start of input.

from_end End of input.

from_next Returns start of unconverted data.

to Start of output buffer.

to_end End of output buffer.

to_next Returns start of unused output area.

Returns:

codecvt_base::result.

Definition at line 195 of file codecvt.h.

5.414.2.3 result std::__codecvt_abstract_base< char , char , mbstate_t >::out (state_type & *__state*, const intern_type * *__from*, const intern_type * *__from_end*, const intern_type *& *__from_next*, extern_type * *__to*, extern_type * *__to_end*, extern_type *& *__to_next*) const [inline, inherited]

Convert from internal to external character set. Converts input string of intern_type to output string of extern_type. This is analogous to wcsrtombs. It does this by calling codecvt::do_out.

The source and destination character sets are determined by the facet's locale, internal and external types.

The characters in [from,from_end) are converted and written to [to,to_end). from_next and to_next are set to point to the character following the last successfully converted character, respectively. If the result needed no conversion, from_next and to_next are not affected.

The *state* argument should be initialized if the input is at the beginning and carried from a previous call if continuing conversion. There are no guarantees about how *state* is used.

The result returned is a member of codecvt_base::result. If all the input is converted, returns codecvt_base::ok. If no conversion is necessary, returns codecvt_base::noconv. If the input ends early or there is insufficient space in the output, returns codecvt_base::partial. Otherwise the conversion failed and codecvt_base::error is returned.

Parameters:

state Persistent conversion state data.

from Start of input.

from_end End of input.

from_next Returns start of unconverted data.

to Start of output buffer.

to_end End of output buffer.

to_next Returns start of unused output area.

Returns:

codecvt_base::result.

Definition at line 115 of file codecvt.h.

5.414.2.4 result std::__codecvt_abstract_base< char , char , mbstate_t >::unshift (state_type & *__state*, extern_type * *__to*, extern_type * *__to_end*, extern_type *& *__to_next*) const [inline, inherited]

Reset conversion state. Writes characters to output that would restore *state* to initial conditions. The idea is that if a partial conversion occurs, then the converting the characters written by this function would leave the state in initial conditions, rather than partial conversion state. It does this by calling codecvt::do_unshift().

For example, if 4 external characters always converted to 1 internal character, and input to in() had 6 external characters with state saved, this function would write two characters to the output and set the state to initialized conditions.

The source and destination character sets are determined by the facet's locale, internal and external types.

The result returned is a member of codecvt_base::result. If the state could be reset and data written, returns codecvt_base::ok. If no conversion is necessary, returns codecvt_base::noconv. If the output has insufficient space, returns codecvt_base::partial. Otherwise the reset failed and codecvt_base::error is returned.

Parameters:

state Persistent conversion state data.

to Start of output buffer.

to_end End of output buffer.

to_next Returns start of unused output area.

Returns:

codecvt_base::result.

Definition at line 154 of file codecvt.h.

The documentation for this class was generated from the following file:

- codecvt.h

5.415 std::codecvt< wchar_t, char, mbstate_t > Class Template Reference

class codecvt<wchar_t, char, mbstate_t> specialization. Inheritance diagram for std::codecvt< wchar_t, char, mbstate_t >:

Public Types

- typedef char **extern_type**
- typedef wchar_t **intern_type**
- typedef codecvt_base::result **result**
- typedef mbstate_t **state_type**

Public Member Functions

- **codecvt** (__c_locale __cloc, size_t __refs=0)
- **codecvt** (size_t __refs=0)
- bool **always_noconv** () const throw ()
- int **encoding** () const throw ()
- result in (state_type &__state, const extern_type *__from, const extern_type *__from_end, const extern_type *&__from_next, intern_type *__to, intern_type *__to_end, intern_type *&__to_next) const
- int **length** (state_type &__state, const extern_type *__from, const extern_type *__end, size_t __max) const
- int **max_length** () const throw ()
- result out (state_type &__state, const intern_type *__from, const intern_type *__from_end, const intern_type *&__from_next, extern_type *__to, extern_type *__to_end, extern_type *&__to_next) const
- result unshift (state_type &__state, extern_type *__to, extern_type *__to_end, extern_type *&__to_next) const

Static Public Attributes

- static locale::id **id**

Protected Member Functions

- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()
- virtual bool **do_always_noconv** () const throw ()
- virtual int **do_encoding** () const throw ()
- virtual result **do_in** (state_type &__state, const extern_type *__from, const extern_type *__from_end, const extern_type *&__from_next, intern_type *__to, intern_type *__to_end, intern_type *&__to_next) const
- virtual int **do_length** (state_type &, const extern_type *__from, const extern_type *__end, size_t __max) const
- virtual int **do_max_length** () const throw ()
- virtual result do_out (state_type &__state, const intern_type *__from, const intern_type *__from_end, const intern_type *&__from_next, extern_type *__to, extern_type *__to_end, extern_type *&__to_next) const
- virtual result **do_unshift** (state_type &__state, extern_type *__to, extern_type *__to_end, extern_type *&__to_next) const

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_locale __old=0)
- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Protected Attributes

- __c_locale **_M_c_locale_codecvt**

Friends

- class **locale::_Impl**

5.415.1 Detailed Description

template<> class std::codecvt< wchar_t, char, mbstate_t >

class codecvt<wchar_t, char, mbstate_t> specialization.

Definition at line 395 of file codecvt.h.

5.415.2 Member Function Documentation

5.415.2.1 virtual result std::codecvt< wchar_t, char, mbstate_t >::do_out (state_type & *__state*, const intern_type * *__from*, const intern_type * *__from_end*, const intern_type *& *__from_next*, extern_type * *__to*, extern_type * *__to_end*, extern_type *& *__to_next*) const [protected, virtual]

Convert from internal to external character set. Converts input string of intern_type to output string of extern_type. This function is a hook for derived classes to change the value returned.

See also:

out for more information.

Implements std::__codecvt_abstract_base< wchar_t, char, mbstate_t >.

5.415.2.2 result std::__codecvt_abstract_base< wchar_t , char , mbstate_t >::in (state_type & *__state*, const extern_type * *__from*, const extern_type * *__from_end*, const extern_type *& *__from_next*, intern_type * *__to*, intern_type * *__to_end*, intern_type *& *__to_next*) const [inline, inherited]

Convert from external to internal character set. Converts input string of extern_type to output string of intern_type. This is analogous to mbsrtowcs. It does this by calling codecvt::do_in.

The source and destination character sets are determined by the facet's locale, internal and external types.

The characters in [from,from_end) are converted and written to [to,to_end). from_next and to_next are set to point to the character following the last successfully converted character, respectively. If the result needed no conversion, from_next and to_next are not affected.

The *state* argument should be initialized if the input is at the beginning and carried from a previous call if continuing conversion. There are no guarantees about how *state* is used.

The result returned is a member of codecvt_base::result. If all the input is converted, returns codecvt_base::ok. If no conversion is necessary, returns codecvt_base::noconv. If the input ends early or there is insufficient space in the output, returns codecvt_base::partial. Otherwise the conversion failed and codecvt_base::error is returned.

Parameters:

state Persistent conversion state data.

from Start of input.

from_end End of input.

from_next Returns start of unconverted data.

to Start of output buffer.

to_end End of output buffer.

to_next Returns start of unused output area.

Returns:

codecvt_base::result.

Definition at line 195 of file codecvt.h.

5.415.2.3 result std::__codecvt_abstract_base< wchar_t , char , mbstate_t >::out (state_type & *__state*, const intern_type * *__from*, const intern_type * *__from_end*, const intern_type *& *__from_next*, extern_type * *__to*, extern_type * *__to_end*, extern_type *& *__to_next*) const [inline, inherited]

Convert from internal to external character set. Converts input string of intern_type to output string of extern_type. This is analogous to wcsrtombs. It does this by calling codecvt::do_out.

The source and destination character sets are determined by the facet's locale, internal and external types.

The characters in [from,from_end) are converted and written to [to,to_end). from_next and to_next are set to point to the character following the last successfully converted character, respectively. If the result needed no conversion, from_next and to_next are not affected.

The *state* argument should be initialized if the input is at the beginning and carried from a previous call if continuing conversion. There are no guarantees about how *state* is used.

The result returned is a member of codecvt_base::result. If all the input is converted, returns codecvt_base::ok. If no conversion is necessary, returns codecvt_base::noconv. If the input ends early or there is insufficient space in the output, returns codecvt_base::partial. Otherwise the conversion failed and codecvt_base::error is returned.

Parameters:

state Persistent conversion state data.

from Start of input.

from_end End of input.

from_next Returns start of unconverted data.

to Start of output buffer.

to_end End of output buffer.

to_next Returns start of unused output area.

Returns:

codecvt_base::result.

Definition at line 115 of file codecvt.h.

5.415.2.4 result std::__codecvt_abstract_base< wchar_t , char , mbstate_t >::unshift (state_type & *__state*, extern_type * *__to*, extern_type * *__to_end*, extern_type *& *__to_next*) const [inline, inherited]

Reset conversion state. Writes characters to output that would restore *state* to initial conditions. The idea is that if a partial conversion occurs, then the converting the characters written by this function would leave the state in initial conditions, rather than partial conversion state. It does this by calling codecvt::do_unshift().

For example, if 4 external characters always converted to 1 internal character, and input to in() had 6 external characters with state saved, this function would write two characters to the output and set the state to initialized conditions.

The source and destination character sets are determined by the facet's locale, internal and external types.

The result returned is a member of codecvt_base::result. If the state could be reset and data written, returns codecvt_base::ok. If no conversion is necessary, returns codecvt_base::noconv. If the output has insufficient space, returns codecvt_base::partial. Otherwise the reset failed and codecvt_base::error is returned.

Parameters:

state Persistent conversion state data.

to Start of output buffer.

to_end End of output buffer.

to_next Returns start of unused output area.

Returns:

codecvt_base::result.

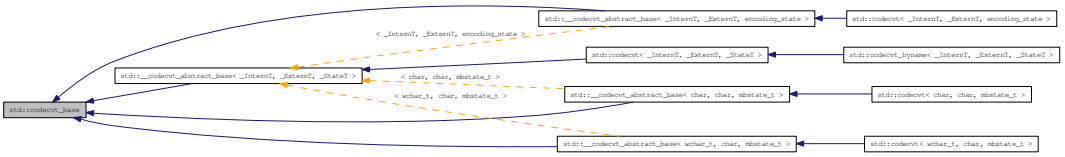
Definition at line 154 of file codecvt.h.

The documentation for this class was generated from the following file:

- codecvt.h

5.416 std::codecvt_base Class Reference

Empty base class for codecvt facet [22.2.1.5]. Inheritance diagram for std::codecvt_-base:



Public Types

- enum **result** { **ok**, **partial**, **error**, **noconv** }

5.416.1 Detailed Description

Empty base class for codecvt facet [22.2.1.5].

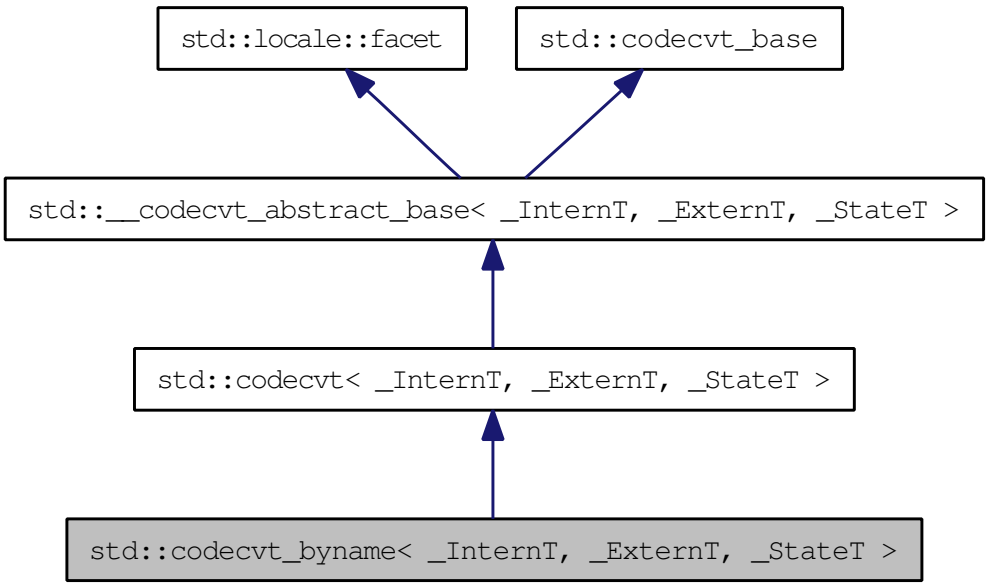
Definition at line 45 of file codecvt.h.

The documentation for this class was generated from the following file:

- codecvt.h

5.417 std::codecvt_byname< _InternT, _ExternT, _StateT > Class Template Reference

class codecvt_byname [22.2.1.6]. Inheritance diagram for std::codecvt_byname< _InternT, _ExternT, _StateT >:



Public Types

- typedef _ExternT **extern_type**
- typedef _InternT **intern_type**
- typedef codecvt_base::result **result**
- typedef _StateT **state_type**

Public Member Functions

- **codecvt_byname** (const char *__s, size_t __refs=0)
- bool **always_noconv** () const throw ()
- int **encoding** () const throw ()
- result in (state_type &__state, const extern_type *__from, const extern_type *__from_end, const extern_type *&__from_next, intern_type *__to, intern_type *__to_end, intern_type *&__to_next) const

- int **length** (state_type &__state, const extern_type *__from, const extern_type *__end, size_t __max) const
- int **max_length** () const throw ()
- result out (state_type &__state, const intern_type *__from, const intern_type *__from_end, const intern_type *&__from_next, extern_type *__to, extern_type *__to_end, extern_type *&__to_next) const
- result unshift (state_type &__state, extern_type *__to, extern_type *__to_end, extern_type *&__to_next) const

Static Public Attributes

- static locale::id **id**

Protected Member Functions

- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()
- virtual bool **do_always_noconv** () const throw ()
- virtual int **do_encoding** () const throw ()
- virtual result **do_in** (state_type &__state, const extern_type *__from, const extern_type *__from_end, const extern_type *&__from_next, intern_type *__to, intern_type *__to_end, intern_type *&__to_next) const
- virtual int **do_length** (state_type &, const extern_type *__from, const extern_type *__end, size_t __max) const
- virtual int **do_max_length** () const throw ()
- virtual result do_out (state_type &__state, const intern_type *__from, const intern_type *__from_end, const intern_type *&__from_next, extern_type *__to, extern_type *__to_end, extern_type *&__to_next) const
- virtual result **do_unshift** (state_type &__state, extern_type *__to, extern_type *__to_end, extern_type *&__to_next) const

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_locale __old=0)
- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Protected Attributes

- __c_locale **_M_c_locale_codecvt**

Friends

- class **locale::_Impl**

5.417.1 Detailed Description

template<typename _InternT, typename _ExternT, typename _StateT> class std::codecvt_byname< _InternT, _ExternT, _StateT >

class codecvt_byname [22.2.1.6].

Definition at line 455 of file codecvt.h.

5.417.2 Member Function Documentation

5.417.2.1 template<typename _InternT , typename _ExternT , typename _StateT > virtual result std::codecvt< _InternT, _ExternT, _StateT >::do_out (state_type & *__state*, const intern_type * *__from*, const intern_type * *__from_end*, const intern_type *& *__from_next*, extern_type * *__to*, extern_type * *__to_end*, extern_type *& *__to_next*) const [protected, virtual, inherited]

Convert from internal to external character set. Converts input string of intern_type to output string of extern_type. This function is a hook for derived classes to change the value returned.

See also:

out for more information.

Implements std::__codecvt_abstract_base< _InternT, _ExternT, _StateT >.

5.417.2.2 template<typename _InternT, typename _ExternT, typename _StateT> result std::__codecvt_abstract_base< _InternT, _ExternT, _StateT >::in (state_type & *__state*, const extern_type * *__from*, const extern_type * *__from_end*, const extern_type *& *__from_next*, intern_type * *__to*, intern_type * *__to_end*, intern_type *& *__to_next*) const [inline, inherited]

Convert from external to internal character set. Converts input string of extern_type to output string of intern_type. This is analogous to mbsrtowcs. It does this by calling codecvt::do_in.

The source and destination character sets are determined by the facet's locale, internal and external types.

The characters in [from,from_end) are converted and written to [to,to_end). from_next and to_next are set to point to the character following the last successfully converted character, respectively. If the result needed no conversion, from_next and to_next are not affected.

The *state* argument should be initialized if the input is at the beginning and carried from a previous call if continuing conversion. There are no guarantees about how *state* is used.

The result returned is a member of codecvt_base::result. If all the input is converted, returns codecvt_base::ok. If no conversion is necessary, returns codecvt_base::noconv. If the input ends early or there is insufficient space in the output, returns codecvt_base::partial. Otherwise the conversion failed and codecvt_base::error is returned.

Parameters:

state Persistent conversion state data.

from Start of input.

from_end End of input.

from_next Returns start of unconverted data.

to Start of output buffer.

to_end End of output buffer.

to_next Returns start of unused output area.

Returns:

codecvt_base::result.

Definition at line 195 of file codecvt.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::underflow().

5.417.2.3 template<typename _InternT, typename _ExternT, typename _StateT> result std::__codecvt_abstract_base< _InternT, _ExternT, _StateT >::out (state_type & *__state*, const intern_type * *__from*, const intern_type * *__from_end*, const intern_type *& *__from_next*, extern_type * *__to*, extern_type * *__to_end*, extern_type *& *__to_next*) const [inline, inherited]

Convert from internal to external character set. Converts input string of intern_type to output string of extern_type. This is analogous to wcsrtombs. It does this by calling codecvt::do_out.

The source and destination character sets are determined by the facet's locale, internal and external types.

The characters in [from,from_end) are converted and written to [to,to_end). from_next and to_next are set to point to the character following the last successfully converted character, respectively. If the result needed no conversion, from_next and to_next are not affected.

The *state* argument should be initialized if the input is at the beginning and carried from a previous call if continuing conversion. There are no guarantees about how *state* is used.

The result returned is a member of codecvt_base::result. If all the input is converted, returns codecvt_base::ok. If no conversion is necessary, returns codecvt_base::noconv. If the input ends early or there is insufficient space in the output, returns codecvt_base::partial. Otherwise the conversion failed and codecvt_base::error is returned.

Parameters:

state Persistent conversion state data.

from Start of input.

from_end End of input.

from_next Returns start of unconverted data.

to Start of output buffer.

to_end End of output buffer.

to_next Returns start of unused output area.

Returns:

codecvt_base::result.

Definition at line 115 of file codecvt.h.

5.417.2.4 template<typename _InternT, typename _ExternT, typename _StateT> result std::__codecvt_abstract_base< _InternT, _ExternT, _StateT >::unshift (state_type & *__state*, extern_type * *__to*, extern_type * *__to_end*, extern_type *& *__to_next*) const [inline, inherited]

Reset conversion state. Writes characters to output that would restore *state* to initial conditions. The idea is that if a partial conversion occurs, then the converting the characters written by this function would leave the state in initial conditions, rather than partial conversion state. It does this by calling codecvt::do_unshift().

For example, if 4 external characters always converted to 1 internal character, and input to in() had 6 external characters with state saved, this function would write two characters to the output and set the state to initialized conditions.

The source and destination character sets are determined by the facet's locale, internal and external types.

The result returned is a member of codecvt_base::result. If the state could be reset and data written, returns codecvt_base::ok. If no conversion is necessary, returns codecvt_base::noconv. If the output has insufficient space, returns codecvt_base::partial. Otherwise the reset failed and codecvt_base::error is returned.

Parameters:

state Persistent conversion state data.

to Start of output buffer.

to_end End of output buffer.

to_next Returns start of unused output area.

Returns:

codecvt_base::result.

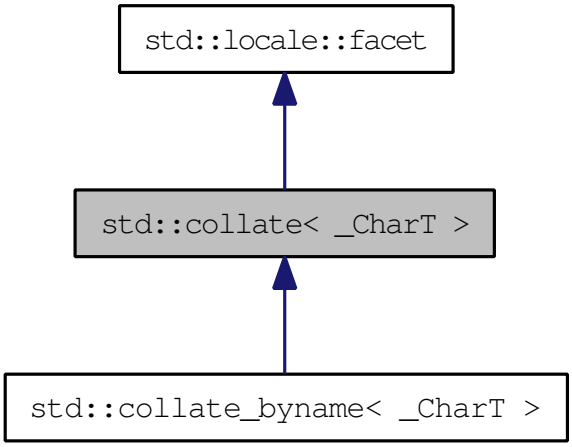
Definition at line 154 of file codecvt.h.

The documentation for this class was generated from the following file:

- codecvt.h

5.418 std::collate< _CharT > Class Template Reference

Facet for localized string comparison. Inheritance diagram for std::collate< _CharT >:



Public Types

- typedef _CharT char_type
- typedef basic_string< _CharT > string_type

Public Member Functions

- collate (__c_locale __cloc, size_t __refs=0)
- collate (size_t __refs=0)
- template<>
  int **_M_compare** (const wchar_t *, const wchar_t *) const throw()
- template<>
  int **_M_compare** (const char *, const char *) const throw()
- int **_M_compare** (const _CharT *, const _CharT *) const throw ()
- template<>
  size_t **_M_transform** (wchar_t *, const wchar_t *, size_t) const throw()
- template<>
  size_t **_M_transform** (char *, const char *, size_t) const throw()
- size_t **_M_transform** (_CharT *, const _CharT *, size_t) const throw ()
- int compare (const _CharT *__lo1, const _CharT *__hi1, const _CharT *__lo2, const _CharT *__hi2) const

- long hash (const _CharT *__lo, const _CharT *__hi) const
- string_type transform (const _CharT *__lo, const _CharT *__hi) const

Static Public Attributes

- static locale::id id

Protected Member Functions

- virtual ~collate ()
- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()
- virtual int do_compare (const _CharT *__lo1, const _CharT *__hi1, const _CharT *__lo2, const _CharT *__hi2) const
- virtual long do_hash (const _CharT *__lo, const _CharT *__hi) const
- virtual string_type do_transform (const _CharT *__lo, const _CharT *__hi) const

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_locale __old=0)
- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Protected Attributes

- __c_locale **_M_c_locale_collate**

Friends

- class **locale::_Impl**

5.418.1 Detailed Description

template<typename _CharT> class std::collate< _CharT >

Facet for localized string comparison. This facet encapsulates the code to compare strings in a localized manner.

The collate template uses protected virtual functions to provide the actual results. The public accessors forward the call to the virtual functions. These virtual functions are hooks for developers to implement the behavior they require from the collate facet.

Definition at line 610 of file locale_classes.h.

5.418.2 Member Typedef Documentation

5.418.2.1 template<typename _CharT> typedef _CharT std::collate< _CharT >::char_type

Public typedefs.

Reimplemented in std::collate_byname< _CharT >.

Definition at line 616 of file locale_classes.h.

5.418.2.2 template<typename _CharT> typedef basic_string<_CharT> std::collate< _CharT >::string_type

Public typedefs.

Reimplemented in std::collate_byname< _CharT >.

Definition at line 617 of file locale_classes.h.

5.418.3 Constructor & Destructor Documentation

5.418.3.1 template<typename _CharT> std::collate< _CharT >::collate (size_t __*refs* = 0) [inline, explicit]

Constructor performs initialization. This is the constructor provided by the standard.

Parameters:

refs Passed to the base facet class.

Definition at line 637 of file locale_classes.h.

5.418.3.2 template<typename _CharT> std::collate< _CharT >::collate (__c_locale __*cloc*, size_t __*refs* = 0) [inline, explicit]

Internal constructor. Not for general use. This is a constructor for use by the library itself to set up new locales.

Parameters:

cloc The C locale.

refs Passed to the base facet class.

Definition at line 651 of file locale_classes.h.

5.418.3.3 template<typename _CharT> virtual std::collate< _CharT >::~collate () [inline, protected, virtual]

Destructor.

Definition at line 714 of file locale_classes.h.

5.418.4 Member Function Documentation

5.418.4.1 template<typename _CharT> int std::collate< _CharT >::compare (const _CharT * *__lo1*, const _CharT * *__hi1*, const _CharT * *__lo2*, const _CharT * *__hi2*) const [inline]

Compare two strings. This function compares two strings and returns the result by calling collate::do_compare().

Parameters:

lo1 Start of string 1.

hi1 End of string 1.

lo2 Start of string 2.

hi2 End of string 2.

Returns:

1 if string1 > string2, -1 if string1 < string2, else 0.

Definition at line 668 of file locale_classes.h.

5.418.4.2 template<typename _CharT> int std::collate< _CharT >::do_compare (const _CharT * *__lo1*, const _CharT * *__hi1*, const _CharT * *__lo2*, const _CharT * *__hi2*) const [inline, protected, virtual]

Compare two strings. This function is a hook for derived classes to change the value returned.

See also:

compare().

Parameters:

lo1 Start of string 1.

hi1 End of string 1.

lo2 Start of string 2.

hi2 End of string 2.

Returns:

1 if string1 > string2, -1 if string1 < string2, else 0.

Definition at line 134 of file locale_classes.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::c_str(), std::basic_string< _CharT, _Traits, _Alloc >::data(), and std::basic_string< _CharT, _Traits, _Alloc >::length().

5.418.4.3 template<typename _CharT> long std::collate< _CharT >::do_hash (const _CharT * *__lo*, const _CharT * *__hi*) const [inline, protected, virtual]

Return hash of a string. This function computes and returns a hash on the input string. This function is a hook for derived classes to change the value returned.

Parameters:

lo Start of string.

hi End of string.

Returns:

Hash value.

Definition at line 229 of file locale_classes.tcc.

5.418.4.4 template<typename _CharT> collate< _CharT >::string_type std::collate< _CharT >::do_transform (const _CharT * *__lo*, const _CharT * *__hi*) const [inline, protected, virtual]

Transform string to comparable form. This function is a hook for derived classes to change the value returned.

Parameters:

lo1 Start of string 1.

hi1 End of string 1.

lo2 Start of string 2.

hi2 End of string 2.

Returns:

1 if string1 > string2, -1 if string1 < string2, else 0.

Definition at line 173 of file locale_classes.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::append(), std::basic_string< _CharT, _Traits, _Alloc >::c_str(), std::basic_string< _CharT, _Traits, _Alloc >::data(), std::basic_string< _CharT, _Traits, _Alloc >::length(), and std::basic_string< _CharT, _Traits, _Alloc >::push_back().

5.418.4.5 template<typename _CharT> long std::collate< _CharT >::hash (const _CharT * *__lo*, const _CharT * *__hi*) const [inline]

Return hash of a string. This function computes and returns a hash on the input string. It does so by returning collate::do_hash().

Parameters:

lo Start of string.

hi End of string.

Returns:

Hash value.

Definition at line 701 of file locale_classes.h.

5.418.4.6 template<typename _CharT> string_type std::collate< _CharT >::transform (const _CharT * *__lo*, const _CharT * *__hi*) const [inline]

Transform string to comparable form. This function is a wrapper for strxfrm functionality. It takes the input string and returns a modified string that can be directly compared to other transformed strings. In the C locale, this function just returns a copy of the input string. In some other locales, it may replace two chars with one, change a char for another, etc. It does so by returning collate::do_transform().

Parameters:

lo Start of string.

hi End of string.

Returns:

Transformed string_type.

Definition at line 687 of file locale_classes.h.

Referenced by std::regex_traits< _Ch_type >::transform().

5.418.5 Member Data Documentation

5.418.5.1 template<typename _CharT> locale::id std::collate< _CharT >::id [inline, static]

Numpunct facet id.

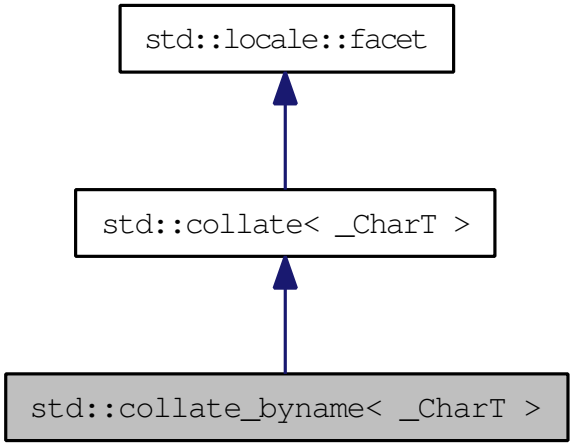
Definition at line 627 of file locale_classes.h.

The documentation for this class was generated from the following files:

- locale_classes.h
- locale_classes.tcc

5.419 std::collate_byname< _CharT > Class Template Reference

class collate_byname [22.2.4.2]. Inheritance diagram for std::collate_byname< _CharT >:



Public Types

- typedef _CharT char_type
- typedef basic_string< _CharT > string_type

Public Member Functions

- **collate_byname** (const char *__s, size_t __refs=0)
- template<>
  int **_M_compare** (const wchar_t *, const wchar_t *) const throw()
- template<>
  int **_M_compare** (const char *, const char *) const throw()
- int **_M_compare** (const _CharT *, const _CharT *) const throw ()
- template<>
  size_t **_M_transform** (wchar_t *, const wchar_t *, size_t) const throw()
- template<>
  size_t **_M_transform** (char *, const char *, size_t) const throw()
- size_t **_M_transform** (_CharT *, const _CharT *, size_t) const throw ()
- int compare (const _CharT *__lo1, const _CharT *__hi1, const _CharT *__lo2, const _CharT *__hi2) const

- long hash (const _CharT *__lo, const _CharT *__hi) const
- string_type transform (const _CharT *__lo, const _CharT *__hi) const

Static Public Attributes

- static locale::id id

Protected Member Functions

- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()
- virtual int do_compare (const _CharT *__lo1, const _CharT *__hi1, const _CharT *__lo2, const _CharT *__hi2) const
- virtual long do_hash (const _CharT *__lo, const _CharT *__hi) const
- virtual string_type do_transform (const _CharT *__lo, const _CharT *__hi) const

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_locale __old=0)
- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Protected Attributes

- __c_locale **_M_c_locale_collate**

Friends

- class **locale::_Impl**

5.419.1 Detailed Description

template<typename _CharT> class std::collate_byname< _CharT >

class collate_byname [22.2.4.2].

Definition at line 786 of file locale_classes.h.

5.419.2 Member Typedef Documentation

5.419.2.1 template<typename _CharT > typedef _CharT std::collate_byname< _CharT >::char_type

Public typedefs.

Reimplemented from std::collate< _CharT >.

Definition at line 791 of file locale_classes.h.

5.419.2.2 template<typename _CharT > typedef basic_string<_CharT> std::collate_byname< _CharT >::string_type

Public typedefs.

Reimplemented from std::collate< _CharT >.

Definition at line 792 of file locale_classes.h.

5.419.3 Member Function Documentation

5.419.3.1 template<typename _CharT> int std::collate< _CharT >::compare (const _CharT * *__lo1*, const _CharT * *__hi1*, const _CharT * *__lo2*, const _CharT * *__hi2*) const [inline, inherited]

Compare two strings. This function compares two strings and returns the result by calling collate::do_compare().

Parameters:

lo1 Start of string 1.

hi1 End of string 1.

lo2 Start of string 2.

hi2 End of string 2.

Returns:

1 if string1 > string2, -1 if string1 < string2, else 0.

Definition at line 668 of file locale_classes.h.

5.419.3.2 template<typename _CharT> int std::collate< _CharT >::do_compare (const _CharT * *__lo1*, const _CharT * *__hi1*, const _CharT * *__lo2*, const _CharT * *__hi2*) const [inline, protected, virtual, inherited]

Compare two strings. This function is a hook for derived classes to change the value returned.

See also:

compare().

Parameters:

lo1 Start of string 1.

hi1 End of string 1.

lo2 Start of string 2.

hi2 End of string 2.

Returns:

1 if string1 > string2, -1 if string1 < string2, else 0.

Definition at line 134 of file locale_classes.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::c_str(), std::basic_string< _CharT, _Traits, _Alloc >::data(), and std::basic_string< _CharT, _Traits, _Alloc >::length().

5.419.3.3 template<typename _CharT> long std::collate< _CharT >::do_hash (const _CharT * *__lo*, const _CharT * *__hi*) const [inline, protected, virtual, inherited]

Return hash of a string. This function computes and returns a hash on the input string. This function is a hook for derived classes to change the value returned.

Parameters:

lo Start of string.

hi End of string.

Returns:

Hash value.

Definition at line 229 of file locale_classes.tcc.

5.419.3.4 template<typename _CharT> collate< _CharT >::string_type std::collate< _CharT >::do_transform (const _CharT * *__lo*, const _CharT * *__hi*) const [inline, protected, virtual, inherited]

Transform string to comparable form. This function is a hook for derived classes to change the value returned.

Parameters:

lo1 Start of string 1.

hi1 End of string 1.

lo2 Start of string 2.

hi2 End of string 2.

Returns:

1 if string1 > string2, -1 if string1 < string2, else 0.

Definition at line 173 of file locale_classes.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::append(), std::basic_string< _CharT, _Traits, _Alloc >::c_str(), std::basic_string< _CharT, _Traits, _Alloc >::data(), std::basic_string< _CharT, _Traits, _Alloc >::length(), and std::basic_string< _CharT, _Traits, _Alloc >::push_back().

5.419.3.5 template<typename _CharT> long std::collate< _CharT >::hash (const _CharT * *__lo*, const _CharT * *__hi*) const [inline, inherited]

Return hash of a string. This function computes and returns a hash on the input string. It does so by returning collate::do_hash().

Parameters:

lo Start of string.

hi End of string.

Returns:

Hash value.

Definition at line 701 of file locale_classes.h.

5.419.3.6 template<typename _CharT> string_type std::collate< _CharT >::transform (const _CharT * __lo, const _CharT * __hi) const [inline, inherited]

Transform string to comparable form. This function is a wrapper for strxfrm functionality. It takes the input string and returns a modified string that can be directly compared to other transformed strings. In the C locale, this function just returns a copy of the input string. In some other locales, it may replace two chars with one, change a char for another, etc. It does so by returning collate::do_transform().

Parameters:

lo Start of string.

hi End of string.

Returns:

Transformed string_type.

Definition at line 687 of file locale_classes.h.

Referenced by std::regex_traits< _Ch_type >::transform().

5.419.4 Member Data Documentation

5.419.4.1 template<typename _CharT> locale::id std::collate< _CharT >::id [inline, static, inherited]

Numpunct facet id.

Definition at line 627 of file locale_classes.h.

The documentation for this class was generated from the following file:

- locale_classes.h

5.420 std::complex< _Tp > Struct Template Reference

Public Types

- typedef _Tp value_type

Public Member Functions

- template<typename _Up >
  complex (const complex< _Up > &__z)
- complex (const _Tp &__r=_Tp(), const _Tp &__i=_Tp())
- const complex & **__rep** () const
- void **imag** (_Tp __val)
- _Tp **imag** () const
- template<typename _Up >
  complex< _Tp > & operator*= (const complex< _Up > &)
- complex< _Tp > & operator*= (const _Tp &)
- template<typename _Up >
  complex< _Tp > & operator+= (const complex< _Up > &)
- complex< _Tp > & operator+= (const _Tp &__t)
- template<typename _Up >
  complex< _Tp > & operator-= (const complex< _Up > &)
- complex< _Tp > & operator-= (const _Tp &__t)
- template<typename _Up >
  complex< _Tp > & operator/= (const complex< _Up > &)
- complex< _Tp > & operator/= (const _Tp &)
- template<typename _Up >
  complex< _Tp > & operator= (const complex< _Up > &)
- complex< _Tp > & operator= (const _Tp &)
- void **real** (_Tp __val)
- _Tp **real** () const

5.420.1 Detailed Description

template<typename _Tp> struct std::complex< _Tp >

Template to represent complex numbers.

Specializations for float, double, and long double are part of the library. Results with any other type are not guaranteed.

Parameters:

Tp Type of real and imaginary values.

Definition at line 122 of file complex.

5.420.2 Member Typedef Documentation

5.420.2.1 template<typename _Tp> typedef _Tp std::complex< _Tp >::value_type

Value typedef.

Definition at line 125 of file complex.

5.420.3 Constructor & Destructor Documentation

5.420.3.1 template<typename _Tp> std::complex< _Tp >::complex (const _Tp & __r = _Tp(), const _Tp & __i = _Tp()) [inline]

Default constructor. First parameter is x, second parameter is y. Unspecified parameters default to 0.

Definition at line 129 of file complex.

5.420.3.2 template<typename _Tp> template<typename _Up > std::complex< _Tp >::complex (const complex< _Up > & __z) [inline]

Copy constructor.

Definition at line 136 of file complex.

5.420.4 Member Function Documentation

5.420.4.1 template<typename _Tp> complex<_Tp>& std::complex< _Tp >::operator+= (const _Tp & __t) [inline]

Add *t* to this complex number.

Definition at line 179 of file complex.

5.420.4.2 template<typename _Tp> complex<_Tp>& std::complex< _Tp >::operator-= (const _Tp & __t) [inline]

Subtract *t* from this complex number.

Definition at line 188 of file complex.

The documentation for this struct was generated from the following file:

- complex

5.421 std::condition_variable Class Reference

condition_variable

Public Types

- typedef __native_type * **native_handle_type**

Public Member Functions

- **condition_variable** (const condition_variable &)
- native_handle_type **native_handle** ()
- void **notify_all** ()
- void **notify_one** ()
- condition_variable & **operator=** (const condition_variable &)
- template<typename _Predicate >
  void **wait** (unique_lock< mutex > &__lock, _Predicate __p)
- void **wait** (unique_lock< mutex > &__lock)
- template<typename _Rep , typename _Period , typename _Predicate >
  bool **wait_for** (unique_lock< mutex > &__lock, const chrono::duration< _Rep, _Period > &__rtime, _Predicate __p)
- template<typename _Rep , typename _Period >
  cv_status **wait_for** (unique_lock< mutex > &__lock, const chrono::duration< _Rep, _Period > &__rtime)
- template<typename _Clock , typename _Duration , typename _Predicate >
  bool **wait_until** (unique_lock< mutex > &__lock, const chrono::time_point< _Clock, _Duration > &__atime, _Predicate __p)
- template<typename _Clock , typename _Duration >
  cv_status **wait_until** (unique_lock< mutex > &__lock, const chrono::time_point< _Clock, _Duration > &__atime)
- template<typename _Duration >
  cv_status **wait_until** (unique_lock< mutex > &__lock, const chrono::time_point< __clock_t, _Duration > &__atime)

5.421.1 Detailed Description

condition_variable

Definition at line 57 of file condition_variable.

The documentation for this class was generated from the following file:

- condition_variable

5.422 std::condition_variable_any Class Reference

condition_variable_any

Public Types

- typedef condition_variable::native_handle_type **native_handle_type**

Public Member Functions

- **condition_variable_any** (const condition_variable_any &)
- native_handle_type **native_handle** ()
- void **notify_all** ()
- void **notify_one** ()
- condition_variable_any & **operator=** (const condition_variable_any &)
- template<typename _Lock , typename _Predicate >
  void **wait** (_Lock &__lock, _Predicate __p)
- template<typename _Lock >
  void **wait** (_Lock &__lock)
- template<typename _Lock , typename _Rep , typename _Period , typename _Predicate >
  bool **wait_for** (_Lock &__lock, const chrono::duration< _Rep, _Period > &_-_rtime, _Predicate __p)
- template<typename _Lock , typename _Rep , typename _Period >
  cv_status **wait_for** (_Lock &__lock, const chrono::duration< _Rep, _Period > &__rtime)
- template<typename _Lock , typename _Clock , typename _Duration , typename _Predicate >
  bool **wait_until** (_Lock &__lock, const chrono::time_point< _Clock, _Duration > &__atime, _Predicate __p)
- template<typename _Lock , typename _Clock , typename _Duration >
  cv_status **wait_until** (_Lock &__lock, const chrono::time_point< _Clock, _-Duration > &__atime)

5.422.1 Detailed Description

condition_variable_any

Definition at line 166 of file condition_variable.

The documentation for this class was generated from the following file:

- condition_variable

5.423 std::conditional< _Cond, _Iftrue, _Iffalse > Struct Template Reference

conditional

Public Types

- typedef _Iftrue **type**

5.423.1 Detailed Description

template<bool _Cond, typename _Iftrue, typename _Iffalse> struct std::conditional< _Cond, _Iftrue, _Iffalse >

conditional

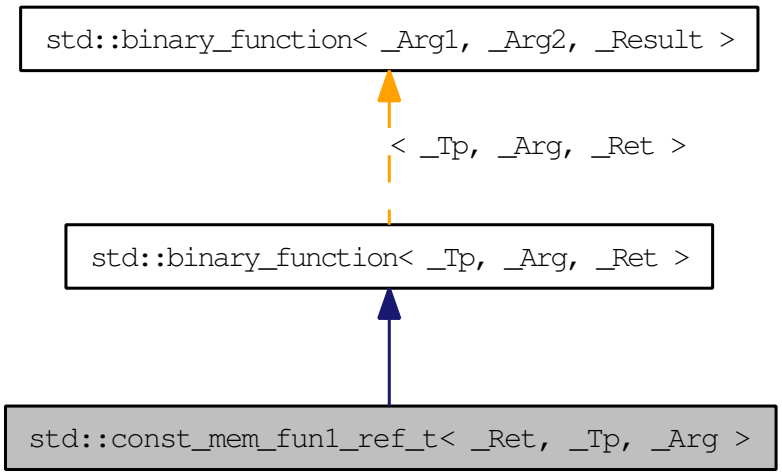
Definition at line 369 of file type_traits.

The documentation for this struct was generated from the following file:

- type_traits

5.424 std::const_mem_fun1_ref_t< _Ret, _Tp, _Arg > Class Template Reference

One of the adaptors for member pointers. Inheritance diagram for std::const_mem_fun1_ref_t< _Ret, _Tp, _Arg >:



Public Types

- typedef _Tp first_argument_type
- typedef _Ret result_type
- typedef _Arg second_argument_type

Public Member Functions

- **const_mem_fun1_ref_t** (_Ret(_Tp::*__pf)(_Arg) const)
- _Ret **operator()** (const _Tp &__r, _Arg __x) const

5.424.1 Detailed Description

template<typename _Ret, typename _Tp, typename _Arg> class std::const_mem_fun1_ref_t< _Ret, _Tp, _Arg >

One of the adaptors for member pointers.

Definition at line 650 of file stl_function.h.

5.424.2 Member Typedef Documentation

5.424.2.1 typedef _Tp std::binary_function< _Tp , _Arg , _Ret >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.424.2.2 typedef _Ret std::binary_function< _Tp , _Arg , _Ret >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.424.2.3 typedef _Arg std::binary_function< _Tp , _Arg , _Ret >::second_argument_type [inherited]

the type of the second argument

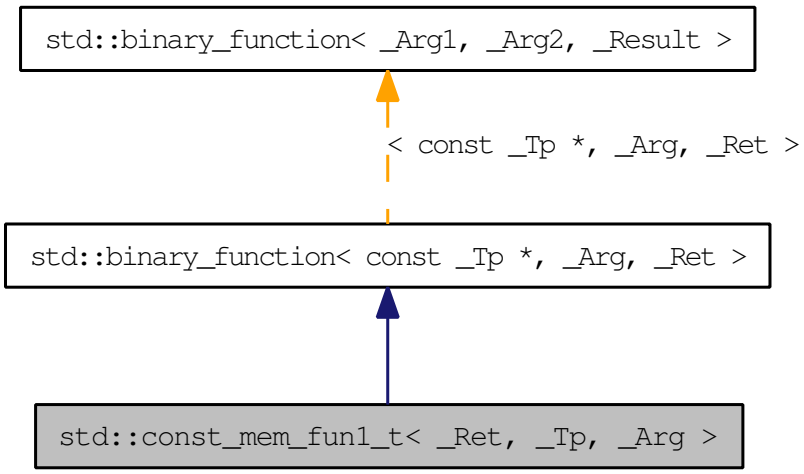
Definition at line 117 of file stl_function.h.

The documentation for this class was generated from the following file:

- stl_function.h

5.425 std::const_mem_fun1_t< _Ret, _Tp, _Arg > Class Template Reference

One of the adaptors for member pointers. Inheritance diagram for std::const_mem_fun1_t< _Ret, _Tp, _Arg >:



Public Types

- typedef const _Tp * first_argument_type
- typedef _Ret result_type
- typedef _Arg second_argument_type

Public Member Functions

- **const_mem_fun1_t** (_Ret(_Tp::*__pf)(_Arg) const)
- _Ret **operator()** (const _Tp *__p, _Arg __x) const

5.425.1 Detailed Description

template<typename _Ret, typename _Tp, typename _Arg> class std::const_mem_fun1_t< _Ret, _Tp, _Arg >

One of the adaptors for member pointers.

Definition at line 614 of file stl_function.h.

5.425.2 Member Typedef Documentation

5.425.2.1 typedef const _Tp * std::binary_function< const _Tp * , _Arg , _Ret >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.425.2.2 typedef _Ret std::binary_function< const _Tp * , _Arg , _Ret >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.425.2.3 typedef _Arg std::binary_function< const _Tp * , _Arg , _Ret >::second_argument_type [inherited]

the type of the second argument

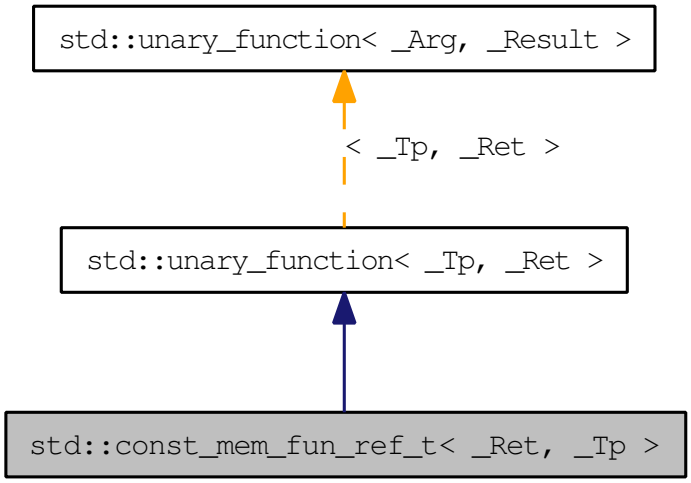
Definition at line 117 of file stl_function.h.

The documentation for this class was generated from the following file:

- stl_function.h

5.426 std::const_mem_fun_ref_t< _Ret, _Tp > Class Template Reference

One of the adaptors for member pointers. Inheritance diagram for std::const_mem_fun_ref_t< _Ret, _Tp >:



Public Types

- typedef _Tp argument_type
- typedef _Ret result_type

Public Member Functions

- **const_mem_fun_ref_t** (_Ret(_Tp::*__pf)() const)
- _Ret **operator()** (const _Tp &__r) const

5.426.1 Detailed Description

template<typename _Ret, typename _Tp> class std::const_mem_fun_ref_t< _Ret, _Tp >

One of the adaptors for member pointers.

Definition at line 578 of file stl_function.h.

5.426.2 Member Typedef Documentation

5.426.2.1 typedef _Tp std::unary_function< _Tp , _Ret >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.426.2.2 typedef _Ret std::unary_function< _Tp , _Ret >::result_type [inherited]

`result_type` is the return type

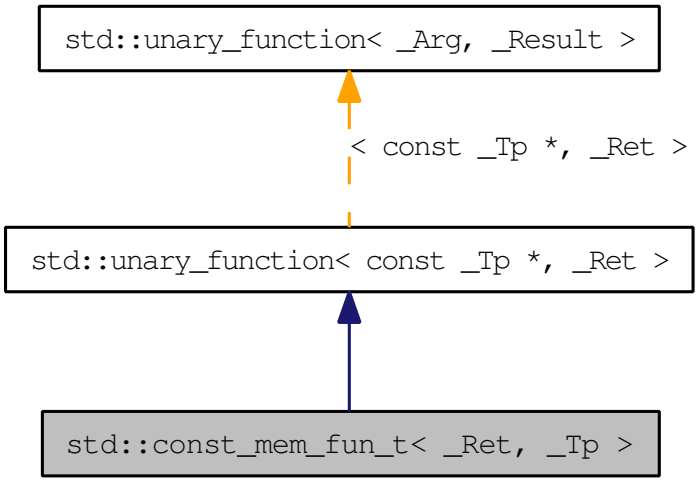
Definition at line 105 of file stl_function.h.

The documentation for this class was generated from the following file:

- stl_function.h

5.427 std::const_mem_fun_t< _Ret, _Tp > Class Template Reference

One of the adaptors for member pointers. Inheritance diagram for std::const_mem_fun_t< _Ret, _Tp >:



Public Types

- typedef const _Tp * argument_type
- typedef _Ret result_type

Public Member Functions

- **const_mem_fun_t** (_Ret(_Tp::*__pf)() const)
- _Ret **operator()** (const _Tp *__p) const

5.427.1 Detailed Description

template<typename _Ret, typename _Tp> class std::const_mem_fun_t< _Ret, _Tp >

One of the adaptors for member pointers.

Definition at line 542 of file stl_function.h.

5.427.2 Member Typedef Documentation

5.427.2.1 typedef const _Tp * std::unary_function< const _Tp * , _Ret >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.427.2.2 typedef _Ret std::unary_function< const _Tp * , _Ret >::result_type [inherited]

`result_type` is the return type

Definition at line 105 of file stl_function.h.

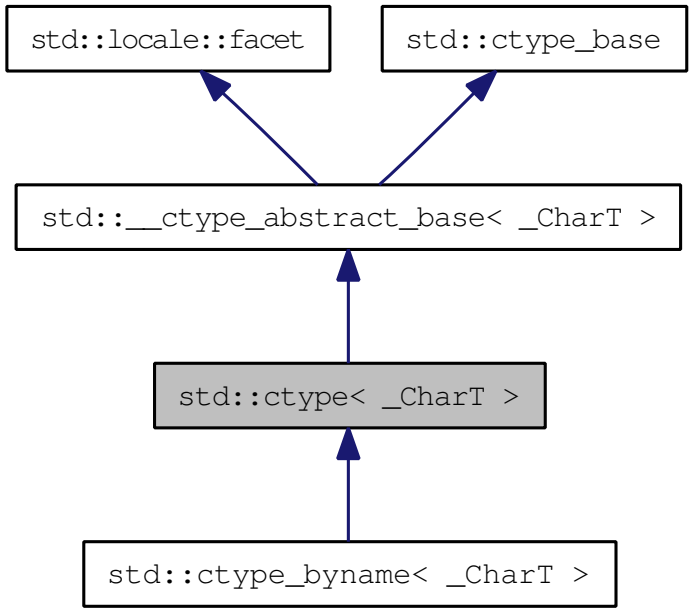
The documentation for this class was generated from the following file:

- stl_function.h

5.428 std::ctype< _CharT > Class Template Reference

Primary class template ctype facet.

This template class defines classification and conversion functions for character sets. It wraps cctype functionality. Ctype gets used by streams for many I/O operations. Inheritance diagram for std::ctype< _CharT >:



Public Types

- typedef const int * **__to_type**
- typedef _CharT char_type
- typedef __ctype_abstract_base< _CharT >::mask **mask**

Public Member Functions

- **ctype** (size_t __refs=0)
- const char_type * is (const char_type *__lo, const char_type *__hi, mask *__vec) const
- bool is (mask __m, char_type __c) const
- const char_type * narrow (const char_type *__lo, const char_type *__hi, char __dfault, char *__to) const

- char narrow (char_type __c, char __dfault) const
- const char_type * scan_is (mask __m, const char_type *__lo, const char_type *__hi) const
- const char_type * scan_not (mask __m, const char_type *__lo, const char_type *__hi) const
- const char_type * tolower (char_type *__lo, const char_type *__hi) const
- char_type tolower (char_type __c) const
- const char_type * toupper (char_type *__lo, const char_type *__hi) const
- char_type toupper (char_type __c) const
- const char * widen (const char *__lo, const char *__hi, char_type *__to) const
- char_type widen (char __c) const

Static Public Attributes

- static const mask **alnum**
- static const mask **alpha**
- static const mask **cntrl**
- static const mask **digit**
- static const mask **graph**
- static locale::id id
- static const mask **lower**
- static const mask **print**
- static const mask **punct**
- static const mask **space**
- static const mask **upper**
- static const mask **xdigit**

Protected Member Functions

- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()
- virtual const char_type * do_is (const char_type *__lo, const char_type *__hi, mask *__vec) const
- virtual bool do_is (mask __m, char_type __c) const
- virtual const char_type * do_narrow (const char_type *__lo, const char_type *_-_hi, char __dfault, char *__dest) const
- virtual char do_narrow (char_type, char __dfault) const
- virtual const char_type * do_scan_is (mask __m, const char_type *__lo, const char_type *__hi) const
- virtual const char_type * do_scan_not (mask __m, const char_type *__lo, const char_type *__hi) const
- virtual const char_type * do_tolower (char_type *__lo, const char_type *__hi) const

- virtual char_type do_tolower (char_type __c) const
- virtual const char_type * do_toupper (char_type *__lo, const char_type *__hi) const
- virtual char_type do_toupper (char_type __c) const
- virtual const char * do_widen (const char *__lo, const char *__hi, char_type *__dest) const
- virtual char_type do_widen (char __c) const

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_locale __old=0)
- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Friends

- class **locale::_Impl**

5.428.1 Detailed Description

template<typename _CharT> class std::ctype< _CharT >

Primary class template ctype facet.

This template class defines classification and conversion functions for character sets. It wraps cctype functionality. Ctype gets used by streams for many I/O operations. This template provides the protected virtual functions the developer will have to replace in a derived class or specialization to make a working facet. The public functions that access them are defined in __ctype_abstract_base, to allow for implementation flexibility. See ctype<wchar_t> for an example. The functions are documented in __ctype_abstract_base.

Note: implementations are provided for all the protected virtual functions, but will likely not be useful.

Definition at line 604 of file locale_facets.h.

5.428.2 Member Typedef Documentation

5.428.2.1 template<typename _CharT> typedef _CharT std::ctype< _CharT >::char_type

Typedef for the template parameter.

Reimplemented from std::__ctype_abstract_base< _CharT >.

Definition at line 608 of file locale_facets.h.

5.428.3 Member Function Documentation

5.428.3.1 template<typename _CharT> virtual const char_type* std::ctype< _CharT >::do_is (const char_type * *__lo*, const char_type * *__hi*, mask * *__vec*) const [protected, virtual]

Return a mask array. This function finds the mask for each char_type in the range [lo,hi) and successively writes it to vec. vec must have as many elements as the input.

do_is() is a hook for a derived facet to change the behavior of classifying. do_is() must always return the same result for the same input.

Parameters:

- ***lo*** Pointer to start of range.
- ***hi*** Pointer to end of range.
- ***vec*** Pointer to an array of mask storage.

Returns:

hi.

Implements std::__ctype_abstract_base< _CharT >.

5.428.3.2 template<typename _CharT> virtual bool std::ctype< _CharT >::do_is (mask *__m*, char_type *__c*) const [protected, virtual]

Test char_type classification. This function finds a mask M for *c* and compares it to mask *m*.

do_is() is a hook for a derived facet to change the behavior of classifying. do_is() must always return the same result for the same input.

Parameters:

- ***c*** The char_type to find the mask of.

m The mask to compare against.

Returns:

(M & m) != 0.

Implements std::__ctype_abstract_base< _CharT >.

5.428.3.3 template<typename _CharT> virtual const char_type* std::ctype< _CharT >::do_narrow (const char_type * *__lo*, const char_type * *__hi*, char *__dfault*, char * *__dest*) const [protected, virtual]

Narrow char_type array to char. This virtual function converts each char_type in the range [lo,hi) to char using the simplest reasonable transformation and writes the results to the destination array. For any element in the input that cannot be converted, *dfault* is used instead.

do_narrow() is a hook for a derived facet to change the behavior of narrowing. do_narrow() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

dfault Char to use if conversion fails.

to Pointer to the destination array.

Returns:

hi.

Implements std::__ctype_abstract_base< _CharT >.

5.428.3.4 template<typename _CharT> virtual char std::ctype< _CharT >::do_narrow (char_type, char *__dfault*) const [protected, virtual]

Narrow char_type to char. This virtual function converts the argument to char using the simplest reasonable transformation. If the conversion fails, dfault is returned instead.

do_narrow() is a hook for a derived facet to change the behavior of narrowing. do_narrow() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

c The char_type to convert.

dfault Char to return if conversion fails.

Returns:

The converted char.

Implements std::__ctype_abstract_base< _CharT >.

5.428.3.5 template<typename _CharT> virtual const char_type* std::ctype< _CharT >::do_scan_is (mask *__m*, const char_type * *__lo*, const char_type * *__hi*) const [protected, virtual]

Find char_type matching mask. This function searches for and returns the first char_type c in [lo,hi) for which is(m,c) is true.

do_scan_is() is a hook for a derived facet to change the behavior of match searching. do_is() must always return the same result for the same input.

Parameters:

m The mask to compare against.

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

Pointer to a matching char_type if found, else *hi*.

Implements std::__ctype_abstract_base< _CharT >.

5.428.3.6 template<typename _CharT> virtual const char_type* std::ctype< _CharT >::do_scan_not (mask *__m*, const char_type * *__lo*, const char_type * *__hi*) const [protected, virtual]

Find char_type not matching mask. This function searches for and returns a pointer to the first char_type c of [lo,hi) for which is(m,c) is false.

do_scan_is() is a hook for a derived facet to change the behavior of match searching. do_is() must always return the same result for the same input.

Parameters:

m The mask to compare against.

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

Pointer to a non-matching char_type if found, else *hi*.

Implements std::__ctype_abstract_base< _CharT >.

5.428.3.7 template<typename _CharT> virtual const char_type* std::ctype< _CharT >::do_tolower (char_type * *__lo*, const char_type * *__hi*) const [protected, virtual]

Convert array to lowercase. This virtual function converts each char_type in the range [lo,hi) to lowercase if possible. Other elements remain untouched.

do_tolower() is a hook for a derived facet to change the behavior of lowercasing. do_tolower() must always return the same result for the same input.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

hi.

Implements std::__ctype_abstract_base< _CharT >.

5.428.3.8 template<typename _CharT> virtual char_type std::ctype< _CharT >::do_tolower (char_type) const [protected, virtual]

Convert to lowercase. This virtual function converts the argument to lowercase if possible. If not possible (for example, '2'), returns the argument.

do_tolower() is a hook for a derived facet to change the behavior of lowercasing. do_tolower() must always return the same result for the same input.

Parameters:

c The char_type to convert.

Returns:

The lowercase char_type if convertible, else *c*.

Implements std::__ctype_abstract_base< _CharT >.

5.428.3.9 template<typename _CharT> virtual const char_type* std::ctype< _CharT >::do_toupper (char_type * *__lo*, const char_type * *__hi*) const [protected, virtual]

Convert array to uppercase. This virtual function converts each char_type in the range [lo,hi) to uppercase if possible. Other elements remain untouched.

do_toupper() is a hook for a derived facet to change the behavior of uppercasing. do_toupper() must always return the same result for the same input.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

hi.

Implements std::__ctype_abstract_base< _CharT >.

5.428.3.10 template<typename _CharT> virtual char_type std::ctype< _CharT >::do_toupper (char_type) const [protected, virtual]

Convert to uppercase. This virtual function converts the char_type argument to uppercase if possible. If not possible (for example, '2'), returns the argument.

do_toupper() is a hook for a derived facet to change the behavior of uppercasing. do_toupper() must always return the same result for the same input.

Parameters:

c The char_type to convert.

Returns:

The uppercase char_type if convertible, else *c*.

Implements std::__ctype_abstract_base< _CharT >.

5.428.3.11 template<typename _CharT> virtual const char* std::ctype< _CharT >::do_widen (const char * *__lo*, const char * *__hi*, char_type * *__dest*) const [protected, virtual]

Widen char array. This function converts each char in the input to char_type using the simplest reasonable transformation.

do_widen() is a hook for a derived facet to change the behavior of widening. do_-widen() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

lo Pointer to start range.

hi Pointer to end of range.

to Pointer to the destination array.

Returns:

hi.

Implements std::__ctype_abstract_base< _CharT >.

5.428.3.12 template<typename _CharT> virtual char_type std::ctype< _CharT >::do_widen (char) const [protected, virtual]

Widen char. This virtual function converts the char to char_type using the simplest reasonable transformation.

do_widen() is a hook for a derived facet to change the behavior of widening. do_-widen() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

c The char to convert.

Returns:

The converted char_type

Implements std::__ctype_abstract_base< _CharT >.

5.428.3.13 template<typename _CharT> const char_type* std::__ctype_abstract_base< _CharT >::is (const char_type * *__lo*, const char_type * *__hi*, mask * *__vec*) const [inline, inherited]

Return a mask array. This function finds the mask for each char_type in the range [lo,hi) and successively writes it to vec. vec must have as many elements as the char array. It does so by returning the value of ctype<char_type>::do_is().

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

vec Pointer to an array of mask storage.

Returns:

hi.

Definition at line 178 of file locale_facets.h.

5.428.3.14 template<typename _CharT> bool std::__ctype_abstract_base< _CharT >::is (mask *__m*, char_type *__c*) const [inline, inherited]

Test char_type classification. This function finds a mask M for *c* and compares it to mask *m*. It does so by returning the value of ctype<char_type>::do_is().

Parameters:

c The char_type to compare the mask of.

m The mask to compare against.

Returns:

(M & m) != 0.

Definition at line 161 of file locale_facets.h.

Referenced by std::regex_traits< _Ch_type >::isctype(), and std::basic_istream< _-CharT, _Traits >::sentry::sentry().

5.428.3.15 template<typename _CharT> const char_type* std::__ctype_abstract_base< _CharT >::narrow (const char_type * *__lo*, const char_type * *__hi*, char *__dfault*, char * *__to*) const [inline, inherited]

Narrow array to char array. This function converts each char_type in the input to char using the simplest reasonable transformation and writes the results to the destination array. For any char_type in the input that cannot be converted, *dfault* is used instead. It does so by returning ctype<char_type>::do_narrow(lo, hi, dfault, to).

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

dfault Char to use if conversion fails.

to Pointer to the destination array.

Returns:

hi.

Definition at line 345 of file locale_facets.h.

5.428.3.16 template<typename _CharT> char std::__ctype_abstract_base< _CharT >::narrow (char_type __c, char __dfault) const [inline, inherited]

Narrow char_type to char. This function converts the char_type to char using the simplest reasonable transformation. If the conversion fails, dfault is returned instead. It does so by returning ctype<char_type>::do_narrow(c).

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

c The char_type to convert.

dfault Char to return if conversion fails.

Returns:

The converted char.

Definition at line 323 of file locale_facets.h.

Referenced by std::time_put< _CharT, _OutIter >::put().

5.428.3.17 template<typename _CharT> const char_type* std::__ctype_abstract_base< _CharT >::scan_is (mask __m, const char_type * __lo, const char_type * __hi) const [inline, inherited]

Find char_type matching a mask. This function searches for and returns the first char_type c in [lo,hi) for which is(m,c) is true. It does so by returning ctype<char_type>::do_scan_is().

Parameters:

m The mask to compare against.

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

Pointer to matching char_type if found, else *hi*.

Definition at line 194 of file locale_facets.h.

5.428.3.18 template<typename _CharT> const char_type* std::__ctype_abstract_base< _CharT >::scan_not (mask *__m*, const char_type * *__lo*, const char_type * *__hi*) const [inline, inherited]

Find char_type not matching a mask. This function searches for and returns the first char_type c in [lo,hi) for which is(m,c) is false. It does so by returning ctype<char_type>::do_scan_not().

Parameters:

m The mask to compare against.

lo Pointer to first char in range.

hi Pointer to end of range.

Returns:

Pointer to non-matching char if found, else *hi*.

Definition at line 210 of file locale_facets.h.

5.428.3.19 template<typename _CharT> const char_type* std::__ctype_abstract_base< _CharT >::tolower (char_type * *__lo*, const char_type * *__hi*) const [inline, inherited]

Convert array to lowercase. This function converts each char_type in the range [lo,hi) to lowercase if possible. Other elements remain untouched. It does so by returning ctype<char_type>:: do_tolower(lo, hi).

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

hi.

Definition at line 268 of file locale_facets.h.

5.428.3.20 template<typename _CharT> char_type std::__ctype_abstract_base< _CharT >::tolower (char_type __c) const [inline, inherited]

Convert to lowercase. This function converts the argument to lowercase if possible. If not possible (for example, '2'), returns the argument. It does so by returning ctype<char_type>::do_tolower(c).

Parameters:

c The char_type to convert.

Returns:

The lowercase char_type if convertible, else *c*.

Definition at line 253 of file locale_facets.h.

5.428.3.21 template<typename _CharT> const char_type* std::__ctype_abstract_base< _CharT >::toupper (char_type * __lo, const char_type * __hi) const [inline, inherited]

Convert array to uppercase. This function converts each char_type in the range [lo,hi) to uppercase if possible. Other elements remain untouched. It does so by returning ctype<char_type>:: do_toupper(lo, hi).

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

hi.

Definition at line 239 of file locale_facets.h.

5.428.3.22 template<typename _CharT> char_type std::__ctype_abstract_base< _CharT >::toupper (char_type __c) const [inline, inherited]

Convert to uppercase. This function converts the argument to uppercase if possible. If not possible (for example, '2'), returns the argument. It does so by returning ctype<char_type>::do_toupper().

Parameters:

c The char_type to convert.

Returns:

The uppercase char_type if convertible, else *c*.

Definition at line 224 of file locale_facets.h.

5.428.3.23 template<typename _CharT> const char* std::__ctype_abstract_base< _CharT >::widen (const char * *__lo*, const char * *__hi*, char_type * *__to*) const [inline, inherited]

Widen array to char_type. This function converts each char in the input to char_type using the simplest reasonable transformation. It does so by returning ctype<char_type>::do_widen(c).

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

to Pointer to the destination array.

Returns:

hi.

Definition at line 304 of file locale_facets.h.

5.428.3.24 template<typename _CharT> char_type std::__ctype_abstract_base< _CharT >::widen (char *__c*) const [inline, inherited]

Widen char to char_type. This function converts the char argument to char_type using the simplest reasonable transformation. It does so by returning ctype<char_type>::do_widen(c).

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

c The char to convert.

Returns:

The converted char_type.

Definition at line 285 of file locale_facets.h.

Referenced by std::money_get< _CharT, _InIter >::do_get(), std::time_put< _CharT, _OutIter >::do_put(), std::money_put< _CharT, _OutIter >::do_put(), std::regex_traits< _Ch_type >::isctype(), and std::operator<<().

5.428.4 Member Data Documentation

5.428.4.1 template<typename _CharT> locale::id std::ctype< _CharT >::id [inline, static]

The facet id for ctype<char_type>.

Definition at line 612 of file locale_facets.h.

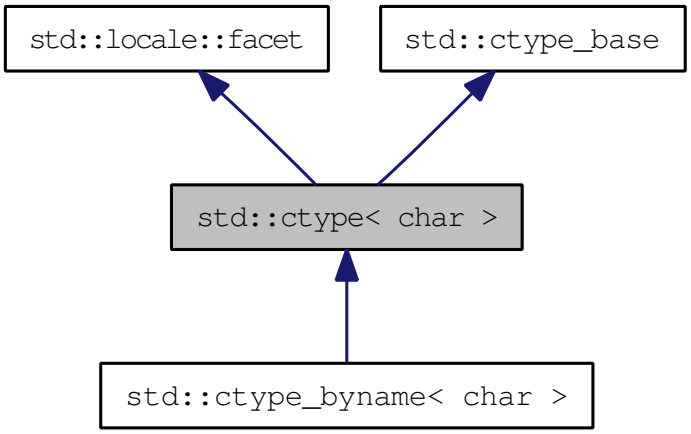
The documentation for this class was generated from the following file:

- locale_facets.h

5.429 std::ctype< char > Class Template Reference

The ctype<char> specialization.

This class defines classification and conversion functions for the char type. It gets used by char streams for many I/O operations. The char specialization provides a number of optimizations as well. Inheritance diagram for std::ctype< char >:



Public Types

- typedef const int * **__to_type**
- typedef char char_type
- typedef unsigned short **mask**

Public Member Functions

- ctype (__c_locale __cloc, const mask *__table=0, bool __del=false, size_t __refs=0)
- ctype (const mask *__table=0, bool __del=false, size_t __refs=0)
- const char * is (const char *__lo, const char *__hi, mask *__vec) const
- bool is (mask __m, char __c) const
- const char_type * narrow (const char_type *__lo, const char_type *__hi, char __dfault, char *__to) const
- char narrow (char_type __c, char __dfault) const
- const char * scan_is (mask __m, const char *__lo, const char *__hi) const
- const char * scan_not (mask __m, const char *__lo, const char *__hi) const
- const mask * table () const throw ()

- const char_type * tolower (char_type *__lo, const char_type *__hi) const
- char_type tolower (char_type __c) const
- const char_type * toupper (char_type *__lo, const char_type *__hi) const
- char_type toupper (char_type __c) const
- const char * widen (const char *__lo, const char *__hi, char_type *__to) const
- char_type widen (char __c) const

Static Public Member Functions

- static const mask * classic_table () throw ()

Static Public Attributes

- static const mask **alnum**
- static const mask **alpha**
- static const mask **cntrl**
- static const mask **digit**
- static const mask **graph**
- static locale::id id
- static const mask **lower**
- static const mask **print**
- static const mask **punct**
- static const mask **space**
- static const size_t table_size
- static const mask **upper**
- static const mask **xdigit**

Protected Member Functions

- virtual ~ctype ()
- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()
- virtual const char_type * do_narrow (const char_type *__lo, const char_type *__hi, char, char *__dest) const
- virtual char do_narrow (char_type __c, char) const
- virtual const char_type * do_tolower (char_type *__lo, const char_type *__hi) const
- virtual char_type do_tolower (char_type) const
- virtual const char_type * do_toupper (char_type *__lo, const char_type *__hi) const
- virtual char_type do_toupper (char_type) const
- virtual const char * do_widen (const char *__lo, const char *__hi, char_type *__dest) const
- virtual char_type do_widen (char __c) const

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_-locale __old=0)
- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Protected Attributes

- __c_locale **_M_c_locale_ctype**
- bool **_M_del**
- char **_M_narrow** [1+static_cast< unsigned char >(-1)]
- char **_M_narrow_ok**
- const mask * **_M_table**
- __to_type **_M_tolower**
- __to_type **_M_toupper**
- char **_M_widen** [1+static_cast< unsigned char >(-1)]
- char **_M_widen_ok**

Friends

- class **locale::_Impl**

5.429.1 Detailed Description

template<> class std::ctype< char >

The ctype<char> specialization.

This class defines classification and conversion functions for the char type. It gets used by char streams for many I/O operations. The char specialization provides a number of optimizations as well.

Definition at line 673 of file locale_facets.h.

5.429.2 Member Typedef Documentation

5.429.2.1 typedef char std::ctype< char >::char_type

Typedef for the template parameter char.

Definition at line 678 of file locale_facets.h.

5.429.3 Constructor & Destructor Documentation

5.429.3.1 std::ctype< char >::ctype (const mask * *__table* = 0, bool *__del* = false, size_t *__refs* = 0) [explicit]

Constructor performs initialization. This is the constructor provided by the standard.

Parameters:

table If non-zero, table is used as the per-char mask. Else classic_table() is used.

del If true, passes ownership of table to this facet.

refs Passed to the base facet class.

5.429.3.2 std::ctype< char >::ctype (__c_locale *__cloc*, const mask * *__table* = 0, bool *__del* = false, size_t *__refs* = 0) [explicit]

Constructor performs static initialization. This constructor is used to construct the initial C locale facet.

Parameters:

cloc Handle to C locale data.

table If non-zero, table is used as the per-char mask.

del If true, passes ownership of table to this facet.

refs Passed to the base facet class.

5.429.3.3 virtual std::ctype< char >::~ctype () [protected, virtual]

Destructor. This function deletes table() if *del* was true in the constructor.

5.429.4 Member Function Documentation

5.429.4.1 static const mask* std::ctype< char >::classic_table () throw () [static]

Returns a pointer to the C locale mask table.

5.429.4.2 virtual const char_type* std::ctype< char >::do_narrow (const char_type * __lo, const char_type * __hi, char, char * __dest) const [inline, protected, virtual]

Narrow char array to char array. This virtual function converts each char in the range [lo,hi) to char using the simplest reasonable transformation and writes the results to the destination array. For any char in the input that cannot be converted, *dfault* is used instead. For an underived ctype<char> facet, the argument will be copied unchanged.

do_narrow() is a hook for a derived facet to change the behavior of narrowing. do_narrow() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

dfault Char to use if conversion fails.

to Pointer to the destination array.

Returns:

hi.

Definition at line 1149 of file locale_facets.h.

5.429.4.3 virtual char std::ctype< char >::do_narrow (char_type __c, char) const [inline, protected, virtual]

Narrow char. This virtual function converts the char to char using the simplest reasonable transformation. If the conversion fails, dfault is returned instead. For an underived ctype<char> facet, *c* will be returned unchanged.

do_narrow() is a hook for a derived facet to change the behavior of narrowing. do_narrow() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

c The char to convert.

dfault Char to return if conversion fails.

Returns:

The converted char.

Definition at line 1123 of file locale_facets.h.

5.429.4.4 virtual const char_type* std::ctype< char >::do_tolower (char_type * __lo, const char_type * __hi) const [protected, virtual]

Convert array to lowercase. This virtual function converts each char in the range [lo,hi) to lowercase if possible. Other chars remain untouched.

do_tolower() is a hook for a derived facet to change the behavior of lowercasing. do_tolower() must always return the same result for the same input.

Parameters:

lo Pointer to first char in range.

hi Pointer to end of range.

Returns:

hi.

5.429.4.5 virtual char_type std::ctype< char >::do_tolower (char_type) const [protected, virtual]

Convert to lowercase. This virtual function converts the char argument to lowercase if possible. If not possible (for example, '2'), returns the argument.

do_tolower() is a hook for a derived facet to change the behavior of lowercasing. do_tolower() must always return the same result for the same input.

Parameters:

c The char to convert.

Returns:

The lowercase char if convertible, else *c*.

5.429.4.6 virtual const char_type* std::ctype< char >::do_toupper (char_type * __lo, const char_type * __hi) const [protected, virtual]

Convert array to uppercase. This virtual function converts each char in the range [lo,hi) to uppercase if possible. Other chars remain untouched.

do_toupper() is a hook for a derived facet to change the behavior of uppercasing. do_toupper() must always return the same result for the same input.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

hi.

5.429.4.7 virtual char_type std::ctype< char >::do_toupper (char_type) const [protected, virtual]

Convert to uppercase. This virtual function converts the char argument to uppercase if possible. If not possible (for example, '2'), returns the argument.

do_toupper() is a hook for a derived facet to change the behavior of uppercasing. do_toupper() must always return the same result for the same input.

Parameters:

c The char to convert.

Returns:

The uppercase char if convertible, else *c*.

5.429.4.8 virtual const char* std::ctype< char >::do_widen (const char * *__lo*, const char * *__hi*, char_type * *__dest*) const [inline, protected, virtual]

Widen char array. This function converts each char in the range [lo,hi) to char using the simplest reasonable transformation. For an underived ctype<char> facet, the argument will be copied unchanged.

do_widen() is a hook for a derived facet to change the behavior of widening. do_widen() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

to Pointer to the destination array.

Returns:

hi.

Definition at line 1097 of file locale_facets.h.

5.429.4.9 virtual char_type std::ctype< char >::do_widen (char __c) const [inline, protected, virtual]

Widen char. This virtual function converts the char to char using the simplest reasonable transformation. For an underived ctype<char> facet, the argument will be returned unchanged.

do_widen() is a hook for a derived facet to change the behavior of widening. do_widen() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

c The char to convert.

Returns:

The converted character.

Definition at line 1074 of file locale_facets.h.

5.429.4.10 const char * std::ctype< char >::is (const char * __lo, const char * __hi, mask * __vec) const [inline]

Return a mask array. This function finds the mask for each char in the range [lo, hi) and successively writes it to vec. vec must have as many elements as the char array.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

vec Pointer to an array of mask storage.

Returns:

hi.

Definition at line 46 of file ctype_inline.h.

5.429.4.11 bool std::ctype< char >::is (mask __m, char __c) const [inline]

Test char classification. This function compares the mask table[c] to *m*.

Parameters:

c The char to compare the mask of.

m The mask to compare against.

Returns:

True if m & table[c] is true, false otherwise.

Definition at line 41 of file ctype_inline.h.

5.429.4.12 const char_type* std::ctype< char >::narrow (const char_type * *__lo*, const char_type * *__hi*, char *__dfault*, char * *__to*) const [inline]

Narrow char array. This function converts each char in the input to char using the simplest reasonable transformation and writes the results to the destination array. For any char in the input that cannot be converted, *dfault* is used instead. For an underived ctype<char> facet, the argument will be copied unchanged.

This function works as if it returns ctype<char>::do_narrow(lo, hi, dfault, to). do_narrow() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

dfault Char to use if conversion fails.

to Pointer to the destination array.

Returns:

hi.

Definition at line 955 of file locale_facets.h.

5.429.4.13 char std::ctype< char >::narrow (char_type *__c*, char *__dfault*) const [inline]

Narrow char. This function converts the char to char using the simplest reasonable transformation. If the conversion fails, dfault is returned instead. For an underived ctype<char> facet, *c* will be returned unchanged.

This function works as if it returns ctype<char>::do_narrow(c). do_narrow() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

c The char to convert.

dfault Char to return if conversion fails.

Returns:

The converted character.

Definition at line 922 of file locale_facets.h.

5.429.4.14 const char * std::ctype< char >::scan_is (mask *__m*, const char * *__lo*, const char * *__hi*) const [inline]

Find char matching a mask. This function searches for and returns the first char in [lo,hi) for which is(m,char) is true.

Parameters:

m The mask to compare against.

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

Pointer to a matching char if found, else *hi*.

Definition at line 55 of file ctype_inline.h.

5.429.4.15 const char * std::ctype< char >::scan_not (mask *__m*, const char * *__lo*, const char * *__hi*) const [inline]

Find char not matching a mask. This function searches for and returns a pointer to the first char in [lo,hi) for which is(m,char) is false.

Parameters:

m The mask to compare against.

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

Pointer to a non-matching char if found, else *hi*.

Definition at line 65 of file ctype_inline.h.

5.429.4.16 const mask* std::ctype< char >::table () const throw () [inline]

Returns a pointer to the mask table provided to the constructor, or the default from classic_table() if none was provided.

Definition at line 973 of file locale_facets.h.

5.429.4.17 const char_type* std::ctype< char >::tolower (char_type * __lo, const char_type * __hi) const [inline]

Convert array to lowercase. This function converts each char in the range [lo,hi) to lowercase if possible. Other chars remain untouched.

tolower() acts as if it returns ctype<char>:: do_tolower(lo, hi). do_tolower() must always return the same result for the same input.

Parameters:

lo Pointer to first char in range.

hi Pointer to end of range.

Returns:

hi.

Definition at line 844 of file locale_facets.h.

5.429.4.18 char_type std::ctype< char >::tolower (char_type __c) const [inline]

Convert to lowercase. This function converts the char argument to lowercase if possible. If not possible (for example, '2'), returns the argument.

tolower() acts as if it returns ctype<char>::do_tolower(c). do_tolower() must always return the same result for the same input.

Parameters:

c The char to convert.

Returns:

The lowercase char if convertible, else *c*.

Definition at line 827 of file locale_facets.h.

5.429.4.19 const char_type* std::ctype< char >::toupper (char_type * __lo, const char_type * __hi) const [inline]

Convert array to uppercase. This function converts each char in the range [lo,hi) to uppercase if possible. Other chars remain untouched.

toupper() acts as if it returns ctype<char>:: do_toupper(lo, hi). do_toupper() must always return the same result for the same input.

Parameters:

lo Pointer to first char in range.

hi Pointer to end of range.

Returns:

hi.

Definition at line 811 of file locale_facets.h.

5.429.4.20 char_type std::ctype< char >::toupper (char_type __c) const [inline]

Convert to uppercase. This function converts the char argument to uppercase if possible. If not possible (for example, '2'), returns the argument.

toupper() acts as if it returns ctype<char>::do_toupper(c). do_toupper() must always return the same result for the same input.

Parameters:

c The char to convert.

Returns:

The uppercase char if convertible, else *c*.

Definition at line 794 of file locale_facets.h.

5.429.4.21 const char* std::ctype< char >::widen (const char * __lo, const char * __hi, char_type * __to) const [inline]

Widen char array. This function converts each char in the input to char using the simplest reasonable transformation. For an underived ctype<char> facet, the argument will be copied unchanged.

This function works as if it returns ctype<char>::do_widen(c). do_widen() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

lo Pointer to first char in range.

hi Pointer to end of range.

to Pointer to the destination array.

Returns:

hi.

Definition at line 891 of file locale_facets.h.

5.429.4.22 char_type std::ctype< char >::widen (char __c) const [inline]

Widen char. This function converts the char to char_type using the simplest reasonable transformation. For an underived ctype<char> facet, the argument will be returned unchanged.

This function works as if it returns ctype<char>::do_widen(c). do_widen() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

c The char to convert.

Returns:

The converted character.

Definition at line 864 of file locale_facets.h.

5.429.5 Member Data Documentation

5.429.5.1 locale::id std::ctype< char >::id [static]

The facet id for ctype<char>.

Definition at line 695 of file locale_facets.h.

5.429.5.2 const size_t std::ctype< char >::table_size [static]

The size of the mask table. It is SCHAR_MAX + 1.

Definition at line 697 of file locale_facets.h.

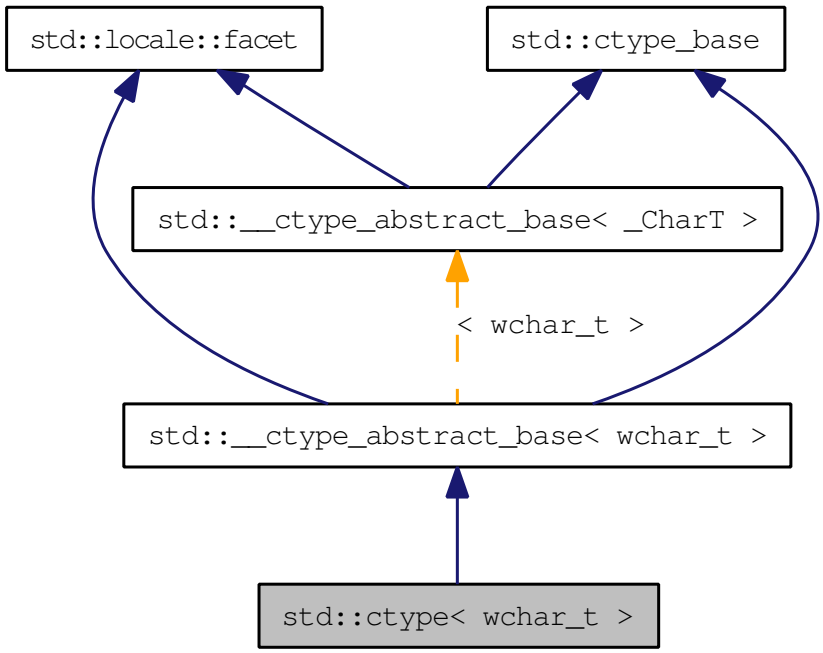
The documentation for this class was generated from the following files:

- locale_facets.h
- ctype_inline.h

5.430 std::ctype< wchar_t > Class Template Reference

The ctype<wchar_t> specialization.

This class defines classification and conversion functions for the wchar_t type. It gets used by wchar_t streams for many I/O operations. The wchar_t specialization provides a number of optimizations as well. Inheritance diagram for std::ctype< wchar_t >:



Public Types

- typedef const int * **__to_type**
- typedef wctype_t **__wmask_type**
- typedef wchar_t char_type
- typedef unsigned short **mask**

Public Member Functions

- ctype (__c_locale __cloc, size_t __refs=0)
- ctype (size_t __refs=0)
- const char_type * is (const char_type *__lo, const char_type *__hi, mask *__vec) const

- bool is (mask __m, char_type __c) const
- const char_type * narrow (const char_type *__lo, const char_type *__hi, char __dfault, char *__to) const
- char narrow (char_type __c, char __dfault) const
- const char_type * scan_is (mask __m, const char_type *__lo, const char_type *__hi) const
- const char_type * scan_not (mask __m, const char_type *__lo, const char_type *__hi) const
- const char_type * tolower (char_type *__lo, const char_type *__hi) const
- char_type tolower (char_type __c) const
- const char_type * toupper (char_type *__lo, const char_type *__hi) const
- char_type toupper (char_type __c) const
- const char * widen (const char *__lo, const char *__hi, char_type *__to) const
- char_type widen (char __c) const

Static Public Attributes

- static const mask **alnum**
- static const mask **alpha**
- static const mask **cntrl**
- static const mask **digit**
- static const mask **graph**
- static locale::id id
- static const mask **lower**
- static const mask **print**
- static const mask **punct**
- static const mask **space**
- static const mask **upper**
- static const mask **xdigit**

Protected Member Functions

- virtual ~ctype ()
- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()
- __wmask_type **_M_convert_to_wmask** (const mask __m) const throw ()
- void **_M_initialize_ctype** () throw ()
- virtual const char_type * do_is (const char_type *__lo, const char_type *__hi, mask *__vec) const
- virtual bool do_is (mask __m, char_type __c) const
- virtual const char_type * do_narrow (const char_type *__lo, const char_type *_-_hi, char __dfault, char *__dest) const
- virtual char do_narrow (char_type, char __dfault) const

- virtual const char_type * do_scan_is (mask __m, const char_type *__lo, const char_type *__hi) const
- virtual const char_type * do_scan_not (mask __m, const char_type *__lo, const char_type *__hi) const
- virtual const char_type * do_tolower (char_type *__lo, const char_type *__hi) const
- virtual char_type do_tolower (char_type) const
- virtual const char_type * do_toupper (char_type *__lo, const char_type *__hi) const
- virtual char_type do_toupper (char_type) const
- virtual const char * do_widen (const char *__lo, const char *__hi, char_type *__dest) const
- virtual char_type do_widen (char) const

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_locale __old=0)
- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Protected Attributes

- mask **_M_bit** [16]
- __c_locale **_M_c_locale_ctype**
- char **_M_narrow** [128]
- bool **_M_narrow_ok**
- wint_t **_M_widen** [1+static_cast< unsigned char >(-1)]
- __wmask_type **_M_wmask** [16]

Friends

- class **locale::_Impl**

5.430.1 Detailed Description

template<> class std::ctype< wchar_t >

The ctype<wchar_t> specialization.

This class defines classification and conversion functions for the wchar_t type. It gets used by wchar_t streams for many I/O operations. The wchar_t specialization provides a number of optimizations as well. ctype<wchar_t> inherits its public methods from __ctype_abstract_base<wchar_t>.

Definition at line 1174 of file locale_facets.h.

5.430.2 Member Typedef Documentation

5.430.2.1 typedef wchar_t std::ctype< wchar_t >::char_type

Typedef for the template parameter wchar_t.

Reimplemented from std::__ctype_abstract_base< wchar_t >.

Definition at line 1179 of file locale_facets.h.

5.430.3 Constructor & Destructor Documentation

5.430.3.1 std::ctype< wchar_t >::ctype (size_t *__refs* = 0) [explicit]

Constructor performs initialization. This is the constructor provided by the standard.

Parameters:

refs Passed to the base facet class.

5.430.3.2 std::ctype< wchar_t >::ctype (__c_locale *__cloc*, size_t *__refs* = 0) [explicit]

Constructor performs static initialization. This constructor is used to construct the initial C locale facet.

Parameters:

cloc Handle to C locale data.

refs Passed to the base facet class.

5.430.3.3 virtual std::ctype< wchar_t >::~ctype () [protected, virtual]

Destructor.

5.430.4 Member Function Documentation

5.430.4.1 virtual const char_type* std::ctype< wchar_t >::do_is (const char_type * *__lo*, const char_type * *__hi*, mask * *__vec*) const [protected, virtual]

Return a mask array. This function finds the mask for each wchar_t in the range [lo,hi) and successively writes it to vec. vec must have as many elements as the input.

do_is() is a hook for a derived facet to change the behavior of classifying. do_is() must always return the same result for the same input.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

vec Pointer to an array of mask storage.

Returns:

hi.

Implements std::__ctype_abstract_base< wchar_t >.

5.430.4.2 virtual bool std::ctype< wchar_t >::do_is (mask *__m*, char_type *__c*) const [protected, virtual]

Test wchar_t classification. This function finds a mask M for *c* and compares it to mask *m*.

do_is() is a hook for a derived facet to change the behavior of classifying. do_is() must always return the same result for the same input.

Parameters:

c The wchar_t to find the mask of.

m The mask to compare against.

Returns:

(M & m) != 0.

Implements std::__ctype_abstract_base< wchar_t >.

5.430.4.3 virtual const char_type* std::ctype< wchar_t >::do_narrow (const char_type * *__lo*, const char_type * *__hi*, char *__dfault*, char * *__dest*) const [protected, virtual]

Narrow wchar_t array to char array. This virtual function converts each wchar_t in the range [lo,hi) to char using the simplest reasonable transformation and writes the results to the destination array. For any wchar_t in the input that cannot be converted, *dfault* is used instead. For an underived ctype<wchar_t> facet, the argument will be copied, casting each element to char.

do_narrow() is a hook for a derived facet to change the behavior of narrowing. do_narrow() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

dfault Char to use if conversion fails.

to Pointer to the destination array.

Returns:

hi.

Implements std::__ctype_abstract_base< wchar_t >.

5.430.4.4 virtual char std::ctype< wchar_t >::do_narrow (char_type, char *__dfault*) const [protected, virtual]

Narrow wchar_t to char. This virtual function converts the argument to char using the simplest reasonable transformation. If the conversion fails, dfault is returned instead. For an underived ctype<wchar_t> facet, *c* will be cast to char and returned.

do_narrow() is a hook for a derived facet to change the behavior of narrowing. do_narrow() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

c The wchar_t to convert.

dfault Char to return if conversion fails.

Returns:

The converted char.

Implements std::__ctype_abstract_base< wchar_t >.

5.430.4.5 virtual const char_type* std::ctype< wchar_t >::do_scan_is (mask __m, const char_type * __lo, const char_type * __hi) const [protected, virtual]

Find wchar_t matching mask. This function searches for and returns the first wchar_t c in [lo,hi) for which is(m,c) is true.

do_scan_is() is a hook for a derived facet to change the behavior of match searching. do_is() must always return the same result for the same input.

Parameters:

m The mask to compare against.

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

Pointer to a matching wchar_t if found, else *hi*.

Implements std::__ctype_abstract_base< wchar_t >.

5.430.4.6 virtual const char_type* std::ctype< wchar_t >::do_scan_not (mask __m, const char_type * __lo, const char_type * __hi) const [protected, virtual]

Find wchar_t not matching mask. This function searches for and returns a pointer to the first wchar_t c of [lo,hi) for which is(m,c) is false.

do_scan_is() is a hook for a derived facet to change the behavior of match searching. do_is() must always return the same result for the same input.

Parameters:

m The mask to compare against.

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

Pointer to a non-matching wchar_t if found, else *hi*.

Implements std::__ctype_abstract_base< wchar_t >.

5.430.4.7 virtual const char_type* std::ctype< wchar_t >::do_tolower (char_type * __lo, const char_type * __hi) const [protected, virtual]

Convert array to lowercase. This virtual function converts each wchar_t in the range [lo,hi) to lowercase if possible. Other elements remain untouched.

do_tolower() is a hook for a derived facet to change the behavior of lowercasing. do_tolower() must always return the same result for the same input.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

hi.

Implements std::__ctype_abstract_base< wchar_t >.

5.430.4.8 virtual char_type std::ctype< wchar_t >::do_tolower (char_type) const [protected, virtual]

Convert to lowercase. This virtual function converts the argument to lowercase if possible. If not possible (for example, '2'), returns the argument.

do_tolower() is a hook for a derived facet to change the behavior of lowercasing. do_tolower() must always return the same result for the same input.

Parameters:

c The wchar_t to convert.

Returns:

The lowercase wchar_t if convertible, else *c*.

Implements std::__ctype_abstract_base< wchar_t >.

5.430.4.9 virtual const char_type* std::ctype< wchar_t >::do_toupper (char_type * __lo, const char_type * __hi) const [protected, virtual]

Convert array to uppercase. This virtual function converts each wchar_t in the range [lo,hi) to uppercase if possible. Other elements remain untouched.

do_toupper() is a hook for a derived facet to change the behavior of uppercasing. do_-toupper() must always return the same result for the same input.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

hi.

Implements std::__ctype_abstract_base< wchar_t >.

5.430.4.10 virtual char_type std::ctype< wchar_t >::do_toupper (char_type) const [protected, virtual]

Convert to uppercase. This virtual function converts the wchar_t argument to uppercase if possible. If not possible (for example, '2'), returns the argument.

do_toupper() is a hook for a derived facet to change the behavior of uppercasing. do_-toupper() must always return the same result for the same input.

Parameters:

c The wchar_t to convert.

Returns:

The uppercase wchar_t if convertible, else *c*.

Implements std::__ctype_abstract_base< wchar_t >.

5.430.4.11 virtual const char* std::ctype< wchar_t >::do_widen (const char * *__lo*, const char * *__hi*, char_type * *__dest*) const [protected, virtual]

Widen char array to wchar_t array. This function converts each char in the input to wchar_t using the simplest reasonable transformation. For an underived ctype<wchar_t> facet, the argument will be copied, casting each element to wchar_t.

do_widen() is a hook for a derived facet to change the behavior of widening. do_-widen() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

lo Pointer to start range.

hi Pointer to end of range.

to Pointer to the destination array.

Returns:

hi.

Implements std::__ctype_abstract_base< wchar_t >.

5.430.4.12 virtual char_type std::ctype< wchar_t >::do_widen (char) const [protected, virtual]

Widen char to wchar_t. This virtual function converts the char to wchar_t using the simplest reasonable transformation. For an underived ctype<wchar_t> facet, the argument will be cast to wchar_t.

do_widen() is a hook for a derived facet to change the behavior of widening. do_widen() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

c The char to convert.

Returns:

The converted wchar_t.

Implements std::__ctype_abstract_base< wchar_t >.

5.430.4.13 const char_type* std::__ctype_abstract_base< wchar_t >::is (const char_type * *__lo*, const char_type * *__hi*, mask * *__vec*) const [inline, inherited]

Return a mask array. This function finds the mask for each char_type in the range [lo,hi) and successively writes it to vec. vec must have as many elements as the char array. It does so by returning the value of ctype<char_type>::do_is().

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

vec Pointer to an array of mask storage.

Returns:

hi.

Definition at line 178 of file locale_facets.h.

5.430.4.14 bool std::__ctype_abstract_base< wchar_t >::is (mask __m, char_type __c) const [inline, inherited]

Test char_type classification. This function finds a mask M for *c* and compares it to mask *m*. It does so by returning the value of ctype<char_type>::do_is().

Parameters:

c The char_type to compare the mask of.

m The mask to compare against.

Returns:

(M & m) != 0.

Definition at line 161 of file locale_facets.h.

5.430.4.15 const char_type* std::__ctype_abstract_base< wchar_t >::narrow (const char_type * __lo, const char_type * __hi, char __dfault, char * __to) const [inline, inherited]

Narrow array to char array. This function converts each char_type in the input to char using the simplest reasonable transformation and writes the results to the destination array. For any char_type in the input that cannot be converted, *dfault* is used instead. It does so by returning ctype<char_type>::do_narrow(lo, hi, dfault, to).

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

dfault Char to use if conversion fails.

to Pointer to the destination array.

Returns:

hi.

Definition at line 345 of file locale_facets.h.

5.430.4.16 char std::__ctype_abstract_base< wchar_t >::narrow (char_type __c, char __dfault) const [inline, inherited]

Narrow char_type to char. This function converts the char_type to char using the simplest reasonable transformation. If the conversion fails, dfault is returned instead. It does so by returning ctype<char_type>::do_narrow(c).

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

c The char_type to convert.

dfault Char to return if conversion fails.

Returns:

The converted char.

Definition at line 323 of file locale_facets.h.

5.430.4.17 const char_type* std::__ctype_abstract_base< wchar_t >::scan_is (mask __m, const char_type * __lo, const char_type * __hi) const [inline, inherited]

Find char_type matching a mask. This function searches for and returns the first char_type c in [lo,hi) for which is(m,c) is true. It does so by returning ctype<char_type>::do_scan_is().

Parameters:

m The mask to compare against.

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

Pointer to matching char_type if found, else *hi*.

Definition at line 194 of file locale_facets.h.

5.430.4.18 const char_type* std::__ctype_abstract_base< wchar_t >::scan_not (mask __m, const char_type * __lo, const char_type * __hi) const [inline, inherited]

Find char_type not matching a mask. This function searches for and returns the first char_type c in [lo,hi) for which is(m,c) is false. It does so by returning ctype<char_type>::do_scan_not().

Parameters:

m The mask to compare against.

lo Pointer to first char in range.

hi Pointer to end of range.

Returns:

Pointer to non-matching char if found, else *hi*.

Definition at line 210 of file locale_facets.h.

5.430.4.19 const char_type* std::__ctype_abstract_base< wchar_t >::tolower (char_type * *__lo*, const char_type * *__hi*) const [inline, inherited]

Convert array to lowercase. This function converts each char_type in the range [lo,hi) to lowercase if possible. Other elements remain untouched. It does so by returning ctype<char_type>:: do_tolower(lo, hi).

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

hi.

Definition at line 268 of file locale_facets.h.

5.430.4.20 char_type std::__ctype_abstract_base< wchar_t >::tolower (char_type *__c*) const [inline, inherited]

Convert to lowercase. This function converts the argument to lowercase if possible. If not possible (for example, '2'), returns the argument. It does so by returning ctype<char_type>::do_tolower(c).

Parameters:

c The char_type to convert.

Returns:

The lowercase char_type if convertible, else *c*.

Definition at line 253 of file locale_facets.h.

5.430.4.21 const char_type* std::__ctype_abstract_base< wchar_t >::toupper (char_type * *__lo*, const char_type * *__hi*) const [inline, inherited]

Convert array to uppercase. This function converts each char_type in the range [lo,hi) to uppercase if possible. Other elements remain untouched. It does so by returning ctype<char_type>:: do_toupper(lo, hi).

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

hi.

Definition at line 239 of file locale_facets.h.

5.430.4.22 char_type std::__ctype_abstract_base< wchar_t >::toupper (char_type *__c*) const [inline, inherited]

Convert to uppercase. This function converts the argument to uppercase if possible. If not possible (for example, '2'), returns the argument. It does so by returning ctype<char_type>::do_toupper().

Parameters:

c The char_type to convert.

Returns:

The uppercase char_type if convertible, else *c*.

Definition at line 224 of file locale_facets.h.

5.430.4.23 const char* std::__ctype_abstract_base< wchar_t >::widen (const char * *__lo*, const char * *__hi*, char_type * *__to*) const [inline, inherited]

Widen array to char_type. This function converts each char in the input to char_type using the simplest reasonable transformation. It does so by returning ctype<char_type>::do_widen(c).

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

to Pointer to the destination array.

Returns:

hi.

Definition at line 304 of file locale_facets.h.

5.430.4.24 char_type std::__ctype_abstract_base< wchar_t >::widen (char __c) const [inline, inherited]

Widen char to char_type. This function converts the char argument to char_type using the simplest reasonable transformation. It does so by returning ctype<char_type>::do_widen(c).

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

c The char to convert.

Returns:

The converted char_type.

Definition at line 285 of file locale_facets.h.

5.430.5 Member Data Documentation

5.430.5.1 locale::id std::ctype< wchar_t >::id [static]

The facet id for ctype<wchar_t>.

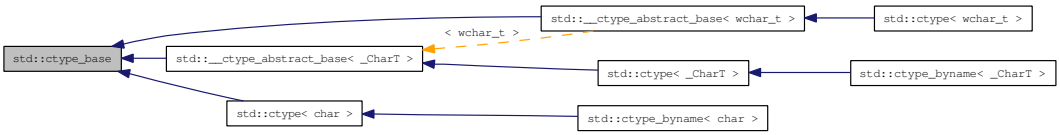
Definition at line 1197 of file locale_facets.h.

The documentation for this class was generated from the following file:

- locale_facets.h

5.431 std::ctype_base Struct Reference

Base class for ctype. Inheritance diagram for std::ctype_base:



Public Types

- typedef const int * **__to_type**
- typedef unsigned short **mask**

Static Public Attributes

- static const mask **alnum**
- static const mask **alpha**
- static const mask **cntrl**
- static const mask **digit**
- static const mask **graph**
- static const mask **lower**
- static const mask **print**
- static const mask **punct**
- static const mask **space**
- static const mask **upper**
- static const mask **xdigit**

5.431.1 Detailed Description

Base class for ctype.

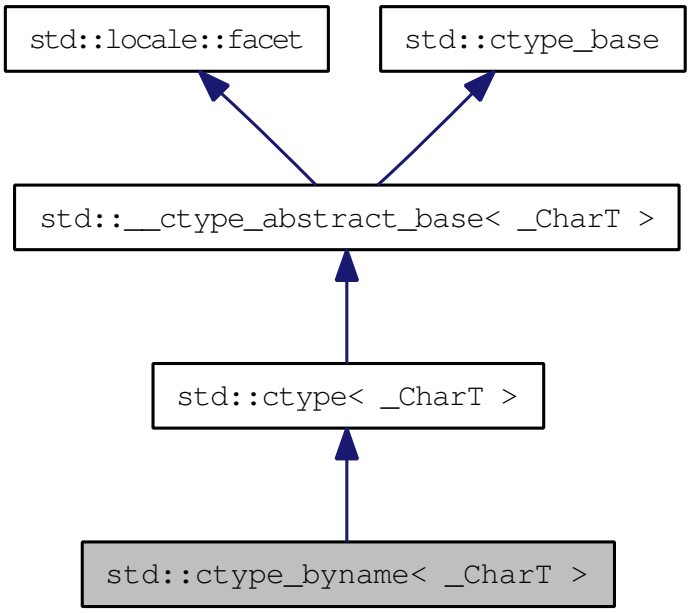
Definition at line 40 of file ctype_base.h.

The documentation for this struct was generated from the following file:

- ctype_base.h

5.432 std::ctype_byname< _CharT > Class Template Reference

class ctype_byname [22.2.1.2]. Inheritance diagram for std::ctype_byname< _CharT >:



Public Types

- typedef const int * **__to_type**
- typedef _CharT char_type
- typedef ctype< _CharT >::mask **mask**

Public Member Functions

- **ctype_byname** (const char *__s, size_t __refs=0)
- const char_type * is (const char_type *__lo, const char_type *__hi, mask *__vec) const
- bool is (mask __m, char_type __c) const
- const char_type * narrow (const char_type *__lo, const char_type *__hi, char __dfault, char *__to) const
- char narrow (char_type __c, char __dfault) const

- const char_type * scan_is (mask __m, const char_type *__lo, const char_type *__hi) const
- const char_type * scan_not (mask __m, const char_type *__lo, const char_type *__hi) const
- const char_type * tolower (char_type *__lo, const char_type *__hi) const
- char_type tolower (char_type __c) const
- const char_type * toupper (char_type *__lo, const char_type *__hi) const
- char_type toupper (char_type __c) const
- const char * widen (const char *__lo, const char *__hi, char_type *__to) const
- char_type widen (char __c) const

Static Public Attributes

- static const mask **alnum**
- static const mask **alpha**
- static const mask **cntrl**
- static const mask **digit**
- static const mask **graph**
- static locale::id id
- static const mask **lower**
- static const mask **print**
- static const mask **punct**
- static const mask **space**
- static const mask **upper**
- static const mask **xdigit**

Protected Member Functions

- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()
- virtual const char_type * do_is (const char_type *__lo, const char_type *__hi, mask *__vec) const
- virtual bool do_is (mask __m, char_type __c) const
- virtual const char_type * do_narrow (const char_type *__lo, const char_type *__hi, char __dfault, char *__dest) const
- virtual char do_narrow (char_type, char __dfault) const
- virtual const char_type * do_scan_is (mask __m, const char_type *__lo, const char_type *__hi) const
- virtual const char_type * do_scan_not (mask __m, const char_type *__lo, const char_type *__hi) const
- virtual const char_type * do_tolower (char_type *__lo, const char_type *__hi) const
- virtual char_type do_tolower (char_type __c) const

- virtual const char_type * do_toupper (char_type *__lo, const char_type *__hi) const
- virtual char_type do_toupper (char_type __c) const
- virtual const char * do_widen (const char *__lo, const char *__hi, char_type *__dest) const
- virtual char_type do_widen (char __c) const

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_locale __old=0)
- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Friends

- class **locale::_Impl**

5.432.1 Detailed Description

template<typename _CharT> class std::ctype_byname< _CharT >

class ctype_byname [22.2.1.2].

Definition at line 1466 of file locale_facets.h.

5.432.2 Member Typedef Documentation

5.432.2.1 template<typename _CharT> typedef _CharT std::ctype< _CharT >::char_type [inherited]

Typedef for the template parameter.

Reimplemented from std::__ctype_abstract_base< _CharT >.

Definition at line 608 of file locale_facets.h.

5.432.3 Member Function Documentation

5.432.3.1 template<typename _CharT> virtual const char_type* std::ctype< _CharT >::do_is (const char_type * *__lo*, const char_type * *__hi*, mask * *__vec*) const [protected, virtual, inherited]

Return a mask array. This function finds the mask for each char_type in the range [lo,hi) and successively writes it to vec. vec must have as many elements as the input.

do_is() is a hook for a derived facet to change the behavior of classifying. do_is() must always return the same result for the same input.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

vec Pointer to an array of mask storage.

Returns:

hi.

Implements std::__ctype_abstract_base< _CharT >.

5.432.3.2 template<typename _CharT> virtual bool std::ctype< _CharT >::do_is (mask *__m*, char_type *__c*) const [protected, virtual, inherited]

Test char_type classification. This function finds a mask M for *c* and compares it to mask *m*.

do_is() is a hook for a derived facet to change the behavior of classifying. do_is() must always return the same result for the same input.

Parameters:

c The char_type to find the mask of.

m The mask to compare against.

Returns:

(M & m) != 0.

Implements std::__ctype_abstract_base< _CharT >.

5.432.3.3 template<typename _CharT> virtual const char_type* std::ctype< _CharT >::do_narrow (const char_type * *__lo*, const char_type * *__hi*, char *__dfault*, char * *__dest*) const [protected, virtual, inherited]

Narrow char_type array to char. This virtual function converts each char_type in the range [lo,hi) to char using the simplest reasonable transformation and writes the results to the destination array. For any element in the input that cannot be converted, *dfault* is used instead.

do_narrow() is a hook for a derived facet to change the behavior of narrowing. do_narrow() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

dfault Char to use if conversion fails.

to Pointer to the destination array.

Returns:

hi.

Implements std::__ctype_abstract_base< _CharT >.

5.432.3.4 template<typename _CharT> virtual char std::ctype< _CharT >::do_narrow (char_type, char *__dfault*) const [protected, virtual, inherited]

Narrow char_type to char. This virtual function converts the argument to char using the simplest reasonable transformation. If the conversion fails, dfault is returned instead.

do_narrow() is a hook for a derived facet to change the behavior of narrowing. do_narrow() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

c The char_type to convert.

dfault Char to return if conversion fails.

Returns:

The converted char.

Implements std::__ctype_abstract_base< _CharT >.

5.432.3.5 template<typename _CharT> virtual const char_type* std::ctype< _CharT >::do_scan_is (mask __m, const char_type * __lo, const char_type * __hi) const [protected, virtual, inherited]

Find char_type matching mask. This function searches for and returns the first char_type c in [lo,hi) for which is(m,c) is true.

do_scan_is() is a hook for a derived facet to change the behavior of match searching. do_is() must always return the same result for the same input.

Parameters:

m The mask to compare against.

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

Pointer to a matching char_type if found, else *hi*.

Implements std::__ctype_abstract_base< _CharT >.

5.432.3.6 template<typename _CharT> virtual const char_type* std::ctype< _CharT >::do_scan_not (mask __m, const char_type * __lo, const char_type * __hi) const [protected, virtual, inherited]

Find char_type not matching mask. This function searches for and returns a pointer to the first char_type c of [lo,hi) for which is(m,c) is false.

do_scan_is() is a hook for a derived facet to change the behavior of match searching. do_is() must always return the same result for the same input.

Parameters:

m The mask to compare against.

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

Pointer to a non-matching char_type if found, else *hi*.

Implements std::__ctype_abstract_base< _CharT >.

5.432.3.7 template<typename _CharT> virtual const char_type* std::ctype< _CharT >::do_tolower (char_type * *__lo*, const char_type * *__hi*) const [protected, virtual, inherited]

Convert array to lowercase. This virtual function converts each char_type in the range [lo,hi) to lowercase if possible. Other elements remain untouched.

do_tolower() is a hook for a derived facet to change the behavior of lowercasing. do_tolower() must always return the same result for the same input.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

hi.

Implements std::__ctype_abstract_base< _CharT >.

5.432.3.8 template<typename _CharT> virtual char_type std::ctype< _CharT >::do_tolower (char_type) const [protected, virtual, inherited]

Convert to lowercase. This virtual function converts the argument to lowercase if possible. If not possible (for example, '2'), returns the argument.

do_tolower() is a hook for a derived facet to change the behavior of lowercasing. do_tolower() must always return the same result for the same input.

Parameters:

c The char_type to convert.

Returns:

The lowercase char_type if convertible, else *c*.

Implements std::__ctype_abstract_base< _CharT >.

5.432.3.9 template<typename _CharT> virtual const char_type* std::ctype< _CharT >::do_toupper (char_type * *__lo*, const char_type * *__hi*) const [protected, virtual, inherited]

Convert array to uppercase. This virtual function converts each char_type in the range [lo,hi) to uppercase if possible. Other elements remain untouched.

do_toupper() is a hook for a derived facet to change the behavior of uppercasing. do_-toupper() must always return the same result for the same input.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

hi.

Implements std::__ctype_abstract_base< _CharT >.

5.432.3.10 template<typename _CharT> virtual char_type std::ctype< _CharT >::do_toupper (char_type) const [protected, virtual, inherited]

Convert to uppercase. This virtual function converts the char_type argument to upper-case if possible. If not possible (for example, '2'), returns the argument.

do_toupper() is a hook for a derived facet to change the behavior of uppercasing. do_-toupper() must always return the same result for the same input.

Parameters:

c The char_type to convert.

Returns:

The uppercase char_type if convertible, else *c*.

Implements std::__ctype_abstract_base< _CharT >.

5.432.3.11 template<typename _CharT> virtual const char* std::ctype< _CharT >::do_widen (const char * *__lo*, const char * *__hi*, char_type * *__dest*) const [protected, virtual, inherited]

Widen char array. This function converts each char in the input to char_type using the simplest reasonable transformation.

do_widen() is a hook for a derived facet to change the behavior of widening. do_-widen() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

lo Pointer to start range.

hi Pointer to end of range.

to Pointer to the destination array.

Returns:

hi.

Implements std::__ctype_abstract_base< _CharT >.

5.432.3.12 template<typename _CharT> virtual char_type std::ctype< _CharT >::do_widen (char) const [protected, virtual, inherited]

Widen char. This virtual function converts the char to char_type using the simplest reasonable transformation.

do_widen() is a hook for a derived facet to change the behavior of widening. do_-widen() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

c The char to convert.

Returns:

The converted char_type

Implements std::__ctype_abstract_base< _CharT >.

5.432.3.13 template<typename _CharT> const char_type* std::__ctype_abstract_base< _CharT >::is (const char_type * *__lo*, const char_type * *__hi*, mask * *__vec*) const [inline, inherited]

Return a mask array. This function finds the mask for each char_type in the range [lo,hi) and successively writes it to vec. vec must have as many elements as the char array. It does so by returning the value of ctype<char_type>::do_is().

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

vec Pointer to an array of mask storage.

Returns:

hi.

Definition at line 178 of file locale_facets.h.

5.432.3.14 template<typename _CharT> bool std::__ctype_abstract_base< _CharT >::is (mask __*m*, char_type __*c*) const [inline, inherited]

Test char_type classification. This function finds a mask M for *c* and compares it to mask *m*. It does so by returning the value of ctype<char_type>::do_is().

Parameters:

c The char_type to compare the mask of.

m The mask to compare against.

Returns:

(M & m) != 0.

Definition at line 161 of file locale_facets.h.

Referenced by std::regex_traits< _Ch_type >::isctype(), and std::basic_istream< _-CharT, _Traits >::sentry::sentry().

5.432.3.15 template<typename _CharT> const char_type* std::__ctype_abstract_base< _CharT >::narrow (const char_type * __*lo*, const char_type * __*hi*, char __*dfault*, char * __*to*) const [inline, inherited]

Narrow array to char array. This function converts each char_type in the input to char using the simplest reasonable transformation and writes the results to the destination array. For any char_type in the input that cannot be converted, *dfault* is used instead. It does so by returning ctype<char_type>::do_narrow(lo, hi, dfault, to).

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

dfault Char to use if conversion fails.

to Pointer to the destination array.

Returns:

hi.

Definition at line 345 of file locale_facets.h.

5.432.3.16 template<typename _CharT> char std::__ctype_abstract_base< _CharT >::narrow (char_type __c, char __dfault) const [inline, inherited]

Narrow char_type to char. This function converts the char_type to char using the simplest reasonable transformation. If the conversion fails, dfault is returned instead. It does so by returning ctype<char_type>::do_narrow(c).

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

c The char_type to convert.

dfault Char to return if conversion fails.

Returns:

The converted char.

Definition at line 323 of file locale_facets.h.

Referenced by std::time_put< _CharT, _OutIter >::put().

5.432.3.17 template<typename _CharT> const char_type* std::__ctype_abstract_base< _CharT >::scan_is (mask __m, const char_type * __lo, const char_type * __hi) const [inline, inherited]

Find char_type matching a mask. This function searches for and returns the first char_type c in [lo,hi) for which is(m,c) is true. It does so by returning ctype<char_type>::do_scan_is().

Parameters:

m The mask to compare against.

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

Pointer to matching char_type if found, else *hi*.

Definition at line 194 of file locale_facets.h.

5.432.3.18 template<typename _CharT> const char_type* std::__ctype_abstract_base< _CharT >::scan_not (mask *__m*, const char_type * *__lo*, const char_type * *__hi*) const [inline, inherited]

Find char_type not matching a mask. This function searches for and returns the first char_type c in [lo,hi) for which is(m,c) is false. It does so by returning ctype<char_type>::do_scan_not().

Parameters:

m The mask to compare against.

lo Pointer to first char in range.

hi Pointer to end of range.

Returns:

Pointer to non-matching char if found, else *hi*.

Definition at line 210 of file locale_facets.h.

5.432.3.19 template<typename _CharT> const char_type* std::__ctype_abstract_base< _CharT >::tolower (char_type * *__lo*, const char_type * *__hi*) const [inline, inherited]

Convert array to lowercase. This function converts each char_type in the range [lo,hi) to lowercase if possible. Other elements remain untouched. It does so by returning ctype<char_type>:: do_tolower(lo, hi).

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

hi.

Definition at line 268 of file locale_facets.h.

5.432.3.20 template<typename _CharT> char_type std::__ctype_abstract_base< _CharT >::tolower (char_type __c) const [inline, inherited]

Convert to lowercase. This function converts the argument to lowercase if possible. If not possible (for example, '2'), returns the argument. It does so by returning ctype<char_type>::do_tolower(c).

Parameters:

c The char_type to convert.

Returns:

The lowercase char_type if convertible, else *c*.

Definition at line 253 of file locale_facets.h.

5.432.3.21 template<typename _CharT> const char_type* std::__ctype_abstract_base< _CharT >::toupper (char_type * __lo, const char_type * __hi) const [inline, inherited]

Convert array to uppercase. This function converts each char_type in the range [lo,hi) to uppercase if possible. Other elements remain untouched. It does so by returning ctype<char_type>:: do_toupper(lo, hi).

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

hi.

Definition at line 239 of file locale_facets.h.

5.432.3.22 template<typename _CharT> char_type std::__ctype_abstract_base< _CharT >::toupper (char_type __c) const [inline, inherited]

Convert to uppercase. This function converts the argument to uppercase if possible. If not possible (for example, '2'), returns the argument. It does so by returning ctype<char_type>::do_toupper().

Parameters:

c The char_type to convert.

Returns:

The uppercase char_type if convertible, else *c*.

Definition at line 224 of file locale_facets.h.

5.432.3.23 template<typename _CharT> const char* std::__ctype_abstract_base< _CharT >::widen (const char * *__lo*, const char * *__hi*, char_type * *__to*) const [inline, inherited]

Widen array to char_type. This function converts each char in the input to char_type using the simplest reasonable transformation. It does so by returning ctype<char_type>::do_widen(c).

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

to Pointer to the destination array.

Returns:

hi.

Definition at line 304 of file locale_facets.h.

5.432.3.24 template<typename _CharT> char_type std::__ctype_abstract_base< _CharT >::widen (char *__c*) const [inline, inherited]

Widen char to char_type. This function converts the char argument to char_type using the simplest reasonable transformation. It does so by returning ctype<char_type>::do_widen(c).

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

c The char to convert.

Returns:

The converted char_type.

Definition at line 285 of file locale_facets.h.

Referenced by std::money_get< _CharT, _InIter >::do_get(), std::time_put< _CharT, _OutIter >::do_put(), std::money_put< _CharT, _OutIter >::do_put(), std::regex_-traits< _Ch_type >::isctype(), and std::operator<<().

5.432.4 Member Data Documentation

5.432.4.1 template<typename _CharT> locale::id std::ctype< _CharT >::id [inline, static, inherited]

The facet id for ctype<char_type>.

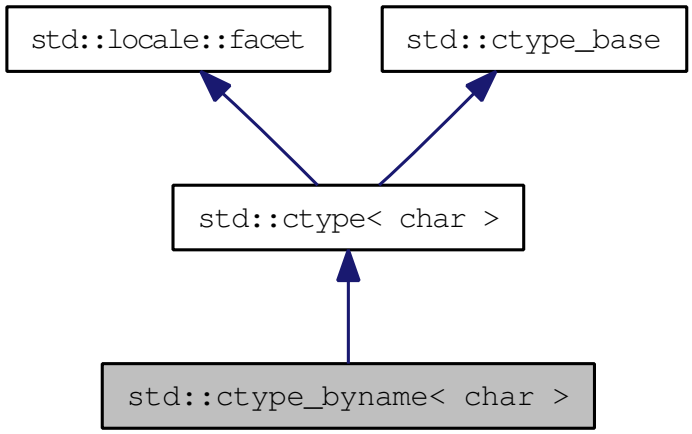
Definition at line 612 of file locale_facets.h.

The documentation for this class was generated from the following file:

- locale_facets.h

5.433 std::ctype_byname< char > Class Template Reference

22.2.1.4 Class ctype_byname specializations. Inheritance diagram for std::ctype_byname< char >:



Public Types

- typedef const int * **__to_type**
- typedef char char_type
- typedef unsigned short **mask**

Public Member Functions

- **ctype_byname** (const char *__s, size_t __refs=0)
- const char * is (const char *__lo, const char *__hi, mask *__vec) const
- bool is (mask __m, char __c) const
- const char_type * narrow (const char_type *__lo, const char_type *__hi, char __dfault, char *__to) const
- char narrow (char_type __c, char __dfault) const
- const char * scan_is (mask __m, const char *__lo, const char *__hi) const
- const char * scan_not (mask __m, const char *__lo, const char *__hi) const
- const mask * table () const throw ()
- const char_type * tolower (char_type *__lo, const char_type *__hi) const
- char_type tolower (char_type __c) const
- const char_type * toupper (char_type *__lo, const char_type *__hi) const

- char_type toupper (char_type __c) const
- const char * widen (const char *__lo, const char *__hi, char_type *__to) const
- char_type widen (char __c) const

Static Public Member Functions

- static const mask * classic_table () throw ()

Static Public Attributes

- static const mask **alnum**
- static const mask **alpha**
- static const mask **cntrl**
- static const mask **digit**
- static const mask **graph**
- static locale::id id
- static const mask **lower**
- static const mask **print**
- static const mask **punct**
- static const mask **space**
- static const size_t table_size
- static const mask **upper**
- static const mask **xdigit**

Protected Member Functions

- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()
- virtual const char_type * do_narrow (const char_type *__lo, const char_type *__hi, char, char *__dest) const
- virtual char do_narrow (char_type __c, char) const
- virtual const char_type * do_tolower (char_type *__lo, const char_type *__hi) const
- virtual char_type do_tolower (char_type) const
- virtual const char_type * do_toupper (char_type *__lo, const char_type *__hi) const
- virtual char_type do_toupper (char_type) const
- virtual const char * do_widen (const char *__lo, const char *__hi, char_type *__dest) const
- virtual char_type do_widen (char __c) const

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_-locale __old=0)
- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Protected Attributes

- __c_locale **_M_c_locale_ctype**
- bool **_M_del**
- char **_M_narrow** [1+static_cast< unsigned char >(-1)]
- char **_M_narrow_ok**
- const mask * **_M_table**
- __to_type **_M_tolower**
- __to_type **_M_toupper**
- char **_M_widen** [1+static_cast< unsigned char >(-1)]
- char **_M_widen_ok**

Friends

- class **locale::_Impl**

5.433.1 Detailed Description

template<> class std::ctype_byname< char >

22.2.1.4 Class ctype_byname specializations.

Definition at line 1481 of file locale_facets.h.

5.433.2 Member Typedef Documentation

5.433.2.1 typedef char std::ctype< char >::char_type [inherited]

Typedef for the template parameter char.

Definition at line 678 of file locale_facets.h.

5.433.3 Member Function Documentation

5.433.3.1 static const mask* std::ctype< char >::classic_table () throw () [static, inherited]

Returns a pointer to the C locale mask table.

5.433.3.2 virtual const char_type* std::ctype< char >::do_narrow (const char_type * *__lo*, const char_type * *__hi*, char, char * *__dest*) const [inline, protected, virtual, inherited]

Narrow char array to char array. This virtual function converts each char in the range [lo,hi) to char using the simplest reasonable transformation and writes the results to the destination array. For any char in the input that cannot be converted, *dfault* is used instead. For an underived ctype<char> facet, the argument will be copied unchanged.

do_narrow() is a hook for a derived facet to change the behavior of narrowing. do_narrow() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

dfault Char to use if conversion fails.

to Pointer to the destination array.

Returns:

hi.

Definition at line 1149 of file locale_facets.h.

5.433.3.3 virtual char std::ctype< char >::do_narrow (char_type *__c*, char) const [inline, protected, virtual, inherited]

Narrow char. This virtual function converts the char to char using the simplest reasonable transformation. If the conversion fails, dfault is returned instead. For an underived ctype<char> facet, *c* will be returned unchanged.

do_narrow() is a hook for a derived facet to change the behavior of narrowing. do_narrow() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

c The char to convert.

dfault Char to return if conversion fails.

Returns:

The converted char.

Definition at line 1123 of file locale_facets.h.

5.433.3.4 virtual const char_type* std::ctype< char >::do_tolower (char_type * *__lo*, const char_type * *__hi*) const [protected, virtual, inherited]

Convert array to lowercase. This virtual function converts each char in the range [lo,hi) to lowercase if possible. Other chars remain untouched.

do_tolower() is a hook for a derived facet to change the behavior of lowercasing. do_tolower() must always return the same result for the same input.

Parameters:

lo Pointer to first char in range.

hi Pointer to end of range.

Returns:

hi.

5.433.3.5 virtual char_type std::ctype< char >::do_tolower (char_type) const [protected, virtual, inherited]

Convert to lowercase. This virtual function converts the char argument to lowercase if possible. If not possible (for example, '2'), returns the argument.

do_tolower() is a hook for a derived facet to change the behavior of lowercasing. do_tolower() must always return the same result for the same input.

Parameters:

c The char to convert.

Returns:

The lowercase char if convertible, else *c*.

5.433.3.6 virtual const char_type* std::ctype< char >::do_toupper (char_type * *__lo*, const char_type * *__hi*) const [protected, virtual, inherited]

Convert array to uppercase. This virtual function converts each char in the range [lo,hi) to uppercase if possible. Other chars remain untouched.

do_toupper() is a hook for a derived facet to change the behavior of uppercasing. do_toupper() must always return the same result for the same input.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

hi.

5.433.3.7 virtual char_type std::ctype< char >::do_toupper (char_type) const [protected, virtual, inherited]

Convert to uppercase. This virtual function converts the char argument to uppercase if possible. If not possible (for example, '2'), returns the argument.

do_toupper() is a hook for a derived facet to change the behavior of uppercasing. do_toupper() must always return the same result for the same input.

Parameters:

c The char to convert.

Returns:

The uppercase char if convertible, else *c*.

5.433.3.8 virtual const char* std::ctype< char >::do_widen (const char * *__lo*, const char * *__hi*, char_type * *__dest*) const [inline, protected, virtual, inherited]

Widen char array. This function converts each char in the range [lo,hi) to char using the simplest reasonable transformation. For an underived ctype<char> facet, the argument will be copied unchanged.

do_widen() is a hook for a derived facet to change the behavior of widening. do_widen() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

to Pointer to the destination array.

Returns:

hi.

Definition at line 1097 of file locale_facets.h.

5.433.3.9 virtual char_type std::ctype< char >::do_widen (char __c) const [inline, protected, virtual, inherited]

Widen char. This virtual function converts the char to char using the simplest reasonable transformation. For an underived ctype<char> facet, the argument will be returned unchanged.

do_widen() is a hook for a derived facet to change the behavior of widening. do_widen() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

c The char to convert.

Returns:

The converted character.

Definition at line 1074 of file locale_facets.h.

5.433.3.10 const char * std::ctype< char >::is (const char * __lo, const char * __hi, mask * __vec) const [inline, inherited]

Return a mask array. This function finds the mask for each char in the range [lo, hi) and successively writes it to vec. vec must have as many elements as the char array.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

vec Pointer to an array of mask storage.

Returns:

hi.

Definition at line 46 of file ctype_inline.h.

5.433.3.11 bool std::ctype< char >::is (mask __m, char __c) const [inline, inherited]

Test char classification. This function compares the mask table[c] to *m*.

Parameters:

c The char to compare the mask of.

m The mask to compare against.

Returns:

True if m & table[c] is true, false otherwise.

Definition at line 41 of file ctype_inline.h.

5.433.3.12 const char_type* std::ctype< char >::narrow (const char_type * __lo, const char_type * __hi, char __dfault, char * __to) const [inline, inherited]

Narrow char array. This function converts each char in the input to char using the simplest reasonable transformation and writes the results to the destination array. For any char in the input that cannot be converted, *dfault* is used instead. For an underived ctype<char> facet, the argument will be copied unchanged.

This function works as if it returns ctype<char>::do_narrow(lo, hi, dfault, to). do_narrow() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

lo Pointer to start of range.

hi Pointer to end of range.

dfault Char to use if conversion fails.

to Pointer to the destination array.

Returns:

hi.

Definition at line 955 of file locale_facets.h.

5.433.3.13 char std::ctype< char >::narrow (char_type __c, char __dfault) const [inline, inherited]

Narrow char. This function converts the char to char using the simplest reasonable transformation. If the conversion fails, dfault is returned instead. For an underived ctype<char> facet, *c* will be returned unchanged.

This function works as if it returns ctype<char>::do_narrow(c). do_narrow() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

c The char to convert.

dfault Char to return if conversion fails.

Returns:

The converted character.

Definition at line 922 of file locale_facets.h.

5.433.3.14 const char * std::ctype< char >::scan_is (mask __m, const char * __lo, const char * __hi) const [inline, inherited]

Find char matching a mask. This function searches for and returns the first char in [lo,hi) for which is(m,char) is true.

Parameters:

m The mask to compare against.

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

Pointer to a matching char if found, else *hi*.

Definition at line 55 of file ctype_inline.h.

5.433.3.15 const char * std::ctype< char >::scan_not (mask __m, const char * __lo, const char * __hi) const [inline, inherited]

Find char not matching a mask. This function searches for and returns a pointer to the first char in [lo,hi) for which is(m,char) is false.

Parameters:

m The mask to compare against.

lo Pointer to start of range.

hi Pointer to end of range.

Returns:

Pointer to a non-matching char if found, else *hi*.

Definition at line 65 of file ctype_inline.h.

5.433.3.16 const mask* std::ctype< char >::table () const throw () [inline, inherited]

Returns a pointer to the mask table provided to the constructor, or the default from classic_table() if none was provided.

Definition at line 973 of file locale_facets.h.

5.433.3.17 const char_type* std::ctype< char >::tolower (char_type * __lo, const char_type * __hi) const [inline, inherited]

Convert array to lowercase. This function converts each char in the range [lo,hi) to lowercase if possible. Other chars remain untouched.

tolower() acts as if it returns ctype<char>:: do_tolower(lo, hi). do_tolower() must always return the same result for the same input.

Parameters:

lo Pointer to first char in range.

hi Pointer to end of range.

Returns:

hi.

Definition at line 844 of file locale_facets.h.

5.433.3.18 char_type std::ctype< char >::tolower (char_type __c) const [inline, inherited]

Convert to lowercase. This function converts the char argument to lowercase if possible. If not possible (for example, '2'), returns the argument.

tolower() acts as if it returns ctype<char>::do_tolower(c). do_tolower() must always return the same result for the same input.

Parameters:

c The char to convert.

Returns:

The lowercase char if convertible, else *c*.

Definition at line 827 of file locale_facets.h.

5.433.3.19 const char_type* std::ctype< char >::toupper (char_type * *__lo*, const char_type * *__hi*) const [inline, inherited]

Convert array to uppercase. This function converts each char in the range [lo,hi) to uppercase if possible. Other chars remain untouched.

toupper() acts as if it returns ctype<char>:: do_toupper(lo, hi). do_toupper() must always return the same result for the same input.

Parameters:

lo Pointer to first char in range.

hi Pointer to end of range.

Returns:

hi.

Definition at line 811 of file locale_facets.h.

5.433.3.20 char_type std::ctype< char >::toupper (char_type *__c*) const [inline, inherited]

Convert to uppercase. This function converts the char argument to uppercase if possible. If not possible (for example, '2'), returns the argument.

toupper() acts as if it returns ctype<char>::do_toupper(c). do_toupper() must always return the same result for the same input.

Parameters:

c The char to convert.

Returns:

The uppercase char if convertible, else *c*.

Definition at line 794 of file locale_facets.h.

5.433.3.21 const char* std::ctype< char >::widen (const char * *__lo*, const char * *__hi*, char_type * *__to*) const [inline, inherited]

Widen char array. This function converts each char in the input to char using the simplest reasonable transformation. For an underived ctype<char> facet, the argument will be copied unchanged.

This function works as if it returns ctype<char>::do_widen(c). do_widen() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

lo Pointer to first char in range.

hi Pointer to end of range.

to Pointer to the destination array.

Returns:

hi.

Definition at line 891 of file locale_facets.h.

5.433.3.22 char_type std::ctype< char >::widen (char *__c*) const [inline, inherited]

Widen char. This function converts the char to char_type using the simplest reasonable transformation. For an underived ctype<char> facet, the argument will be returned unchanged.

This function works as if it returns ctype<char>::do_widen(c). do_widen() must always return the same result for the same input.

Note: this is not what you want for codepage conversions. See codecvt for that.

Parameters:

c The char to convert.

Returns:

The converted character.

Definition at line 864 of file locale_facets.h.

5.433.4 Member Data Documentation

5.433.4.1 locale::id std::ctype< char >::id [static, inherited]

The facet id for ctype<char>.

Definition at line 695 of file locale_facets.h.

5.433.4.2 const size_t std::ctype< char >::table_size [static, inherited]

The size of the mask table. It is SCHAR_MAX + 1.

Definition at line 697 of file locale_facets.h.

The documentation for this class was generated from the following file:

- locale_facets.h

5.434 std::decay< _Tp > Class Template Reference

decay

Public Types

- typedef __decay_selector< __remove_type >::__type **type**

5.434.1 Detailed Description

template<typename _Tp> class std::decay< _Tp >

decay

Definition at line 400 of file type_traits.

The documentation for this class was generated from the following file:

- type_traits

5.435 std::decimal::decimal128 Class Reference

3.2.4 Class decimal128.

Public Types

- typedef float __decfloat128 __**attribute**__ ((mode(TD)))

Public Member Functions

- decimal128 (__decfloat128 __z)
- **decimal128** (unsigned long long __z)
- **decimal128** (long long __z)
- **decimal128** (unsigned long __z)
- **decimal128** (long __z)
- **decimal128** (unsigned int __z)
- **decimal128** (int __z)
- **decimal128** (long double __r)
- **decimal128** (double __r)
- **decimal128** (float __r)
- **decimal128** (decimal64 d64)
- **decimal128** (decimal32 d32)
- __decfloat128 __**getval** (void)
- void __**setval** (__decfloat128 __x)
- decimal128 & **operator*=** (unsigned long long __rhs)
- decimal128 & **operator*=** (long long __rhs)
- decimal128 & **operator*=** (unsigned long __rhs)
- decimal128 & **operator*=** (long __rhs)
- decimal128 & **operator*=** (unsigned int __rhs)
- decimal128 & **operator*=** (int __rhs)
- decimal128 & **operator*=** (decimal128 __rhs)
- decimal128 & **operator*=** (decimal64 __rhs)
- decimal128 & **operator*=** (decimal32 __rhs)
- decimal128 **operator++** (int)
- decimal128 & **operator++** ()
- decimal128 & **operator+=** (unsigned long long __rhs)
- decimal128 & **operator+=** (long long __rhs)
- decimal128 & **operator+=** (unsigned long __rhs)
- decimal128 & **operator+=** (long __rhs)
- decimal128 & **operator+=** (unsigned int __rhs)
- decimal128 & **operator+=** (int __rhs)
- decimal128 & **operator+=** (decimal128 __rhs)

- decimal128 & **operator+=** (decimal64 __rhs)
- decimal128 & **operator+=** (decimal32 __rhs)
- decimal128 **operator--** (int)
- decimal128 & **operator--** ()
- decimal128 & **operator-=** (unsigned long long __rhs)
- decimal128 & **operator-=** (long long __rhs)
- decimal128 & **operator-=** (unsigned long __rhs)
- decimal128 & **operator-=** (long __rhs)
- decimal128 & **operator-=** (unsigned int __rhs)
- decimal128 & **operator-=** (int __rhs)
- decimal128 & **operator-=** (decimal128 __rhs)
- decimal128 & **operator-=** (decimal64 __rhs)
- decimal128 & **operator-=** (decimal32 __rhs)
- decimal128 & **operator/=** (unsigned long long __rhs)
- decimal128 & **operator/=** (long long __rhs)
- decimal128 & **operator/=** (unsigned long __rhs)
- decimal128 & **operator/=** (long __rhs)
- decimal128 & **operator/=** (unsigned int __rhs)
- decimal128 & **operator/=** (int __rhs)
- decimal128 & **operator/=** (decimal128 __rhs)
- decimal128 & **operator/=** (decimal64 __rhs)
- decimal128 & **operator/=** (decimal32 __rhs)

5.435.1 Detailed Description

3.2.4 Class decimal128.

Definition at line 391 of file decimal.

5.435.2 Constructor & Destructor Documentation

5.435.2.1 std::decimal::decimal128::decimal128 (__decfloat128 __*z*) [inline]

Conforming extension: Conversion from scalar decimal type.

Definition at line 416 of file decimal.

The documentation for this class was generated from the following file:

- decimal

5.436 std::decimal::decimal32 Class Reference

3.2.2 Class decimal32.

Public Types

- typedef float __decfloat32 __**attribute**__ ((mode(SD)))

Public Member Functions

- decimal32 (__decfloat32 __z)
- **decimal32** (unsigned long long __z)
- **decimal32** (long long __z)
- **decimal32** (unsigned long __z)
- **decimal32** (long __z)
- **decimal32** (unsigned int __z)
- **decimal32** (int __z)
- **decimal32** (long double __r)
- **decimal32** (double __r)
- **decimal32** (float __r)
- **decimal32** (decimal128 __d128)
- **decimal32** (decimal64 __d64)
- __decfloat32 __**getval** (void)
- void __**setval** (__decfloat32 __x)
- decimal32 & **operator*=** (unsigned long long __rhs)
- decimal32 & **operator*=** (long long __rhs)
- decimal32 & **operator*=** (unsigned long __rhs)
- decimal32 & **operator*=** (long __rhs)
- decimal32 & **operator*=** (unsigned int __rhs)
- decimal32 & **operator*=** (int __rhs)
- decimal32 & **operator*=** (decimal128 __rhs)
- decimal32 & **operator*=** (decimal64 __rhs)
- decimal32 & **operator*=** (decimal32 __rhs)
- decimal32 **operator++** (int)
- decimal32 & **operator++** ()
- decimal32 & **operator+=** (unsigned long long __rhs)
- decimal32 & **operator+=** (long long __rhs)
- decimal32 & **operator+=** (unsigned long __rhs)
- decimal32 & **operator+=** (long __rhs)
- decimal32 & **operator+=** (unsigned int __rhs)
- decimal32 & **operator+=** (int __rhs)
- decimal32 & **operator+=** (decimal128 __rhs)

- decimal32 & **operator+=** (decimal64 __rhs)
- decimal32 & **operator+=** (decimal32 __rhs)
- decimal32 **operator--** (int)
- decimal32 & **operator--** ()
- decimal32 & **operator-=** (unsigned long long __rhs)
- decimal32 & **operator-=** (long long __rhs)
- decimal32 & **operator-=** (unsigned long __rhs)
- decimal32 & **operator-=** (long __rhs)
- decimal32 & **operator-=** (unsigned int __rhs)
- decimal32 & **operator-=** (int __rhs)
- decimal32 & **operator-=** (decimal128 __rhs)
- decimal32 & **operator-=** (decimal64 __rhs)
- decimal32 & **operator-=** (decimal32 __rhs)
- decimal32 & **operator/=** (unsigned long long __rhs)
- decimal32 & **operator/=** (long long __rhs)
- decimal32 & **operator/=** (unsigned long __rhs)
- decimal32 & **operator/=** (long __rhs)
- decimal32 & **operator/=** (unsigned int __rhs)
- decimal32 & **operator/=** (int __rhs)
- decimal32 & **operator/=** (decimal128 __rhs)
- decimal32 & **operator/=** (decimal64 __rhs)
- decimal32 & **operator/=** (decimal32 __rhs)

5.436.1 Detailed Description

3.2.2 Class decimal32.

Definition at line 225 of file decimal.

5.436.2 Constructor & Destructor Documentation

5.436.2.1 std::decimal::decimal32::decimal32 (__decfloat32 __z) [inline]

Conforming extension: Conversion from scalar decimal type.

Definition at line 249 of file decimal.

The documentation for this class was generated from the following file:

- decimal

5.437 std::decimal::decimal64 Class Reference

3.2.3 Class decimal64.

Public Types

- typedef float __decfloat64 __**attribute**__ ((mode(DD)))

Public Member Functions

- decimal64 (__decfloat64 __z)
- **decimal64** (unsigned long long __z)
- **decimal64** (long long __z)
- **decimal64** (unsigned long __z)
- **decimal64** (long __z)
- **decimal64** (unsigned int __z)
- **decimal64** (int __z)
- **decimal64** (long double __r)
- **decimal64** (double __r)
- **decimal64** (float __r)
- **decimal64** (decimal128 d128)
- **decimal64** (decimal32 d32)
- __decfloat64 __**getval** (void)
- void __**setval** (__decfloat64 __x)
- decimal64 & **operator*=** (unsigned long long __rhs)
- decimal64 & **operator*=** (long long __rhs)
- decimal64 & **operator*=** (unsigned long __rhs)
- decimal64 & **operator*=** (long __rhs)
- decimal64 & **operator*=** (unsigned int __rhs)
- decimal64 & **operator*=** (int __rhs)
- decimal64 & **operator*=** (decimal128 __rhs)
- decimal64 & **operator*=** (decimal64 __rhs)
- decimal64 & **operator*=** (decimal32 __rhs)
- decimal64 **operator++** (int)
- decimal64 & **operator++** ()
- decimal64 & **operator+=** (unsigned long long __rhs)
- decimal64 & **operator+=** (long long __rhs)
- decimal64 & **operator+=** (unsigned long __rhs)
- decimal64 & **operator+=** (long __rhs)
- decimal64 & **operator+=** (unsigned int __rhs)
- decimal64 & **operator+=** (int __rhs)
- decimal64 & **operator+=** (decimal128 __rhs)

- decimal64 & **operator+=** (decimal64 __rhs)
- decimal64 & **operator+=** (decimal32 __rhs)
- decimal64 **operator--** (int)
- decimal64 & **operator--** ()
- decimal64 & **operator-=** (unsigned long long __rhs)
- decimal64 & **operator-=** (long long __rhs)
- decimal64 & **operator-=** (unsigned long __rhs)
- decimal64 & **operator-=** (long __rhs)
- decimal64 & **operator-=** (unsigned int __rhs)
- decimal64 & **operator-=** (int __rhs)
- decimal64 & **operator-=** (decimal128 __rhs)
- decimal64 & **operator-=** (decimal64 __rhs)
- decimal64 & **operator-=** (decimal32 __rhs)
- decimal64 & **operator/=** (unsigned long long __rhs)
- decimal64 & **operator/=** (long long __rhs)
- decimal64 & **operator/=** (unsigned long __rhs)
- decimal64 & **operator/=** (long __rhs)
- decimal64 & **operator/=** (unsigned int __rhs)
- decimal64 & **operator/=** (int __rhs)
- decimal64 & **operator/=** (decimal128 __rhs)
- decimal64 & **operator/=** (decimal64 __rhs)
- decimal64 & **operator/=** (decimal32 __rhs)

5.437.1 Detailed Description

3.2.3 Class decimal64.

Definition at line 308 of file decimal.

5.437.2 Constructor & Destructor Documentation

5.437.2.1 std::decimal::decimal64::decimal64 (__decfloat64 __z) [inline]

Conforming extension: Conversion from scalar decimal type.

Definition at line 332 of file decimal.

The documentation for this class was generated from the following file:

- decimal

5.438 std::default_delete< _Tp > Struct Template Reference

Primary template, default_delete.

Public Member Functions

- template<typename _Up >
  default_delete (const default_delete< _Up > &)
- void **operator()** (_Tp *__ptr) const

5.438.1 Detailed Description

template<typename _Tp> struct std::default_delete< _Tp >

Primary template, default_delete.

Definition at line 48 of file unique_ptr.h.

The documentation for this struct was generated from the following file:

- unique_ptr.h

5.439 std::default_delete< _Tp[]> Struct Template Reference

Specialization, default_delete.

Public Member Functions

- void **operator()** (_Tp *__ptr) const

5.439.1 Detailed Description

template<typename _Tp> struct std::default_delete< _Tp[ ]>

Specialization, default_delete.

Definition at line 68 of file unique_ptr.h.

The documentation for this struct was generated from the following file:

- unique_ptr.h

5.440 std::defer_lock_t Struct Reference

Do not acquire ownership of the mutex.

5.440.1 Detailed Description

Do not acquire ownership of the mutex.

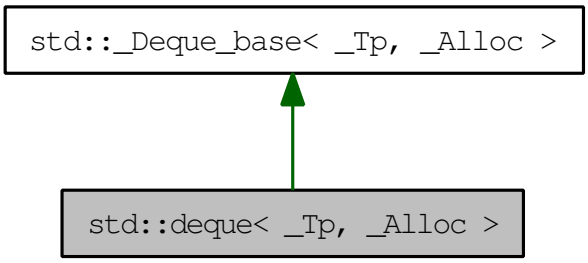
Definition at line 376 of file mutex.

The documentation for this struct was generated from the following file:

- mutex

5.441 std::deque< _Tp, _Alloc > Class Template Reference

A standard container using fixed-size memory allocation and constant-time manipulation of elements at either end. Inheritance diagram for std::deque< _Tp, _Alloc >:



Public Types

- typedef _Alloc **allocator_type**
- typedef _Base::const_iterator **const_iterator**
- typedef _Tp_alloc_type::const_pointer **const_pointer**
- typedef _Tp_alloc_type::const_reference **const_reference**
- typedef std::reverse_iterator< const_iterator > **const_reverse_iterator**
- typedef ptrdiff_t **difference_type**
- typedef _Base::iterator **iterator**
- typedef _Tp_alloc_type::pointer **pointer**
- typedef _Tp_alloc_type::reference **reference**
- typedef std::reverse_iterator< iterator > **reverse_iterator**
- typedef size_t **size_type**
- typedef _Tp **value_type**

Public Member Functions

- template<typename _InputIterator >
  deque (_InputIterator __first, _InputIterator __last, const allocator_type &__a=allocator_type())
- deque (initializer_list< value_type > __l, const allocator_type &__a=allocator_type())
- deque (deque &&__x)
- deque (const deque &__x)
- deque (size_type __n, const value_type &__value=value_type(), const allocator_type &__a=allocator_type())

- deque (const allocator_type &__a)
- deque ()
- ~deque ()
- void assign (initializer_list< value_type > __l)
- template<typename _InputIterator >
  void assign (_InputIterator __first, _InputIterator __last)
- void assign (size_type __n, const value_type &__val)
- const_reference at (size_type __n) const
- reference at (size_type __n)
- const_reference back () const
- reference back ()
- const_iterator begin () const
- iterator begin ()
- const_iterator cbegin () const
- const_iterator cend () const
- void clear ()
- const_reverse_iterator crbegin () const
- const_reverse_iterator crend () const
- template<typename... _Args>
  iterator emplace (iterator __position, _Args &&...__args)
- template<typename... _Args>
  void **emplace_back** (_Args &&...__args)
- template<typename... _Args>
  void **emplace_front** (_Args &&...__args)
- bool empty () const
- const_iterator end () const
- iterator end ()
- iterator erase (iterator __first, iterator __last)
- iterator erase (iterator __position)
- const_reference front () const
- reference front ()
- allocator_type get_allocator () const
- template<typename _InputIterator >
  void insert (iterator __position, _InputIterator __first, _InputIterator __last)
- void insert (iterator __position, size_type __n, const value_type &__x)
- void insert (iterator __p, initializer_list< value_type > __l)
- iterator insert (iterator __position, value_type &&__x)
- iterator insert (iterator __position, const value_type &__x)
- size_type max_size () const
- deque & operator= (initializer_list< value_type > __l)
- deque & operator= (deque &&__x)
- deque & operator= (const deque &__x)
- const_reference operator[ ] (size_type __n) const

- reference operator[ ] (size_type __n)
- void pop_back ()
- void pop_front ()
- void **push_back** (value_type &&__x)
- void push_back (const value_type &__x)
- void **push_front** (value_type &&__x)
- void push_front (const value_type &__x)
- const_reverse_iterator rbegin () const
- reverse_iterator rbegin ()
- const_reverse_iterator rend () const
- reverse_iterator rend ()
- void resize (size_type __new_size, value_type __x=value_type())
- void shrink_to_fit ()
- size_type size () const
- void swap (deque &__x)

Protected Types

- enum { **_S_initial_map_size** }
- typedef _Alloc::template rebind< _Tp * >::other **_Map_alloc_type**
- typedef pointer * **_Map_pointer**

Protected Member Functions

- _Tp ** **_M_allocate_map** (size_t __n)
- _Tp * **_M_allocate_node** ()
- template<typename _ForwardIterator >
  void **_M_assign_aux** (_ForwardIterator __first, _ForwardIterator __last, std::forward_iterator_tag)
- template<typename _InputIterator >
  void **_M_assign_aux** (_InputIterator __first, _InputIterator __last, std::input_iterator_tag)
- template<typename _InputIterator >
  void **_M_assign_dispatch** (_InputIterator __first, _InputIterator __last, __false_type)
- template<typename _Integer >
  void **_M_assign_dispatch** (_Integer __n, _Integer __val, __true_type)
- void **_M_create_nodes** (_Tp **__nstart, _Tp **__nfinish)
- void **_M_deallocate_map** (_Tp **__p, size_t __n)
- void **_M_deallocate_node** (_Tp *__p)
- void **_M_destroy_data** (iterator __first, iterator __last, const std::allocator< _Tp > &)

- template<typename _Alloc1 >
  void **_M_destroy_data** (iterator __first, iterator __last, const _Alloc1 &)
- void **_M_destroy_data_aux** (iterator __first, iterator __last)
- void **_M_destroy_nodes** (_Tp **__nstart, _Tp **__nfinish)
- void **_M_erase_at_begin** (iterator __pos)
- void **_M_erase_at_end** (iterator __pos)
- void **_M_fill_assign** (size_type __n, const value_type &__val)
- void _M_fill_initialize (const value_type &__value)
- void **_M_fill_insert** (iterator __pos, size_type __n, const value_type &__x)
- _Map_alloc_type **_M_get_map_allocator** () const
- const _Tp_alloc_type & **_M_get_Tp_allocator** () const
- _Tp_alloc_type & **_M_get_Tp_allocator** ()
- template<typename _InputIterator >
  void **_M_initialize_dispatch** (_InputIterator __first, _InputIterator __last, __-false_type)
- template<typename _Integer >
  void **_M_initialize_dispatch** (_Integer __n, _Integer __x, __true_type)
- void _M_initialize_map (size_t)
- template<typename _ForwardIterator >
  void **_M_insert_aux** (iterator __pos, _ForwardIterator __first, _ForwardIterator __last, size_type __n)
- void **_M_insert_aux** (iterator __pos, size_type __n, const value_type &__x)
- template<typename... _Args>
  iterator **_M_insert_aux** (iterator __pos, _Args &&...__args)
- template<typename _InputIterator >
  void **_M_insert_dispatch** (iterator __pos, _InputIterator __first, _InputIterator __last, __false_type)
- template<typename _Integer >
  void **_M_insert_dispatch** (iterator __pos, _Integer __n, _Integer __x, __true_-type)
- void _M_range_check (size_type __n) const
- template<typename _ForwardIterator >
  void **_M_range_insert_aux** (iterator __pos, _ForwardIterator __first, _-ForwardIterator __last, std::forward_iterator_tag)
- template<typename _InputIterator >
  void **_M_range_insert_aux** (iterator __pos, _InputIterator __first, _-InputIterator __last, std::input_iterator_tag)

- void _M_new_elements_at_back (size_type __new_elements)
- void _M_new_elements_at_front (size_type __new_elements)
- void _M_pop_back_aux ()
- void _M_pop_front_aux ()
- template<typename... _Args>
  void _M_push_back_aux (_Args &&...__args)

- template<typename... _Args>
  void _M_push_front_aux (_Args &&...__args)
- template<typename _ForwardIterator >
  void _M_range_initialize (_ForwardIterator __first, _ForwardIterator __last, std::forward_iterator_tag)
- template<typename _InputIterator >
  void _M_range_initialize (_InputIterator __first, _InputIterator __last, std::input_iterator_tag)
- void _M_reallocate_map (size_type __nodes_to_add, bool __add_at_front)
- iterator _M_reserve_elements_at_back (size_type __n)
- iterator _M_reserve_elements_at_front (size_type __n)
- void _M_reserve_map_at_back (size_type __nodes_to_add=1)
- void _M_reserve_map_at_front (size_type __nodes_to_add=1)

Static Protected Member Functions

- static size_t **_S_buffer_size** ()

Protected Attributes

- _Deque_impl **_M_impl**

5.441.1 Detailed Description

template<typename _Tp, typename _Alloc = std::allocator<_Tp>> class std::deque< _Tp, _Alloc >

A standard container using fixed-size memory allocation and constant-time manipulation of elements at either end. Meets the requirements of a container, a reversible container, and a sequence, including the optional sequence requirements.

In previous HP/SGI versions of deque, there was an extra template parameter so users could control the node size. This extension turned out to violate the C++ standard (it can be detected using template template parameters), and it was removed.

Here's how a deque<Tp> manages memory. Each deque has 4 members:

- Tp** _M_map
- size_t _M_map_size
- iterator _M_start, _M_finish

map_size is at least 8. map is an array of map_size pointers-to-. (The name map has nothing to do with the std::map class, and **nodes** should not be confused with std::list's usage of *node*.)

A *node* has no specific type name as such, but it is referred to as *node* in this file. It is a simple array-of-Tp. If Tp is very large, there will be one Tp element per node (i.e., an *array* of one). For non-huge Tp's, node size is inversely related to Tp size: the larger the Tp, the fewer Tp's will fit in a node. The goal here is to keep the total size of a node relatively small and constant over different Tp's, to improve allocator efficiency.

Not every pointer in the map array will point to a node. If the initial number of elements in the deque is small, the /middle/ map pointers will be valid, and the ones at the edges will be unused. This same situation will arise as the map grows: available map pointers, if any, will be on the ends. As new nodes are created, only a subset of the map's pointers need to be copied *outward*.

Class invariants:

- For any nonsingular iterator i:
  - i.node points to a member of the map array. (Yes, you read that correctly: i.node does not actually point to a node.) The member of the map array is what actually points to the node.
  - i.first == *(i.node) (This points to the node (first Tp element).)
  - i.last == i.first + node_size
  - i.cur is a pointer in the range [i.first, i.last). NOTE: the implication of this is that i.cur is always a dereferenceable pointer, even if i is a past-the-end iterator.
- Start and Finish are always nonsingular iterators. NOTE: this means that an empty deque must have one node, a deque with <N elements (where N is the node buffer size) must have one node, a deque with N through (2N-1) elements must have two nodes, etc.
- For every node other than start.node and finish.node, every element in the node is an initialized object. If start.node == finish.node, then [start.cur, finish.cur) are initialized objects, and the elements outside that range are uninitialized storage. Otherwise, [start.cur, start.last) and [finish.first, finish.cur) are initialized objects, and [start.first, start.cur) and [finish.cur, finish.last) are uninitialized storage.
- [map, map + map_size) is a valid, non-empty range.
- [start.node, finish.node] is a valid range contained within [map, map + map_size).
- A pointer in the range [map, map + map_size) points to an allocated node if and only if the pointer is in the range [start.node, finish.node].

Here's the magic: nothing in deque is **aware** of the discontiguous storage!

The memory setup and layout occurs in the parent, _Base, and the iterator class is entirely responsible for *leaping* from one node to the next. All the implementation routines for deque itself work only through the start and finish iterators. This keeps the routines simple and sane, and we can use other standard algorithms as well.

Definition at line 713 of file stl_deque.h.

5.441.2 Constructor & Destructor Documentation

5.441.2.1 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> std::deque< _Tp, _Alloc >::deque () [inline]

Default constructor creates no elements.

Definition at line 765 of file stl_deque.h.

5.441.2.2 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> std::deque< _Tp, _Alloc >::deque (const allocator_type & *__a*) [inline, explicit]

Creates a deque with no elements.

Parameters:

a An allocator object.

Definition at line 773 of file stl_deque.h.

5.441.2.3 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> std::deque< _Tp, _Alloc >::deque (size_type *__n*, const value_type & *__value* = value_type(), const allocator_type & *__a* = allocator_type()) [inline, explicit]

Creates a deque with copies of an exemplar element.

Parameters:

n The number of elements to initially create.

value An element to copy.

a An allocator.

This constructor fills the deque with *n* copies of *value*.

Definition at line 785 of file stl_deque.h.

References std::deque< _Tp, _Alloc >::_M_fill_initialize().

5.441.2.4 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> std::deque< _Tp, _Alloc >::deque (const deque< _Tp, _Alloc > & __x) [inline]

Deque copy constructor.

Parameters:

x A deque of identical element and allocator types.

The newly-created deque uses a copy of the allocation object used by *x*.

Definition at line 797 of file stl_deque.h.

References std::deque< _Tp, _Alloc >::begin(), and std::deque< _Tp, _Alloc >::end().

5.441.2.5 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> std::deque< _Tp, _Alloc >::deque (deque< _Tp, _Alloc > && __x) [inline]

Deque move constructor.

Parameters:

x A deque of identical element and allocator types.

The newly-created deque contains the exact contents of *x*. The contents of *x* are a valid, but unspecified deque.

Definition at line 811 of file stl_deque.h.

5.441.2.6 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> std::deque< _Tp, _Alloc >::deque (initializer_list< value_type > __l, const allocator_type & __a = allocator_type()) [inline]

Builds a deque from an initializer list.

Parameters:

l An initializer_list.

a An allocator object.

Create a deque consisting of copies of the elements in the initializer_list *l*.

This will call the element type's copy constructor N times (where N is l.size()) and do no memory reallocation.

Definition at line 825 of file stl_deque.h.

References std::deque< _Tp, _Alloc >::_M_range_initialize().

5.441.2.7 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> template<typename _InputIterator > std::deque< _Tp, _Alloc >::deque (_InputIterator *__first*, _InputIterator *__last*, const allocator_type & *__a* = `allocator_type()`) `[inline]`

Builds a deque from a range.

Parameters:

first An input iterator.

last An input iterator.

a An allocator object.

Create a deque consisting of copies of the elements from [first, last).

If the iterators are forward, bidirectional, or random-access, then this will call the elements' copy constructor N times (where N is distance(first,last)) and do no memory reallocation. But if only input iterators are used, then this will do at most 2N calls to the copy constructor, and logN memory reallocations.

Definition at line 850 of file stl_deque.h.

5.441.2.8 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> std::deque< _Tp, _Alloc >::~deque () `[inline]`

The dtor only erases the elements, and note that if the elements themselves are pointers, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 864 of file stl_deque.h.

References std::deque< _Tp, _Alloc >::begin(), and std::deque< _Tp, _Alloc >::end().

5.441.3 Member Function Documentation

5.441.3.1 template<typename _Tp , typename _Alloc > void deque::_M_fill_initialize (const value_type & *__value*) `[inline, protected]`

Fills the deque with copies of value.

Parameters:

value Initial value.

Returns:

Nothing.

Precondition:

_M_start and _M_finish have already been initialized, but none of the deque's elements have yet been constructed.

This function is called only when the user provides an explicit size (with or without an explicit exemplar value).

Definition at line 277 of file deque.tcc.

References std::_Destroy().

Referenced by std::deque< _Tp, _Alloc >::deque().

5.441.3.2 template<typename _Tp , typename _Alloc > void std::_Deque_base< _Tp, _Alloc >::_M_initialize_map (size_t *__num_elements*) [inline, protected, inherited]

Layout storage.

Parameters:

num_elements The count of T's for which to allocate space at first.

Returns:

Nothing.

The initial underlying memory layout is a bit complicated...

Definition at line 568 of file stl_deque.h.

References std::max().

Referenced by std::deque< _Tp, _Alloc >::_M_range_initialize().

5.441.3.3 template<typename _Tp , typename _Alloc > void deque::_M_new_elements_at_back (size_type *__new_elements*) [inline, protected]

Helper functions for push_* and pop_*.

Definition at line 771 of file deque.tcc.

References std::deque< _Tp, _Alloc >::_M_reserve_map_at_back(), std::deque< _Tp, _Alloc >::max_size(), and std::deque< _Tp, _Alloc >::size().

Referenced by std::deque< _Tp, _Alloc >::_M_reserve_elements_at_back().

5.441.3.4 template<typename _Tp , typename _Alloc > void deque::_M_new_elements_at_front (size_type *__new_elements*) [inline, protected]

Helper functions for push_* and pop_*.

Definition at line 746 of file deque.tcc.

References std::deque< _Tp, _Alloc >::_M_reserve_map_at_front(), std::deque< _Tp, _Alloc >::max_size(), and std::deque< _Tp, _Alloc >::size().

Referenced by std::deque< _Tp, _Alloc >::_M_reserve_elements_at_front().

5.441.3.5 template<typename _Tp , typename _Alloc > void deque::_M_pop_back_aux () [inline, protected]

Helper functions for push_* and pop_*.

Definition at line 427 of file deque.tcc.

Referenced by std::deque< _Tp, _Alloc >::pop_back().

5.441.3.6 template<typename _Tp , typename _Alloc > void deque::_M_pop_front_aux () [inline, protected]

Helper functions for push_* and pop_*.

Definition at line 442 of file deque.tcc.

Referenced by std::deque< _Tp, _Alloc >::pop_front().

5.441.3.7 template<typename _Tp , typename _Alloc > template<typename... _Args> void deque::_M_push_back_aux (_Args &&... *__args*) [inline, protected]

Helper functions for push_* and pop_*.

Definition at line 361 of file deque.tcc.

Referenced by std::deque< _Tp, _Alloc >::push_back().

5.441.3.8 template<typename _Tp , typename _Alloc > template<typename... _Args> void deque::_M_push_front_aux (_Args &&... *__args*) [inline, protected]

Helper functions for push_* and pop_*.

Definition at line 395 of file deque.tcc.

Referenced by std::deque< _Tp, _Alloc >::push_front().

5.441.3.9 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::deque< _Tp, _Alloc >::_M_range_check (size_type *__n*) const [inline, protected]

Safety check used only from at().

Definition at line 1159 of file stl_deque.h.

References std::deque< _Tp, _Alloc >::size().

Referenced by std::deque< _Tp, _Alloc >::at().

5.441.3.10 template<typename _Tp , typename _Alloc > template<typename _ForwardIterator > void deque::_M_range_initialize (_ForwardIterator *__first*, _ForwardIterator *__last*, std::forward_iterator_tag) [inline, protected]

Helper functions for push_* and pop_*.

Definition at line 323 of file deque.tcc.

References std::_Destroy(), std::_Deque_base< _Tp, _Alloc >::_M_initialize_map(), std::advance(), and std::distance().

5.441.3.11 template<typename _Tp , typename _Alloc > template<typename _InputIterator > void deque::_M_range_initialize (_InputIterator *__first*, _InputIterator *__last*, std::input_iterator_tag) [inline, protected]

Fills the deque with whatever is in [first,last).

Parameters:

first An input iterator.

last An input iterator.

Returns:

Nothing.

If the iterators are actually forward iterators (or better), then the memory layout can be done all at once. Else we move forward using push_back on each value from the iterator.

Definition at line 303 of file deque.tcc.

References std::_Deque_base< _Tp, _Alloc >::_M_initialize_map(), std::deque< _Tp, _Alloc >::clear(), and std::deque< _Tp, _Alloc >::push_back().

Referenced by std::deque< _Tp, _Alloc >::deque().

5.441.3.12 template<typename _Tp , typename _Alloc > void deque::_M_reallocate_map (size_type *__nodes_to_add*, bool *__add_at_front*) [inline, protected]

Helper functions for push_* and pop_*.

Definition at line 796 of file deque.tcc.

References std::max().

Referenced by std::deque< _Tp, _Alloc >::_M_reserve_map_at_back(), and std::deque< _Tp, _Alloc >::_M_reserve_map_at_front().

5.441.3.13 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> iterator std::deque< _Tp, _Alloc >::_M_reserve_elements_at_back (size_type *__n*) [inline, protected]

Helper functions for push_* and pop_*.

Definition at line 1768 of file stl_deque.h.

References std::deque< _Tp, _Alloc >::_M_new_elements_at_back().

5.441.3.14 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> iterator std::deque< _Tp, _Alloc >::_M_reserve_elements_at_front (size_type *__n*) [inline, protected]

Memory-handling helpers for the previous internal insert functions.

Definition at line 1758 of file stl_deque.h.

References std::deque< _Tp, _Alloc >::_M_new_elements_at_front().

5.441.3.15 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::deque< _Tp, _Alloc >::_M_reserve_map_at_back (size_type *__nodes_to_add* = 1) [inline, protected]

Memory-handling helpers for the major map. Makes sure the _M_map has space for new nodes. Does not actually add the nodes. Can invalidate _M_map pointers. (And consequently, deque iterators.)

Definition at line 1794 of file stl_deque.h.

References std::deque< _Tp, _Alloc >::_M_reallocate_map().

Referenced by std::deque< _Tp, _Alloc >::_M_new_elements_at_back().

5.441.3.16 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::deque< _Tp, _Alloc >::_M_reserve_map_at_front (size_type *__nodes_to_add* = 1) [inline, protected]

Helper functions for push_* and pop_*.

Definition at line 1802 of file stl_deque.h.

References std::deque< _Tp, _Alloc >::_M_reallocate_map().

Referenced by std::deque< _Tp, _Alloc >::_M_new_elements_at_front().

5.441.3.17 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::deque< _Tp, _Alloc >::assign (initializer_list< value_type > *__l*) [inline]

Assigns an initializer list to a deque.

Parameters:

l An initializer_list.

This function fills a deque with copies of the elements in the initializer_list *l*.

Note that the assignment completely changes the deque and that the resulting deque's size is the same as the number of elements assigned. Old data may be lost.

Definition at line 961 of file stl_deque.h.

References std::deque< _Tp, _Alloc >::assign().

Referenced by std::deque< _Tp, _Alloc >::assign().

5.441.3.18 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> template<typename _InputIterator > void std::deque< _Tp, _Alloc >::assign (_InputIterator *__first*, _InputIterator *__last*) [inline]

Assigns a range to a deque.

Parameters:

first An input iterator.

last An input iterator.

This function fills a deque with copies of the elements in the range [first,last).

Note that the assignment completely changes the deque and that the resulting deque's size is the same as the number of elements assigned. Old data may be lost.

Definition at line 942 of file stl_deque.h.

5.441.3.19 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::deque< _Tp, _Alloc >::assign (size_type *__n*, const value_type & *__val*) [inline]

Assigns a given value to a deque.

Parameters:

n Number of elements to be assigned.

val Value to be assigned.

This function fills a deque with *n* copies of the given value. Note that the assignment completely changes the deque and that the resulting deque's size is the same as the number of elements assigned. Old data may be lost.

Definition at line 925 of file stl_deque.h.

Referenced by std::deque< _Tp, _Alloc >::operator=().

5.441.3.20 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_reference std::deque< _Tp, _Alloc >::at (size_type *__n*) const [inline]

Provides access to the data contained in the deque.

Parameters:

n The index of the element for which data should be accessed.

Returns:

Read-only (constant) reference to data.

Exceptions:

std::out_of_range If *n* is an invalid index.

This function provides for safer data access. The parameter is first checked that it is in the range of the deque. The function throws out_of_range if the check fails.

Definition at line 1196 of file stl_deque.h.

References std::deque< _Tp, _Alloc >::_M_range_check().

5.441.3.21 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> reference std::deque< _Tp, _Alloc >::at (size_type __n) [inline]

Provides access to the data contained in the deque.

Parameters:

n The index of the element for which data should be accessed.

Returns:

Read/write reference to data.

Exceptions:

std::out_of_range If *n* is an invalid index.

This function provides for safer data access. The parameter is first checked that it is in the range of the deque. The function throws out_of_range if the check fails.

Definition at line 1178 of file stl_deque.h.

References std::deque< _Tp, _Alloc >::_M_range_check().

5.441.3.22 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_reference std::deque< _Tp, _Alloc >::back () const [inline]

Returns a read-only (constant) reference to the data at the last element of the deque.

Definition at line 1235 of file stl_deque.h.

References std::deque< _Tp, _Alloc >::end().

5.441.3.23 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> reference std::deque< _Tp, _Alloc >::back () [inline]

Returns a read/write reference to the data at the last element of the deque.

Definition at line 1223 of file stl_deque.h.

References std::deque< _Tp, _Alloc >::end().

5.441.3.24 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_iterator std::deque< _Tp, _Alloc >::begin () const [inline]

Returns a read-only (constant) iterator that points to the first element in the deque. Iteration is done in ordinary element order.

Definition at line 984 of file stl_deque.h.

5.441.3.25 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> iterator std::deque< _Tp, _Alloc >::begin () [inline]

Returns a read/write iterator that points to the first element in the deque. Iteration is done in ordinary element order.

Definition at line 976 of file stl_deque.h.

Referenced by std::deque< _Tp, _Alloc >::clear(), std::deque< _Tp, _Alloc >::deque(), std::deque< _Tp, _Alloc >::erase(), std::deque< _Tp, _Alloc >::front(), std::operator==(), and std::deque< _Tp, _Alloc >::~deque().

5.441.3.26 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_iterator std::deque< _Tp, _Alloc >::cbegin () const [inline]

Returns a read-only (constant) iterator that points to the first element in the deque. Iteration is done in ordinary element order.

Definition at line 1047 of file stl_deque.h.

5.441.3.27 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_iterator std::deque< _Tp, _Alloc >::cend () const [inline]

Returns a read-only (constant) iterator that points one past the last element in the deque. Iteration is done in ordinary element order.

Definition at line 1056 of file stl_deque.h.

5.441.3.28 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::deque< _Tp, _Alloc >::clear () [inline]

Erases all the elements. Note that this function only erases the elements, and that if the elements themselves are pointers, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 1501 of file stl_deque.h.

References std::deque< _Tp, _Alloc >::begin().

Referenced by std::deque< _Tp, _Alloc >::_M_range_initialize(), std::deque< _Tp, _Alloc >::erase(), and std::deque< _Tp, _Alloc >::operator=().

5.441.3.29 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_reverse_iterator std::deque< _Tp, _Alloc >::crbegin () const [inline]

Returns a read-only (constant) reverse iterator that points to the last element in the deque. Iteration is done in reverse element order.

Definition at line 1065 of file stl_deque.h.

5.441.3.30 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_reverse_iterator std::deque< _Tp, _Alloc >::crend () const [inline]

Returns a read-only (constant) reverse iterator that points to one before the first element in the deque. Iteration is done in reverse element order.

Definition at line 1074 of file stl_deque.h.

5.441.3.31 template<typename _Tp , typename _Alloc > template<typename... _Args> deque< _Tp, _Alloc >::iterator deque::emplace (iterator *__position*, _Args &&... *__args*) [inline]

Inserts an object in deque before specified iterator.

Parameters:

position An iterator into the deque.

args Arguments.

Returns:

An iterator that points to the inserted data.

This function will insert an object of type T constructed with T(std::forward<Args>(args)...) before the specified location.

Definition at line 144 of file deque.tcc.

References std::deque< _Tp, _Alloc >::push_back(), and std::deque< _Tp, _Alloc >::push_front().

Referenced by std::deque< _Tp, _Alloc >::insert().

5.441.3.32 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> bool std::deque< _Tp, _Alloc >::empty () const [inline]

Returns true if the deque is empty. (Thus begin() would equal end().)

Definition at line 1122 of file stl_deque.h.

5.441.3.33 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_iterator std::deque< _Tp, _Alloc >::end () const [inline]

Returns a read-only (constant) iterator that points one past the last element in the deque. Iteration is done in ordinary element order.

Definition at line 1002 of file stl_deque.h.

5.441.3.34 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> iterator std::deque< _Tp, _Alloc >::end () [inline]

Returns a read/write iterator that points one past the last element in the deque. Iteration is done in ordinary element order.

Definition at line 993 of file stl_deque.h.

Referenced by std::deque< _Tp, _Alloc >::back(), std::deque< _Tp, _Alloc >::deque(), std::deque< _Tp, _Alloc >::erase(), std::operator==(), and std::deque< _Tp, _Alloc >::~deque().

5.441.3.35 template<typename _Tp , typename _Alloc > deque< _Tp, _Alloc >::iterator deque::erase (iterator *__first*, iterator *__last*) [inline]

Remove a range of elements.

Parameters:

first Iterator pointing to the first element to be erased.

last Iterator pointing to one past the last element to be erased.

Returns:

An iterator pointing to the element pointed to by *last* prior to erasing (or end()).

This function will erase the elements in the range [first,last) and shorten the deque accordingly.

The user is cautioned that this function only erases the elements, and that if the elements themselves are pointers, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 189 of file deque.tcc.

References std::deque< _Tp, _Alloc >::begin(), std::deque< _Tp, _Alloc >::clear(), std::deque< _Tp, _Alloc >::end(), and std::deque< _Tp, _Alloc >::size().

5.441.3.36 template<typename _Tp , typename _Alloc > deque< _Tp, _Alloc >::iterator deque::erase (iterator *__position*) [inline]

Remove element at given position.

Parameters:

position Iterator pointing to element to be erased.

Returns:

An iterator pointing to the next element (or end()).

This function will erase the element at the given position and thus shorten the deque by one.

The user is cautioned that this function only erases the element, and that if the element is itself a pointer, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 166 of file deque.tcc.

References std::deque< _Tp, _Alloc >::begin(), std::deque< _Tp, _Alloc >::end(), std::deque< _Tp, _Alloc >::pop_back(), std::deque< _Tp, _Alloc >::pop_front(), and std::deque< _Tp, _Alloc >::size().

5.441.3.37 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_reference std::deque< _Tp, _Alloc >::front () const [inline]

Returns a read-only (constant) reference to the data at the first element of the deque.

Definition at line 1215 of file stl_deque.h.

References std::deque< _Tp, _Alloc >::begin().

5.441.3.38 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> reference std::deque< _Tp, _Alloc >::front () [inline]

Returns a read/write reference to the data at the first element of the deque.

Definition at line 1207 of file stl_deque.h.

References std::deque< _Tp, _Alloc >::begin().

5.441.3.39 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> allocator_type std::deque< _Tp, _Alloc >::get_allocator () const [inline]

Get a copy of the memory allocation object.

Reimplemented from std::_Deque_base< _Tp, _Alloc >.

Definition at line 967 of file stl_deque.h.

5.441.3.40 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> template<typename _InputIterator > void std::deque< _Tp, _Alloc >::insert (iterator *__position*, _InputIterator *__first*, _InputIterator *__last*) [inline]

Inserts a range into the deque.

Parameters:

position An iterator into the deque.

first An input iterator.

last An input iterator.

This function will insert copies of the data in the range [first,last) into the deque before the location specified by *pos*. This is known as *range insert*.

Definition at line 1428 of file stl_deque.h.

5.441.3.41 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::deque< _Tp, _Alloc >::insert (iterator *__position*, size_type *__n*, const value_type & *__x*) [inline]

Inserts a number of copies of given data into the deque.

Parameters:

position An iterator into the deque.

n Number of elements to be inserted.

x Data to be inserted.

This function will insert a specified number of copies of the given data before the location specified by *position*.

Definition at line 1413 of file stl_deque.h.

5.441.3.42 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::deque< _Tp, _Alloc >::insert (iterator *__p*, initializer_list< value_type > *__l*) [inline]

Inserts an initializer list into the deque.

Parameters:

p An iterator into the deque.

l An initializer_list.

This function will insert copies of the data in the initializer_list *l* into the deque before the location specified by *p*. This is known as *list insert*.

Definition at line 1399 of file stl_deque.h.

References std::deque< _Tp, _Alloc >::insert().

Referenced by std::deque< _Tp, _Alloc >::insert().

5.441.3.43 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> iterator std::deque< _Tp, _Alloc >::insert (iterator *__position*, value_type && *__x*) [inline]

Inserts given rvalue into deque before specified iterator.

Parameters:

position An iterator into the deque.

x Data to be inserted.

Returns:

An iterator that points to the inserted data.

This function will insert a copy of the given rvalue before the specified location.

Definition at line 1386 of file stl_deque.h.

References std::deque< _Tp, _Alloc >::emplace().

5.441.3.44 template<typename _Tp , typename _Alloc > deque< _Tp, _Alloc >::iterator deque::insert (iterator *__position*, const value_type & *__x*) [inline]

Inserts given value into deque before specified iterator.

Parameters:

position An iterator into the deque.

x Data to be inserted.

Returns:

An iterator that points to the inserted data.

This function will insert a copy of the given value before the specified location.

Definition at line 121 of file deque.tcc.

References std::deque< _Tp, _Alloc >::push_back(), and std::deque< _Tp, _Alloc >::push_front().

Referenced by std::deque< _Tp, _Alloc >::resize().

5.441.3.45 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> size_type std::deque< _Tp, _Alloc >::max_size () const [inline]

Returns the size() of the largest possible deque.

Definition at line 1086 of file stl_deque.h.

Referenced by std::deque< _Tp, _Alloc >::_M_new_elements_at_back(), and std::deque< _Tp, _Alloc >::_M_new_elements_at_front().

5.441.3.46 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> deque& std::deque< _Tp, _Alloc >::operator= (initializer_list< value_type > *__l*) [inline]

Assigns an initializer list to a deque.

Parameters:

l An initializer_list.

This function fills a deque with copies of the elements in the initializer_list *l*.

Note that the assignment completely changes the deque and that the resulting deque's size is the same as the number of elements assigned. Old data may be lost.

Definition at line 907 of file stl_deque.h.

References std::deque< _Tp, _Alloc >::assign().

5.441.3.47 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> deque& std::deque< _Tp, _Alloc >::operator= (deque< _Tp, _Alloc > && __x) [inline]

Deque move assignment operator.

Parameters:

x A deque of identical element and allocator types.

The contents of *x* are moved into this deque (without copying). *x* is a valid, but unspecified deque.

Definition at line 886 of file stl_deque.h.

References std::deque< _Tp, _Alloc >::clear(), and std::deque< _Tp, _Alloc >::swap().

5.441.3.48 template<typename _Tp , typename _Alloc > deque< _Tp, _Alloc > & deque::operator= (const deque< _Tp, _Alloc > & __x) [inline]

Deque assignment operator.

Parameters:

x A deque of identical element and allocator types.

All the elements of *x* are copied, but unlike the copy constructor, the allocator object is not copied.

Definition at line 65 of file deque.tcc.

5.441.3.49 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_reference std::deque< _Tp, _Alloc >::operator[ ] (size_type __n) const [inline]

Subscript access to the data contained in the deque.

Parameters:

n The index of the element for which data should be accessed.

Returns:

Read-only (constant) reference to data.

This operator allows for easy, array-style, data access. Note that data access with this operator is unchecked and out_of_range lookups are not defined. (For checked lookups see at().)

Definition at line 1153 of file stl_deque.h.

5.441.3.50 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> reference std::deque< _Tp, _Alloc >::operator[ ] (size_type __n) [inline]

Subscript access to the data contained in the deque.

Parameters:

n The index of the element for which data should be accessed.

Returns:

Read/write reference to data.

This operator allows for easy, array-style, data access. Note that data access with this operator is unchecked and out_of_range lookups are not defined. (For checked lookups see at().)

Definition at line 1138 of file stl_deque.h.

5.441.3.51 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::deque< _Tp, _Alloc >::pop_back () [inline]

Removes last element. This is a typical stack operation. It shrinks the deque by one.

Note that no data is returned, and if the last element's data is needed, it should be retrieved before pop_back() is called.

Definition at line 1336 of file stl_deque.h.

References std::deque< _Tp, _Alloc >::_M_pop_back_aux().

Referenced by std::deque< _Tp, _Alloc >::erase().

5.441.3.52 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::deque< _Tp, _Alloc >::pop_front () [inline]

Removes first element. This is a typical stack operation. It shrinks the deque by one.

Note that no data is returned, and if the first element's data is needed, it should be retrieved before pop_front() is called.

Definition at line 1315 of file stl_deque.h.

References std::deque< _Tp, _Alloc >::_M_pop_front_aux().

Referenced by std::deque< _Tp, _Alloc >::erase().

5.441.3.53 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::deque< _Tp, _Alloc >::push_back (const value_type & __x) [inline]

Add data to the end of the deque.

Parameters:

x Data to be added.

This is a typical stack operation. The function creates an element at the end of the deque and assigns the given data to it. Due to the nature of a deque this operation can be done in constant time.

Definition at line 1284 of file stl_deque.h.

References std::deque< _Tp, _Alloc >::_M_push_back_aux().

Referenced by std::deque< _Tp, _Alloc >::_M_range_initialize(), std::deque< _Tp, _Alloc >::emplace(), and std::deque< _Tp, _Alloc >::insert().

5.441.3.54 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::deque< _Tp, _Alloc >::push_front (const value_type & __x) [inline]

Add data to the front of the deque.

Parameters:

x Data to be added.

This is a typical stack operation. The function creates an element at the front of the deque and assigns the given data to it. Due to the nature of a deque this operation can be done in constant time.

Definition at line 1253 of file stl_deque.h.

References std::deque< _Tp, _Alloc >::_M_push_front_aux().

Referenced by std::deque< _Tp, _Alloc >::emplace(), and std::deque< _Tp, _Alloc >::insert().

5.441.3.55 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_reverse_iterator std::deque< _Tp, _Alloc >::rbegin () const [inline]

Returns a read-only (constant) reverse iterator that points to the last element in the deque. Iteration is done in reverse element order.

Definition at line 1020 of file stl_deque.h.

5.441.3.56 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> reverse_iterator std::deque< _Tp, _Alloc >::rbegin () [inline]

Returns a read/write reverse iterator that points to the last element in the deque. Iteration is done in reverse element order.

Definition at line 1011 of file stl_deque.h.

5.441.3.57 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_reverse_iterator std::deque< _Tp, _Alloc >::rend () const [inline]

Returns a read-only (constant) reverse iterator that points to one before the first element in the deque. Iteration is done in reverse element order.

Definition at line 1038 of file stl_deque.h.

5.441.3.58 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> reverse_iterator std::deque< _Tp, _Alloc >::rend () [inline]

Returns a read/write reverse iterator that points to one before the first element in the deque. Iteration is done in reverse element order.

Definition at line 1029 of file stl_deque.h.

5.441.3.59 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::deque< _Tp, _Alloc >::resize (size_type *__new_size*, value_type *__x* = value_type()) [inline]

Resizes the deque to the specified number of elements.

Parameters:

new_size Number of elements the deque should contain.

x Data with which new elements should be populated.

This function will resize the deque to the specified number of elements. If the number is smaller than the deque's current size the deque is truncated, otherwise the deque is extended and new elements are populated with given data.

Definition at line 1101 of file stl_deque.h.

References std::deque< _Tp, _Alloc >::insert(), and std::deque< _Tp, _Alloc >::size().

5.441.3.60 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::deque< _Tp, _Alloc >::shrink_to_fit () [inline]

A non-binding request to reduce memory use.

Definition at line 1113 of file stl_deque.h.

5.441.3.61 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> size_type std::deque< _Tp, _Alloc >::size () const [inline]

Returns the number of elements in the deque.

Definition at line 1081 of file stl_deque.h.

Referenced by std::deque< _Tp, _Alloc >::_M_new_elements_at_back(), std::deque< _Tp, _Alloc >::_M_new_elements_at_front(), std::deque< _Tp, _Alloc >::_M_range_check(), std::deque< _Tp, _Alloc >::erase(), std::operator==(), and std::deque< _Tp, _Alloc >::resize().

5.441.3.62 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::deque< _Tp, _Alloc >::swap (deque< _Tp, _Alloc > & __x) [inline]

Swaps data with another deque.

Parameters:

x A deque of the same element and allocator types.

This exchanges the elements between two deques in constant time. (Four pointers, so it should be quite fast.) Note that the global std::swap() function is specialized such that std::swap(d1,d2) will feed to this function.

Definition at line 1481 of file stl_deque.h.

Referenced by std::deque< _Tp, _Alloc >::operator=(), and std::swap().

The documentation for this class was generated from the following files:

- stl_deque.h

- deque.tcc

5.442 std::discard_block_engine< _RandomNumberEngine, __p, __r > Class Template Reference

Public Types

- typedef _RandomNumberEngine::result_type result_type

Public Member Functions

- template<typename _Sseq , typename = typename std::enable_if<!std::is_same<_Sseq, discard_block_engine>::value && !std::is_same<_Sseq, _RandomNumberEngine>::value> ::type> discard_block_engine (_Sseq &__q)
- discard_block_engine (result_type __s)
- discard_block_engine (_RandomNumberEngine &&__rne)
- discard_block_engine (const _RandomNumberEngine &__rne)
- discard_block_engine ()
- const _RandomNumberEngine & base () const
- void discard (unsigned long long __z)
- result_type max () const
- result_type min () const
- result_type operator() ()
- template<typename _Sseq > void seed (_Sseq &__q)
- void seed (result_type __s)
- void seed ()

Static Public Attributes

- static const size_t **block_size**
- static const size_t **used_block**

Friends

- template<typename _RandomNumberEngine1 , size_t __p1, size_t __r1, typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & operator<< (std::basic_ostream< _CharT, _Traits > &, const std::discard_block_engine< _RandomNumberEngine1, __p1, __r1 > &)
- bool operator== (const discard_block_engine &__lhs, const discard_block_engine &__rhs)

- template<typename _RandomNumberEngine1 , size_t __p1, size_t __r1, typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & operator>> (std::basic_istream< _CharT, _Traits > &, std::discard_block_engine< _RandomNumberEngine1, __p1, __r1 > &)

5.442.1 Detailed Description

template<typename _RandomNumberEngine, size_t __p, size_t __r> class std::discard_block_engine< _RandomNumberEngine, __p, __r >

Produces random numbers from some base engine by discarding blocks of data.

0 <= __r <= __p

Definition at line 716 of file random.h.

5.442.2 Member Typedef Documentation

5.442.2.1 template<typename _RandomNumberEngine, size_t __p, size_t __r> typedef _RandomNumberEngine::result_type std::discard_block_engine< _RandomNumberEngine, __p, __r >::result_type

The type of the generated random value.

Definition at line 723 of file random.h.

5.442.3 Constructor & Destructor Documentation

5.442.3.1 template<typename _RandomNumberEngine, size_t __p, size_t __r> std::discard_block_engine< _RandomNumberEngine, __p, __r >::discard_block_engine () [inline]

Constructs a default discard_block_engine engine. The underlying engine is default constructed as well.

Definition at line 734 of file random.h.

5.442.3.2 template<typename _RandomNumberEngine, size_t __p, size_t __r> std::discard_block_engine< _RandomNumberEngine, __p, __r >::discard_block_engine (const _RandomNumberEngine & *__rne*) [inline, explicit]

Copy constructs a discard_block_engine engine. Copies an existing base class random number generator.

Parameters:

rng An existing (base class) engine object.

Definition at line 744 of file random.h.

5.442.3.3 template<typename _RandomNumberEngine, size_t __p, size_t __r> std::discard_block_engine< _RandomNumberEngine, __p, __r >::discard_block_engine (_RandomNumberEngine && *__rne*) [inline, explicit]

Move constructs a discard_block_engine engine. Copies an existing base class random number generator.

Parameters:

rng An existing (base class) engine object.

Definition at line 754 of file random.h.

5.442.3.4 template<typename _RandomNumberEngine, size_t __p, size_t __r> std::discard_block_engine< _RandomNumberEngine, __p, __r >::discard_block_engine (result_type *__s*) [inline, explicit]

Seed constructs a discard_block_engine engine. Constructs the underlying generator engine seeded with __s.

Parameters:

__s A seed value for the base class engine.

Definition at line 764 of file random.h.

5.442.3.5 template<typename _RandomNumberEngine, size_t __p, size_t __r> template<typename _Sseq , typename = typename std::enable_if<!std::is_same<_Sseq, discard_block_engine>::value && !std::is_same<_Sseq, _RandomNumberEngine>::value> ::type> std::discard_block_engine< _RandomNumberEngine, __p, __r >::discard_block_engine (_Sseq & __q) [inline, explicit]

Generator construct a discard_block_engine engine.

Parameters:

__q A seed sequence.

Definition at line 777 of file random.h.

5.442.4 Member Function Documentation

5.442.4.1 template<typename _RandomNumberEngine, size_t __p, size_t __r> const _RandomNumberEngine& std::discard_block_engine< _RandomNumberEngine, __p, __r >::base () const [inline]

Gets a const reference to the underlying generator engine object.

Definition at line 821 of file random.h.

5.442.4.2 template<typename _RandomNumberEngine, size_t __p, size_t __r> void std::discard_block_engine< _RandomNumberEngine, __p, __r >::discard (unsigned long long __z) [inline]

Discard a sequence of random numbers.

Todo

Look for a faster way to do discard.

Definition at line 848 of file random.h.

5.442.4.3 template<typename _RandomNumberEngine, size_t __p, size_t __r> result_type std::discard_block_engine< _RandomNumberEngine, __p, __r >::max () const [inline]

Gets the maximum value in the generated random number range.

Todo

This should be constexpr.

Definition at line 839 of file random.h.

5.442.4.4 template<typename _RandomNumberEngine, size_t __p, size_t __r> result_type std::discard_block_engine< _RandomNumberEngine, __p, __r >::min () const [inline]

Gets the minimum value in the generated random number range.

Todo

This should be constexpr.

Definition at line 830 of file random.h.

5.442.4.5 template<typename _RandomNumberEngine , size_t __p, size_t __r> discard_block_engine< _RandomNumberEngine, __p, __r >::result_type std::discard_block_engine< _RandomNumberEngine, __p, __r >::operator() () [inline]

Gets the next value in the generated random number sequence.

Definition at line 652 of file random.tcc.

5.442.4.6 template<typename _RandomNumberEngine, size_t __p, size_t __r> template<typename _Sseq > void std::discard_block_engine< _RandomNumberEngine, __p, __r >::seed (_Sseq & *__q*) [inline]

Reseeds the discard_block_engine object with the given seed sequence.

Parameters:

__q A seed generator function.

Definition at line 810 of file random.h.

5.442.4.7 template<typename _RandomNumberEngine, size_t __p, size_t __r> void std::discard_block_engine< _RandomNumberEngine, __p, __r >::seed (result_type *__s*) [inline]

Reseeds the discard_block_engine object with the default seed for the underlying base class generator engine.

Definition at line 797 of file random.h.

5.442.4.8 template<typename _RandomNumberEngine, size_t __p, size_t __r> void std::discard_block_engine< _RandomNumberEngine, __p, __r >::seed () [inline]

Reseeds the discard_block_engine object with the default seed for the underlying base class generator engine.

Definition at line 786 of file random.h.

5.442.5 Friends And Related Function Documentation

5.442.5.1 template<typename _RandomNumberEngine, size_t __p, size_t __r> template<typename _RandomNumberEngine1 , size_t __p1, size_t __r1, typename _CharT , typename _Traits > std::basic_ostream<_CharT, _Traits>& operator<< (std::basic_ostream< _CharT, _Traits > &, const std::discard_block_engine< _RandomNumberEngine1, __p1, __r1 > &) [friend]

Inserts the current state of a discard_block_engine random number generator engine __x into the output stream __os.

Parameters:

__os An output stream.

__x A discard_block_engine random number generator engine.

Returns:

The output stream with the state of __x inserted or in an error state.

5.442.5.2 template<typename _RandomNumberEngine, size_t __p, size_t __r> bool operator== (const discard_block_engine< _RandomNumberEngine, __p, __r > & *__lhs*, const discard_block_engine< _RandomNumberEngine, __p, __r > & *__rhs*) [friend]

Compares two discard_block_engine random number generator objects of the same type for equality.

Parameters:

__lhs A discard_block_engine random number generator object.

__rhs Another discard_block_engine random number generator object.

Returns:

true if the two objects are equal, false otherwise.

Definition at line 871 of file random.h.

5.442.5.3 template<typename _RandomNumberEngine, size_t __p, size_t __r> template<typename _RandomNumberEngine1 , size_t __p1, size_t __r1, typename _CharT , typename _Traits > std::basic_istream<_CharT, _Traits>& operator>> (std::basic_istream< _CharT, _Traits > &, std::discard_block_engine< _RandomNumberEngine1, __p1, __r1 > &) [friend]

Extracts the current state of a % subtract_with_carry_engine random number generator engine `__x` from the input stream `__is`.

Parameters:

__is An input stream.

__x A discard_block_engine random number generator engine.

Returns:

The input stream with the state of `__x` extracted or in an error state.

The documentation for this class was generated from the following files:

- random.h
- random.tcc

5.443 std::discrete_distribution< _IntType > Class Template Reference

A discrete_distribution random number distribution.

Classes

- struct param_type

Public Types

- typedef _IntType result_type

Public Member Functions

- **discrete_distribution** (const param_type &__p)
- template<typename _Func >
  discrete_distribution (size_t __nw, double __xmin, double __xmax, _Func __fw)
- **discrete_distribution** (initializer_list< double > __wl)
- template<typename _InputIterator >
  discrete_distribution (_InputIterator __wbegin, _InputIterator __wend)
- result_type max () const
- result_type min () const
- template<typename _UniformRandomNumberGenerator >
  result_type **operator()** (_UniformRandomNumberGenerator &__urng, const param_type &__p)
- template<typename _UniformRandomNumberGenerator >
  result_type **operator()** (_UniformRandomNumberGenerator &__urng)
- void param (const param_type &__param)
- param_type param () const
- std::vector< double > probabilities () const
- void reset ()

Friends

- template<typename _IntType1 , typename _CharT , typename _Traits >
  std::basic_ostream< _CharT, _Traits > & operator<< (std::basic_ostream< _CharT, _Traits > &, const std::discrete_distribution< _IntType1 > &)
- template<typename _IntType1 , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & operator>> (std::basic_istream< _CharT, _Traits > &, std::discrete_distribution< _IntType1 > &)

5.443.1 Detailed Description

template<typename _IntType = int> class std::discrete_distribution< _IntType >

A discrete_distribution random number distribution. The formula for the discrete probability mass function is

Definition at line 4089 of file random.h.

5.443.2 Member Typedef Documentation

5.443.2.1 template<typename _IntType = int> typedef _IntType std::discrete_distribution< _IntType >::result_type

The type of the range of the distribution.

Definition at line 4096 of file random.h.

5.443.3 Member Function Documentation

5.443.3.1 template<typename _IntType = int> result_type std::discrete_distribution< _IntType >::max () const [inline]

Returns the least upper bound value of the distribution.

Definition at line 4198 of file random.h.

References std::vector< _Tp, _Alloc >::size().

5.443.3.2 template<typename _IntType = int> result_type std::discrete_distribution< _IntType >::min () const [inline]

Returns the greatest lower bound value of the distribution.

Definition at line 4191 of file random.h.

5.443.3.3 template<typename _IntType = int> void std::discrete_distribution< _IntType >::param (const param_type & *__param*) [inline]

Sets the parameter set of the distribution.

Parameters:

__param The new parameter set of the distribution.

Definition at line 4184 of file random.h.

5.443.3.4 template<typename _IntType = int> param_type std::discrete_distribution< _IntType >::param () const [inline]

Returns the parameter set of the distribution.

Definition at line 4176 of file random.h.

5.443.3.5 template<typename _IntType = int> std::vector<double> std::discrete_distribution< _IntType >::probabilities () const [inline]

Returns the probabilities of the distribution.

Definition at line 4169 of file random.h.

5.443.3.6 template<typename _IntType = int> void std::discrete_distribution< _IntType >::reset () [inline]

Resets the distribution state.

Definition at line 4162 of file random.h.

5.443.4 Friends And Related Function Documentation

5.443.4.1 template<typename _IntType = int> template<typename _IntType1 , typename _CharT , typename _Traits > std::basic_ostream<_CharT, _Traits>& operator<< (std::basic_ostream< _CharT, _Traits > &, const std::discrete_distribution< _IntType1 > &) [friend]

Inserts a discrete_distribution random number distribution __x into the output stream __os.

Parameters:

__os An output stream.

__x A discrete_distribution random number distribution.

Returns:

The output stream with the state of __x inserted or in an error state.

5.443.4.2 template<typename _IntType = int> template<typename _IntType1 , typename _CharT , typename _Traits > std::basic_istream<_CharT, _Traits>& operator>> (std::basic_istream< _CharT, _Traits > &, std::discrete_distribution< _IntType1 > &) [friend]

Extracts a discrete_distribution random number distribution __x from the input stream __is.

Parameters:

__is An input stream.

__x A discrete_distribution random number generator engine.

Returns:

The input stream with __x extracted or in an error state.

The documentation for this class was generated from the following files:

- random.h
- random.tcc

5.444 std::discrete_distribution< _IntType >::param_type Struct Reference

Public Types

- typedef discrete_distribution< _IntType > **distribution_type**

Public Member Functions

- template<typename _Func >
  param_type (size_t __nw, double __xmin, double __xmax, _Func __fw)
- **param_type** (initializer_list< double > __wil)
- template<typename _InputIterator >
  param_type (_InputIterator __wbegin, _InputIterator __wend)
- std::vector< double > **probabilities** () const

Friends

- class **discrete_distribution**< **_IntType** >

5.444.1 Detailed Description

template<typename _IntType = int> struct std::discrete_distribution< _IntType >::param_type

Parameter type.

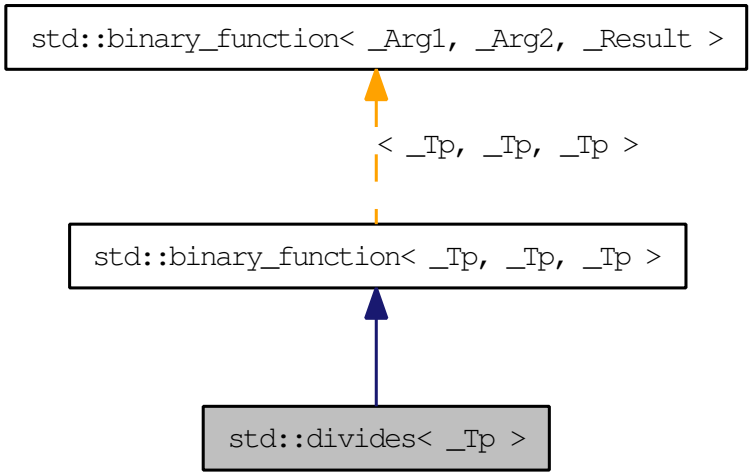
Definition at line 4098 of file random.h.

The documentation for this struct was generated from the following files:

- random.h
- random.tcc

5.445 std::divides< _Tp > Struct Template Reference

One of the math functors. Inheritance diagram for std::divides< _Tp >:



Public Types

- typedef _Tp first_argument_type
- typedef _Tp result_type
- typedef _Tp second_argument_type

Public Member Functions

- _Tp **operator()** (const _Tp &__x, const _Tp &__y) const

5.445.1 Detailed Description

template<typename _Tp> struct std::divides< _Tp >

One of the math functors.

Definition at line 162 of file stl_function.h.

5.445.2 Member Typedef Documentation

5.445.2.1 typedef _Tp std::binary_function< _Tp , _Tp , _Tp >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.445.2.2 typedef _Tp std::binary_function< _Tp , _Tp , _Tp >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.445.2.3 typedef _Tp std::binary_function< _Tp , _Tp , _Tp >::second_argument_type [inherited]

the type of the second argument

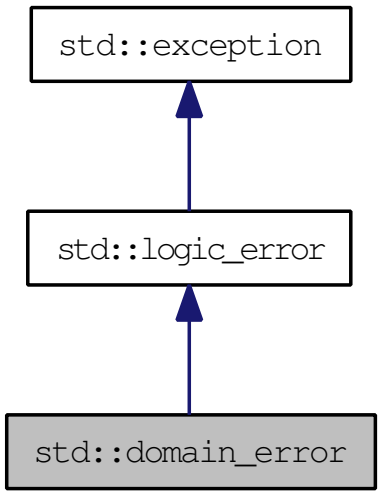
Definition at line 117 of file stl_function.h.

The documentation for this struct was generated from the following file:

- stl_function.h

5.446 std::domain_error Class Reference

Inheritance diagram for std::domain_error:



Public Member Functions

- **domain_error** (const string &__arg)
- virtual const char * what () const throw ()

5.446.1 Detailed Description

Thrown by the library, or by you, to report domain errors (domain in the mathematical sense).

Definition at line 73 of file stdexcept.

5.446.2 Member Function Documentation

5.446.2.1 virtual const char* std::logic_error::what () const throw () [virtual, inherited]

Returns a C-style character string describing the general cause of the current error (the same string passed to the ctor).

Reimplemented from std::exception.

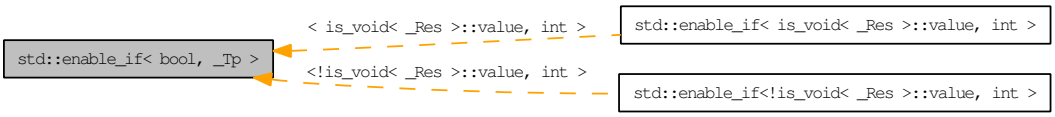
Reimplemented in std::future_error.

The documentation for this class was generated from the following file:

- stdexcept

5.447 std::enable_if< bool, _Tp > Struct Template Reference

enable_if Inheritance diagram for std::enable_if< bool, _Tp >:



5.447.1 Detailed Description

template<bool, typename _Tp = void> struct std::enable_if< bool, _Tp >

enable_if

Definition at line 356 of file type_traits.

The documentation for this struct was generated from the following file:

- type_traits

5.448 std::enable_shared_from_this< _Tp > Class Template Reference

Base class allowing use of member function shared_from_this.

Public Member Functions

- shared_ptr< const _Tp > **shared_from_this** () const
- shared_ptr< _Tp > **shared_from_this** ()

Protected Member Functions

- **enable_shared_from_this** (const enable_shared_from_this &)
- enable_shared_from_this & **operator=** (const enable_shared_from_this &)

Friends

- template<typename _Tp1 >
  void **__enable_shared_from_this_helper** (const __shared_count<> &__pn, const enable_shared_from_this *__pe, const _Tp1 *__px)

5.448.1 Detailed Description

template<typename _Tp> class std::enable_shared_from_this< _Tp >

Base class allowing use of member function shared_from_this.

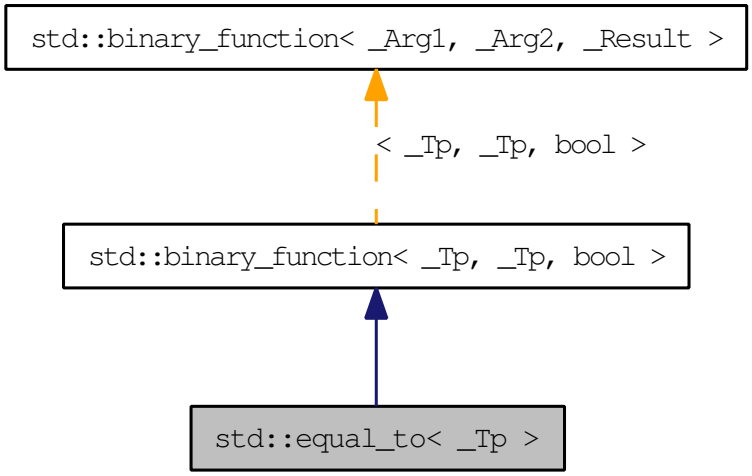
Definition at line 399 of file shared_ptr.h.

The documentation for this class was generated from the following file:

- shared_ptr.h

5.449 std::equal_to< _Tp > Struct Template Reference

One of the comparison functors. Inheritance diagram for std::equal_to< _Tp >:



Public Types

- typedef _Tp first_argument_type
- typedef bool result_type
- typedef _Tp second_argument_type

Public Member Functions

- bool **operator()** (const _Tp &__x, const _Tp &__y) const

5.449.1 Detailed Description

template<typename _Tp> struct std::equal_to< _Tp >

One of the comparison functors.

Definition at line 199 of file stl_function.h.

5.449.2 Member Typedef Documentation

5.449.2.1 typedef _Tp std::binary_function< _Tp , _Tp , bool >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.449.2.2 typedef bool std::binary_function< _Tp , _Tp , bool >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.449.2.3 typedef _Tp std::binary_function< _Tp , _Tp , bool >::second_argument_type [inherited]

the type of the second argument

Definition at line 117 of file stl_function.h.

The documentation for this struct was generated from the following file:

- stl_function.h

5.450 std::error_category Class Reference

error_category

Public Member Functions

- **error_category** (const error_category &)
- virtual error_condition **default_error_condition** (int __i) const
- virtual bool **equivalent** (const error_code &__code, int __i) const
- virtual bool **equivalent** (int __i, const error_condition &__cond) const
- virtual string **message** (int) const =0
- virtual const char * **name** () const =0
- bool **operator!=** (const error_category &__other) const
- bool **operator**< (const error_category &__other) const
- error_category & **operator=** (const error_category &)
- bool **operator==** (const error_category &__other) const

5.450.1 Detailed Description

error_category

Definition at line 64 of file system_error.

The documentation for this class was generated from the following file:

- system_error

5.451 std::error_code Struct Reference

error_code

Public Member Functions

- template<typename _ErrorCodeEnum >
  error_code (_ErrorCodeEnum __e, typename enable_if< is_error_code_enum< _ErrorCodeEnum >::value >::type *=0)
- **error_code** (int __v, const error_category &__cat)
- void **assign** (int __v, const error_category &__cat)
- const error_category & **category** () const
- void **clear** ()
- error_condition **default_error_condition** () const
- string **message** () const
- **operator bool** () const
- template<typename _ErrorCodeEnum >
  enable_if< is_error_code_enum< _ErrorCodeEnum >::value, error_code & >::type **operator=** (_ErrorCodeEnum __e)
- int **value** () const

Friends

- class **hash**< **error_code** >

5.451.1 Detailed Description

error_code

Definition at line 116 of file system_error.

The documentation for this struct was generated from the following file:

- system_error

5.452 std::error_condition Struct Reference

error_condition

Public Member Functions

- template<typename _ErrorConditionEnum >
  error_condition (_ErrorConditionEnum __e, typename enable_if< is_error_condition_enum< _ErrorConditionEnum >::value >::type *=0)
- **error_condition** (int __v, const error_category &__cat)
- void **assign** (int __v, const error_category &__cat)
- const error_category & **category** () const
- void **clear** ()
- string **message** () const
- **operator bool** () const
- template<typename _ErrorConditionEnum >
  enable_if< is_error_condition_enum< _ErrorConditionEnum >::value, error_condition & >::type **operator=** (_ErrorConditionEnum __e)
- int **value** () const

5.452.1 Detailed Description

error_condition

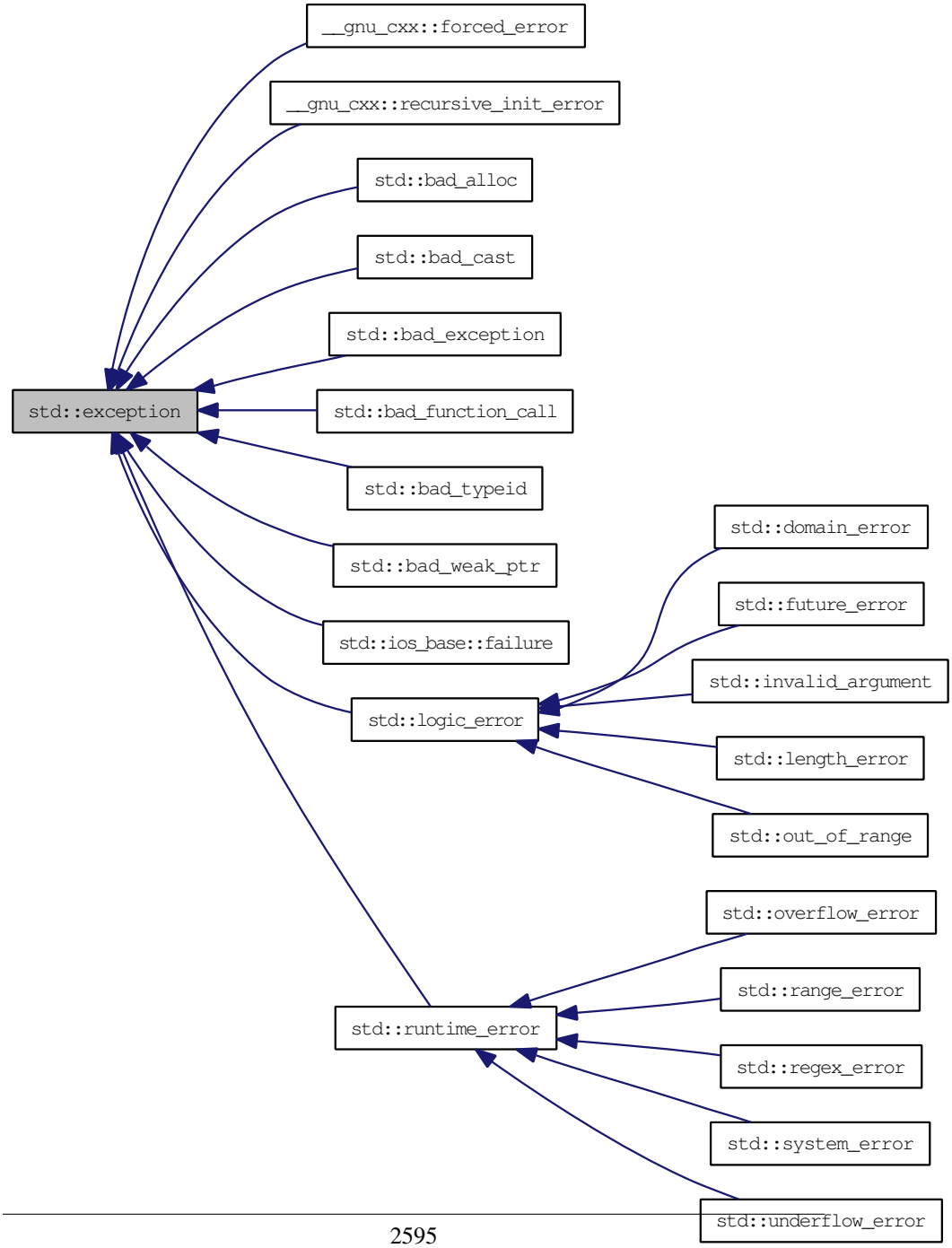
Definition at line 193 of file system_error.

The documentation for this struct was generated from the following file:

- system_error

5.453 std::exception Class Reference

Base class for all library exceptions. Inheritance diagram for std::exception:



Public Member Functions

- virtual const char ∗ what () const throw ()

5.453.1 Detailed Description

Base class for all library exceptions. This is the base class for all exceptions thrown by the standard library, and by certain language expressions. You are free to derive your own exception classes, or use a different hierarchy, or to throw non-class data (e.g., fundamental types).

Definition at line 61 of file exception.

5.453.2 Member Function Documentation

5.453.2.1 virtual const char∗ std::exception::what () const throw () [virtual]

Returns a C-style character string describing the general cause of the current error.

Reimplemented in std::bad_exception, std::bad_alloc, std::bad_cast, std::bad_typeid, std::future_error, std::logic_error, std::runtime_error, std::bad_weak_ptr, and std::ios_base::failure.

The documentation for this class was generated from the following file:

- exception

5.454 std::exponential_distribution< _RealType > Class Template Reference

An exponential continuous distribution for random numbers.

Classes

- struct param_type

Public Types

- typedef _RealType result_type

Public Member Functions

- **exponential_distribution** (const param_type &__p)
- exponential_distribution (const result_type &__lambda=result_type(1))
- _RealType lambda () const
- result_type max () const
- result_type min () const
- template<typename _UniformRandomNumberGenerator > result_type **operator()** (_UniformRandomNumberGenerator &__urng, const param_type &__p)
- template<typename _UniformRandomNumberGenerator > result_type **operator()** (_UniformRandomNumberGenerator &__urng)
- void param (const param_type &__param)
- param_type param () const
- void reset ()

5.454.1 Detailed Description

template<typename _RealType = double> class std::exponential_distribution< _RealType >

An exponential continuous distribution for random numbers. The formula for the exponential probability density function is $p(x|\lambda) = \lambda e^{-\lambda x}$.

Definition at line 3649 of file random.h.

Mean	$\frac{1}{\lambda}$
Median	$\frac{\ln 2}{\lambda}$
Mode	$zero$
Range	$[0, \infty]$
Standard Deviation	$\frac{1}{\lambda}$

Table 5.1: Distribution Statistics

5.454.2 Member Typedef Documentation

5.454.2.1 template<typename _RealType = double> typedef _RealType std::exponential_distribution< _RealType >::result_type

The type of the range of the distribution.

Definition at line 3656 of file random.h.

5.454.3 Constructor & Destructor Documentation

5.454.3.1 template<typename _RealType = double> std::exponential_distribution< _RealType >::exponential_distribution (const result_type & *__lambda* = result_type(1)) [inline, explicit]

Constructs an exponential distribution with inverse scale parameter λ.

Definition at line 3683 of file random.h.

5.454.4 Member Function Documentation

5.454.4.1 template<typename _RealType = double> _RealType std::exponential_distribution< _RealType >::lambda () const [inline]

Returns the inverse scale parameter of the distribution.

Definition at line 3704 of file random.h.

5.454.4.2 template<typename _RealType = double> result_type std::exponential_distribution< _RealType >::max () const [inline]

Returns the least upper bound value of the distribution.

Definition at line 3733 of file random.h.

5.454.4.3 template<typename _RealType = double> result_type std::exponential_distribution< _RealType >::min () const [inline]

Returns the greatest lower bound value of the distribution.

Definition at line 3726 of file random.h.

5.454.4.4 template<typename _RealType = double> void std::exponential_distribution< _RealType >::param (const param_type & *__param*) [inline]

Sets the parameter set of the distribution.

Parameters:

__param The new parameter set of the distribution.

Definition at line 3719 of file random.h.

5.454.4.5 template<typename _RealType = double> param_type std::exponential_distribution< _RealType >::param () const [inline]

Returns the parameter set of the distribution.

Definition at line 3711 of file random.h.

Referenced by std::operator>>().

5.454.4.6 template<typename _RealType = double> void std::exponential_distribution< _RealType >::reset () [inline]

Resets the distribution state. Has no effect on exponential distributions.

Definition at line 3698 of file random.h.

The documentation for this class was generated from the following file:

- random.h

5.455 std::exponential_distribution< _RealType >::param_type Struct Reference

Public Types

- typedef exponential_distribution< _RealType > **distribution_type**

Public Member Functions

- **param_type** (_RealType __lambda=_RealType(1))
- _RealType **lambda** () const

5.455.1 Detailed Description

template<typename _RealType = double> struct std::exponential_distribution< _RealType >::param_type

Parameter type.

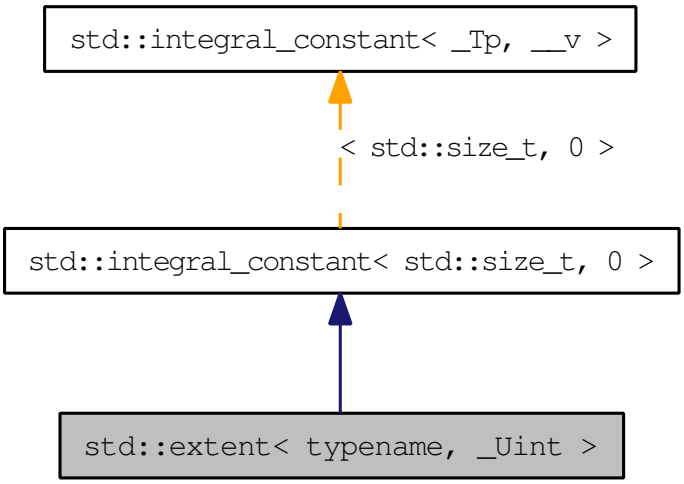
Definition at line 3658 of file random.h.

The documentation for this struct was generated from the following file:

- random.h

5.456 std::extent< typename, _Uint > Struct Template Reference

extent Inheritance diagram for std::extent< typename, _Uint >:



Public Types

- typedef integral_constant< std::size_t, __v > **type**
- typedef std::size_t **value_type**

Static Public Attributes

- static const std::size_t **value**

5.456.1 Detailed Description

template<typename, unsigned _Uint = 0> struct std::extent< typename, _Uint >

extent

Definition at line 368 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.457 std::extreme_value_distribution< _RealType > Class Template Reference

A extreme_value_distribution random number distribution.

Classes

- struct param_type

Public Types

- typedef _RealType result_type

Public Member Functions

- **extreme_value_distribution** (const param_type &__p)
- **extreme_value_distribution** (_RealType __a=_RealType(0), _RealType __b=_RealType(1))
- _RealType a () const
- _RealType b () const
- result_type max () const
- result_type min () const
- template<typename _UniformRandomNumberGenerator > result_type **operator()** (_UniformRandomNumberGenerator &__urng, const param_type &__p)
- template<typename _UniformRandomNumberGenerator > result_type **operator()** (_UniformRandomNumberGenerator &__urng)
- void param (const param_type &__param)
- param_type param () const
- void reset ()

5.457.1 Detailed Description

template<typename _RealType = double> class std::extreme_value_distribution< _RealType >

A extreme_value_distribution random number distribution. The formula for the normal probability mass function is

$$p(x|a,b) = \frac{1}{b}\exp(\frac{a-x}{b} - \exp(\frac{a-x}{b}))$$

Definition at line 3944 of file random.h.

5.457.2 Member Typedef Documentation

5.457.2.1 template<typename _RealType = double> typedef _RealType std::extreme_value_distribution< _RealType >::result_type

The type of the range of the distribution.

Definition at line 3951 of file random.h.

5.457.3 Member Function Documentation

5.457.3.1 template<typename _RealType = double> _RealType std::extreme_value_distribution< _RealType >::a () const [inline]

Return the a parameter of the distribution.

Definition at line 3998 of file random.h.

5.457.3.2 template<typename _RealType = double> _RealType std::extreme_value_distribution< _RealType >::b () const [inline]

Return the b parameter of the distribution.

Definition at line 4005 of file random.h.

5.457.3.3 template<typename _RealType = double> result_type std::extreme_value_distribution< _RealType >::max () const [inline]

Returns the least upper bound value of the distribution.

Definition at line 4034 of file random.h.

5.457.3.4 template<typename _RealType = double> result_type std::extreme_value_distribution< _RealType >::min () const [inline]

Returns the greatest lower bound value of the distribution.

Definition at line 4027 of file random.h.

5.457.3.5 template<typename _RealType = double> void std::extreme_value_distribution< _RealType >::param (const param_type & *__param*) [inline]

Sets the parameter set of the distribution.

Parameters:

__param The new parameter set of the distribution.

Definition at line 4020 of file random.h.

5.457.3.6 template<typename _RealType = double> param_type std::extreme_value_distribution< _RealType >::param () const [inline]

Returns the parameter set of the distribution.

Definition at line 4012 of file random.h.

Referenced by std::operator>>().

5.457.3.7 template<typename _RealType = double> void std::extreme_value_distribution< _RealType >::reset () [inline]

Resets the distribution state.

Definition at line 3991 of file random.h.

The documentation for this class was generated from the following files:

- random.h
- random.tcc

5.458 std::extreme_value_distribution< _RealType >::param_type Struct Reference

Public Types

- typedef extreme_value_distribution< _RealType > **distribution_type**

Public Member Functions

- **param_type** (_RealType __a=_RealType(0), _RealType __b=_RealType(1))
- _RealType **a** () const
- _RealType **b** () const

5.458.1 Detailed Description

template<typename _RealType = double> struct std::extreme_value_distribution< _RealType >::param_type

Parameter type.

Definition at line 3953 of file random.h.

The documentation for this struct was generated from the following file:

- random.h

5.459 std::fisher_f_distribution< _RealType > Class Template Reference

A fisher_f_distribution random number distribution.

Classes

- struct param_type

Public Types

- typedef _RealType result_type

Public Member Functions

- **fisher_f_distribution** (const param_type &__p)
- **fisher_f_distribution** (_RealType __m=_RealType(1), _RealType __n=_RealType(1))
- _RealType **m** () const
- result_type max () const
- result_type min () const
- _RealType **n** () const
- template<typename _UniformRandomNumberGenerator >
  result_type **operator()** (_UniformRandomNumberGenerator &__urng, const param_type &__p)
- template<typename _UniformRandomNumberGenerator >
  result_type **operator()** (_UniformRandomNumberGenerator &__urng)
- void param (const param_type &__param)
- param_type param () const
- void reset ()

Friends

- template<typename _RealType1 , typename _CharT , typename _Traits >
  std::basic_ostream< _CharT, _Traits > & operator<< (std::basic_ostream< _CharT, _Traits > &, const std::fisher_f_distribution< _RealType1 > &)
- template<typename _RealType1 , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & operator>> (std::basic_istream< _CharT, _Traits > &, std::fisher_f_distribution< _RealType1 > &)

5.459.1 Detailed Description

template<typename _RealType = double> class std::fisher_f_distribution< _RealType >

A fisher_f_distribution random number distribution. The formula for the normal probability mass function is

$$p(x|m,n) = \frac{\Gamma((m+n)/2)}{\Gamma(m/2)\Gamma(n/2)}(\frac{m}{n})^{m/2}x^{(m/2)-1}(1+\frac{mx}{n})^{-(m+n)/2}$$

Definition at line 2562 of file random.h.

5.459.2 Member Typedef Documentation

5.459.2.1 template<typename _RealType = double> typedef _RealType std::fisher_f_distribution< _RealType >::result_type

The type of the range of the distribution.

Definition at line 2569 of file random.h.

5.459.3 Member Function Documentation

5.459.3.1 template<typename _RealType = double> result_type std::fisher_f_distribution< _RealType >::max () const [inline]

Returns the least upper bound value of the distribution.

Definition at line 2652 of file random.h.

5.459.3.2 template<typename _RealType = double> result_type std::fisher_f_distribution< _RealType >::min () const [inline]

Returns the greatest lower bound value of the distribution.

Definition at line 2645 of file random.h.

5.459.3.3 template<typename _RealType = double> void std::fisher_f_distribution< _RealType >::param (const param_type & *__param*) [inline]

Sets the parameter set of the distribution.

Parameters:

__param The new parameter set of the distribution.

Definition at line 2638 of file random.h.

5.459.3.4 template<typename _RealType = double> param_type std::fisher_f_distribution< _RealType >::param () const [inline]

Returns the parameter set of the distribution.

Definition at line 2630 of file random.h.

5.459.3.5 template<typename _RealType = double> void std::fisher_f_distribution< _RealType >::reset () [inline]

Resets the distribution state.

Definition at line 2609 of file random.h.

References std::gamma_distribution< _RealType >::reset().

5.459.4 Friends And Related Function Documentation

5.459.4.1 template<typename _RealType = double> template<typename _RealType1 , typename _CharT , typename _Traits > std::basic_ostream<_CharT, _Traits>& operator<< (std::basic_ostream< _CharT, _Traits > &, const std::fisher_f_distribution< _RealType1 > &) [friend]

Inserts a fisher_f_distribution random number distribution __x into the output stream __os.

Parameters:

__os An output stream.

__x A fisher_f_distribution random number distribution.

Returns:

The output stream with the state of __x inserted or in an error state.

5.459.4.2 template<typename _RealType = double> template<typename _RealType1 , typename _CharT , typename _Traits > std::basic_istream<_CharT, _Traits>& operator>> (std::basic_istream< _CharT, _Traits > &, std::fisher_f_distribution< _RealType1 > &) [friend]

Extracts a fisher_f_distribution random number distribution __x from the input stream __is.

Parameters:

__is An input stream.

__x A fisher_f_distribution random number generator engine.

Returns:

The input stream with __x extracted or in an error state.

The documentation for this class was generated from the following file:

- random.h

5.460 std::fisher_f_distribution< _RealType >::param_type Struct Reference

Public Types

- typedef fisher_f_distribution< _RealType > **distribution_type**

Public Member Functions

- **param_type** (_RealType __m=_RealType(1), _RealType __n=_RealType(1))
- _RealType **m** () const
- _RealType **n** () const

5.460.1 Detailed Description

template<typename _RealType = double> struct std::fisher_f_distribution< _RealType >::param_type

Parameter type.

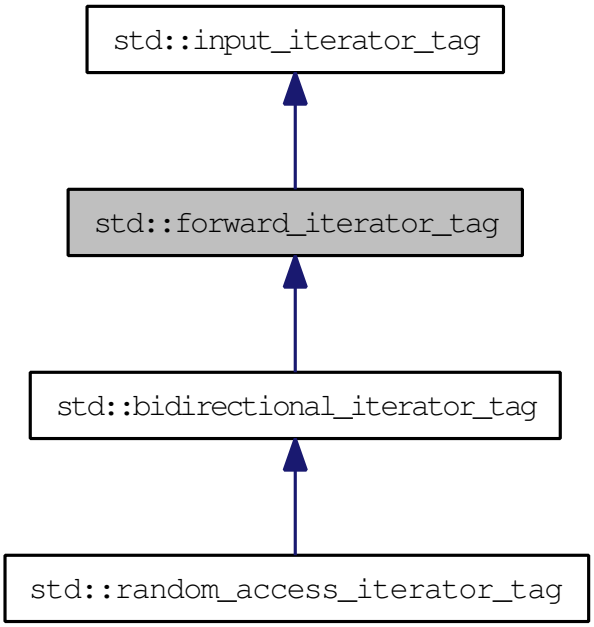
Definition at line 2571 of file random.h.

The documentation for this struct was generated from the following file:

- random.h

5.461 std::forward_iterator_tag Struct Reference

Forward iterators support a superset of input iterator operations. Inheritance diagram for std::forward_iterator_tag:



5.461.1 Detailed Description

Forward iterators support a superset of input iterator operations.

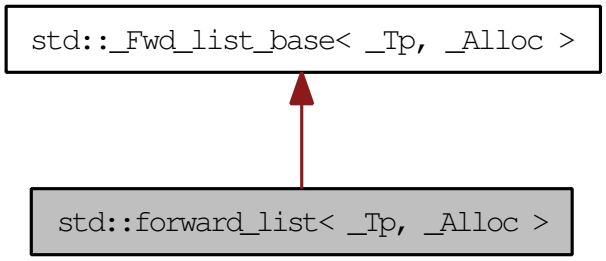
Definition at line 85 of file stl_iterator_base_types.h.

The documentation for this struct was generated from the following file:

- stl_iterator_base_types.h

5.462 std::forward_list< _Tp, _Alloc > Class Template Reference

A standard container with linear time access to elements, and fixed time insertion/deletion at any point in the sequence. Inheritance diagram for std::forward_list< _Tp, _Alloc >:



Public Types

- typedef _Alloc **allocator_type**
- typedef _Base::const_iterator **const_iterator**
- typedef _Tp_alloc_type::const_pointer **const_pointer**
- typedef _Tp_alloc_type::const_reference **const_reference**
- typedef std::ptrdiff_t **difference_type**
- typedef _Base::iterator **iterator**
- typedef _Tp_alloc_type::pointer **pointer**
- typedef _Tp_alloc_type::reference **reference**
- typedef std::size_t **size_type**
- typedef _Tp **value_type**

Public Member Functions

- forward_list (std::initializer_list< _Tp > __il, const _Alloc &__al=_Alloc())
- forward_list (forward_list &&__list)
- forward_list (const forward_list &__list)
- template<typename _InputIterator >
  forward_list (_InputIterator __first, _InputIterator __last, const _Alloc &__al=_Alloc())
- forward_list (size_type __n, const _Tp &__value, const _Alloc &__al=_Alloc())
- forward_list (size_type __n)
- forward_list (forward_list &&__list, const _Alloc &__al)
- forward_list (const forward_list &__list, const _Alloc &__al)

- forward_list (const _Alloc &__al=_Alloc())
- ~forward_list ()
- void assign (std::initializer_list< _Tp > __il)
- void assign (size_type __n, const _Tp &__val)
- template<typename _InputIterator >
  void assign (_InputIterator __first, _InputIterator __last)
- const_iterator before_begin () const
- iterator before_begin ()
- const_iterator begin () const
- iterator begin ()
- const_iterator cbefore_begin () const
- const_iterator cbegin () const
- const_iterator cend () const
- void clear ()
- template<typename... _Args>
  iterator emplace_after (const_iterator __pos, _Args &&...__args)
- template<typename... _Args>
  void emplace_front (_Args &&...__args)
- bool empty () const
- const_iterator end () const
- iterator end ()
- void erase_after (const_iterator __pos, const_iterator __last)
- void erase_after (const_iterator __pos)
- const_reference front () const
- reference front ()
- allocator_type get_allocator () const
- iterator insert_after (const_iterator __pos, std::initializer_list< _Tp > __il)
- template<typename _InputIterator >
  iterator insert_after (const_iterator __pos, _InputIterator __first, _InputIterator __last)
- iterator insert_after (const_iterator __pos, size_type __n, const _Tp &__val)
- iterator **insert_after** (const_iterator __pos, _Tp &&__val)
- iterator insert_after (const_iterator __pos, const _Tp &__val)
- size_type max_size () const
- template<typename _Comp >
  void merge (forward_list &&__list, _Comp __comp)
- void merge (forward_list &&__list)
- forward_list & operator= (std::initializer_list< _Tp > __il)
- forward_list & operator= (forward_list &&__list)
- forward_list & operator= (const forward_list &__list)
- void pop_front ()
- void **push_front** (_Tp &&__val)
- void push_front (const _Tp &__val)

- void remove (const _Tp &__val)
- template<typename _Pred >
  void remove_if (_Pred __pred)
- void resize (size_type __sz, value_type __val)
- void resize (size_type __sz)
- void reverse ()
- template<typename _Comp >
  void sort (_Comp __comp)
- void sort ()
- void splice_after (const_iterator __pos, forward_list &&__list, const_iterator _-
  _before, const_iterator __last)
- void splice_after (const_iterator __pos, forward_list &&__list, const_iterator _-
  _i)
- void splice_after (const_iterator __pos, forward_list &&__list)
- void swap (forward_list &__list)
- template<typename _BinPred >
  void unique (_BinPred __binary_pred)
- void unique ()

Private Types

- typedef _Alloc::template rebind< _Fwd_list_node< _Tp, _Tp_alloc_type > >::other **_Node_alloc_type**

Private Member Functions

- template<typename... _Args>
  _Node::_Pointer **_M_create_node** (_Args &&...__args)
- void **_M_erase_after** (typename _Node_base::_Pointer __pos, typename _-
  Node_base::_Pointer __last)
- void **_M_erase_after** (typename _Node_base::_Pointer __pos)
- _Node::_Pointer **_M_get_node** ()
- const _Node_alloc_type & **_M_get_Node_allocator** () const
- _Node_alloc_type & **_M_get_Node_allocator** ()
- template<typename... _Args>
  _Node_base::_Pointer **_M_insert_after** (const_iterator __pos, _Args &&...__-
  args)
- void **_M_put_node** (typename _Node::_Pointer __p)

Private Attributes

- _Fwd_list_impl **_M_impl**

5.462.1 Detailed Description

template<typename _Tp, typename _Alloc = allocator<_Tp>> class std::forward_list< _Tp, _Alloc >

A standard container with linear time access to elements, and fixed time insertion/deletion at any point in the sequence. Meets the requirements of a `container`, a `sequence`, including the `optional sequence requirements` with the exception of `at` and `operator`[].

This is a *singly linked* list. Traversal up the list requires linear time, but adding and removing elements (or *nodes*) is done in constant time, regardless of where the change takes place. Unlike std::vector and std::deque, random-access iterators are not provided, so subscripting ([]) access is not allowed. For algorithms which only need sequential access, this lack makes no difference.

Also unlike the other standard containers, std::forward_list provides specialized algorithms unique to linked lists, such as splicing, sorting, and in-place reversal.

A couple points on memory allocation for forward_list<Tp>:

First, we never actually allocate a Tp, we allocate Fwd_list_node<Tp>'s and trust [20.1.5]/4 to DTRT. This is to ensure that after elements from forward_list<X,Alloc1> are spliced into forward_list<X,Alloc2>, destroying the memory of the second list is a valid operation, i.e., Alloc1 giveth and Alloc2 taketh away.

Definition at line 389 of file forward_list.h.

5.462.2 Constructor & Destructor Documentation

5.462.2.1 template<typename _Tp, typename _Alloc = allocator<_Tp>> std::forward_list< _Tp, _Alloc >::forward_list (const _Alloc & *__al* = _Alloc()) [inline, explicit]

Creates a forward_list with no elements.

Parameters:

al An allocator object.

Definition at line 418 of file forward_list.h.

5.462.2.2 template<typename _Tp, typename _Alloc = allocator<_Tp>> std::forward_list< _Tp, _Alloc >::forward_list (const forward_list< _Tp, _Alloc > & *__list*, const _Alloc & *__al*) [inline]

Copy constructor with allocator argument.

Parameters:

list Input list to copy.

al An allocator object.

Definition at line 427 of file forward_list.h.

5.462.2.3 template<typename _Tp, typename _Alloc = allocator<_Tp>> std::forward_list< _Tp, _Alloc >::forward_list (forward_list< _Tp, _Alloc > && *__list*, const _Alloc & *__al*) [inline]

Move constructor with allocator argument.

Parameters:

list Input list to move.

al An allocator object.

Definition at line 436 of file forward_list.h.

5.462.2.4 template<typename _Tp , typename _Alloc > std::forward_list< _Tp, _Alloc >::forward_list (size_type *__n*) [inline, explicit]

Creates a forward_list with default constructed elements.

Parameters:

n The number of elements to initially create.

This constructor creates the forward_list with *n* default constructed elements.

Definition at line 179 of file forward_list.tcc.

5.462.2.5 template<typename _Tp, typename _Alloc = allocator<_Tp>> std::forward_list< _Tp, _Alloc >::forward_list (size_type *__n*, const _Tp & *__value*, const _Alloc & *__al* = `_Alloc()`) [inline]

Creates a forward_list with copies of an exemplar element.

Parameters:

n The number of elements to initially create.

value An element to copy.

al An allocator object.

This constructor fills the forward_list with *n* copies of *value*.

Definition at line 459 of file forward_list.h.

5.462.2.6 template<typename _Tp, typename _Alloc = allocator<_Tp>> template<typename _InputIterator > std::forward_list< _Tp, _Alloc >::forward_list (_InputIterator *__first*, _InputIterator *__last*, const _Alloc & *__al* = `_Alloc()`) `[inline]`

Builds a forward_list from a range.

Parameters:

first An input iterator.

last An input iterator.

al An allocator object.

Create a forward_list consisting of copies of the elements from [*first*,*last*). This is linear in N (where N is distance(*first*,*last*)).

Definition at line 475 of file forward_list.h.

5.462.2.7 template<typename _Tp, typename _Alloc = allocator<_Tp>> std::forward_list< _Tp, _Alloc >::forward_list (const forward_list< _Tp, _Alloc > & *__list*) `[inline]`

The forward_list copy constructor.

Parameters:

list A forward_list of identical element and allocator types.

The newly-created forward_list uses a copy of the allocation object used by *list*.

Definition at line 492 of file forward_list.h.

References std::forward_list< _Tp, _Alloc >::begin(), and std::forward_list< _Tp, _Alloc >::end().

5.462.2.8 template<typename _Tp, typename _Alloc = allocator<_Tp>> std::forward_list< _Tp, _Alloc >::forward_list (forward_list< _Tp, _Alloc > && *__list*) `[inline]`

The forward_list move constructor.

Parameters:

list A forward_list of identical element and allocator types.

The newly-created forward_list contains the exact contents of *forward_list*. The contents of *list* are a valid, but unspecified forward_list.

Definition at line 505 of file forward_list.h.

5.462.2.9 template<typename _Tp, typename _Alloc = allocator<_Tp>> std::forward_list< _Tp, _Alloc >::forward_list (std::initializer_list< _Tp > __il, const _Alloc & __al = _Alloc()) [inline]

Builds a forward_list from an initializer_list.

Parameters:

il An initializer_list of value_type.

al An allocator object.

Create a forward_list consisting of copies of the elements in the initializer_list *il*. This is linear in il.size().

Definition at line 516 of file forward_list.h.

5.462.2.10 template<typename _Tp, typename _Alloc = allocator<_Tp>> std::forward_list< _Tp, _Alloc >::~forward_list () [inline]

The forward_list dtor.

Definition at line 524 of file forward_list.h.

5.462.3 Member Function Documentation

5.462.3.1 template<typename _Tp, typename _Alloc = allocator<_Tp>> void std::forward_list< _Tp, _Alloc >::assign (std::initializer_list< _Tp > __il) [inline]

Assigns an initializer_list to a forward_list.

Parameters:

il An initializer_list of value_type.

Replace the contents of the forward_list with copies of the elements in the initializer_list *il*. This is linear in il.size().

Definition at line 618 of file forward_list.h.

5.462.3.2 template<typename _Tp, typename _Alloc = allocator<_Tp>> void std::forward_list< _Tp, _Alloc >::assign (size_type __n, const _Tp & __val) [inline]

Assigns a given value to a forward_list.

Parameters:

n Number of elements to be assigned.

val Value to be assigned.

This function fills a forward_list with *n* copies of the given value. Note that the assignment completely changes the forward_list and that the resulting forward_list's size is the same as the number of elements assigned. Old data may be lost.

Definition at line 603 of file forward_list.h.

5.462.3.3 template<typename _Tp, typename _Alloc = allocator<_Tp>> template<typename _InputIterator > void std::forward_list< _Tp, _Alloc >::assign (_InputIterator __first, _InputIterator __last) [inline]

Assigns a range to a forward_list.

Parameters:

first An input iterator.

last An input iterator.

This function fills a forward_list with copies of the elements in the range [*first*,*last*).

Note that the assignment completely changes the forward_list and that the resulting forward_list's size is the same as the number of elements assigned. Old data may be lost.

Definition at line 586 of file forward_list.h.

5.462.3.4 template<typename _Tp, typename _Alloc = allocator<_Tp>> const_iterator std::forward_list< _Tp, _Alloc >::before_begin () const [inline]

Returns a read-only (constant) iterator that points before the first element in the forward_list. Iteration is done in ordinary element order.

Definition at line 645 of file forward_list.h.

5.462.3.5 template<typename _Tp, typename _Alloc = allocator<_Tp>> iterator std::forward_list< _Tp, _Alloc >::before_begin () [inline]

Returns a read/write iterator that points before the first element in the forward_list. Iteration is done in ordinary element order.

Definition at line 636 of file forward_list.h.

Referenced by std::forward_list< _Tp, _Alloc >::operator=(), and std::forward_list< _Tp, _Alloc >::resize().

5.462.3.6 template<typename _Tp, typename _Alloc = allocator<_Tp>> const_iterator std::forward_list< _Tp, _Alloc >::begin () const [inline]

Returns a read-only (constant) iterator that points to the first element in the forward_list. Iteration is done in ordinary element order.

Definition at line 662 of file forward_list.h.

5.462.3.7 template<typename _Tp, typename _Alloc = allocator<_Tp>> iterator std::forward_list< _Tp, _Alloc >::begin () [inline]

Returns a read/write iterator that points to the first element in the forward_list. Iteration is done in ordinary element order.

Definition at line 653 of file forward_list.h.

Referenced by std::forward_list< _Tp, _Alloc >::forward_list(), std::forward_list< _Tp, _Alloc >::operator=(), and std::forward_list< _Tp, _Alloc >::unique().

5.462.3.8 template<typename _Tp, typename _Alloc = allocator<_Tp>> const_iterator std::forward_list< _Tp, _Alloc >::cbefore_begin () const [inline]

Returns a read-only (constant) iterator that points before the first element in the forward_list. Iteration is done in ordinary element order.

Definition at line 698 of file forward_list.h.

5.462.3.9 template<typename _Tp, typename _Alloc = allocator<_Tp>> const_iterator std::forward_list< _Tp, _Alloc >::cbegin () const [inline]

Returns a read-only (constant) iterator that points to the first element in the forward_list. Iteration is done in ordinary element order.

Definition at line 689 of file forward_list.h.

Referenced by std::forward_list< _Tp, _Alloc >::operator=(), and std::operator==().

5.462.3.10 template<typename _Tp, typename _Alloc = allocator<_Tp>> const_iterator std::forward_list< _Tp, _Alloc >::cend () const [inline]

Returns a read-only (constant) iterator that points one past the last element in the forward_list. Iteration is done in ordinary element order.

Definition at line 707 of file forward_list.h.

Referenced by std::forward_list< _Tp, _Alloc >::operator=(), and std::operator==().

5.462.3.11 template<typename _Tp, typename _Alloc = allocator<_Tp>> void std::forward_list< _Tp, _Alloc >::clear () [inline]

Erases all the elements. Note that this function only erases the elements, and that if the elements themselves are pointers, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 1019 of file forward_list.h.

5.462.3.12 template<typename _Tp, typename _Alloc = allocator<_Tp>> template<typename... _Args> iterator std::forward_list< _Tp, _Alloc >::emplace_after (const_iterator *__pos*, _Args &&... *__args*) [inline]

Constructs object in forward_list after the specified iterator.

Parameters:

pos A const_iterator into the forward_list.

args Arguments.

Returns:

An iterator that points to the inserted data.

This function will insert an object of type T constructed with T(std::forward<Args>(args)...) after the specified location. Due to the nature of a forward_list this operation can be done in constant time, and does not invalidate iterators and references.

Definition at line 822 of file forward_list.h.

5.462.3.13 template<typename _Tp, typename _Alloc = allocator<_Tp>> template<typename... _Args> void std::forward_list< _Tp, _Alloc >::emplace_front (_Args &&... *__args*) [inline]

Constructs object in forward_list at the front of the list.

Parameters:

args Arguments.

This function will insert an object of type Tp constructed with Tp(std::forward<Args>(args)...) at the front of the list Due to the nature of a forward_list this operation can be done in constant time, and does not invalidate iterators and references.

Definition at line 766 of file forward_list.h.

5.462.3.14 template<typename _Tp, typename _Alloc = allocator<_Tp>> bool std::forward_list< _Tp, _Alloc >::empty () const [inline]

Returns true if the forward_list is empty. (Thus begin() would equal end().)

Definition at line 715 of file forward_list.h.

5.462.3.15 template<typename _Tp, typename _Alloc = allocator<_Tp>> const_iterator std::forward_list< _Tp, _Alloc >::end () const [inline]

Returns a read-only iterator that points one past the last element in the forward_list. Iteration is done in ordinary element order.

Definition at line 680 of file forward_list.h.

5.462.3.16 template<typename _Tp, typename _Alloc = allocator<_Tp>> iterator std::forward_list< _Tp, _Alloc >::end () [inline]

Returns a read/write iterator that points one past the last element in the forward_list. Iteration is done in ordinary element order.

Definition at line 671 of file forward_list.h.

Referenced by std::forward_list< _Tp, _Alloc >::forward_list(), std::forward_list< _Tp, _Alloc >::operator=(), std::forward_list< _Tp, _Alloc >::resize(), and std::forward_list< _Tp, _Alloc >::unique().

5.462.3.17 template<typename _Tp, typename _Alloc = allocator<_Tp>> void std::forward_list< _Tp, _Alloc >::erase_after (const_iterator *__pos*, const_iterator *__last*) [inline]

Remove a range of elements.

Parameters:

pos Iterator pointing before the first element to be erased.

last Iterator pointing to one past the last element to be erased.

This function will erase the elements in the range (pos,last) and shorten the forward_list accordingly.

This operation is linear time in the size of the range and only invalidates iterators/references to the element being removed. The user is also cautioned that this function only erases the elements, and that if the elements themselves are pointers, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 960 of file forward_list.h.

5.462.3.18 template<typename _Tp, typename _Alloc = allocator<_Tp>> void std::forward_list< _Tp, _Alloc >::erase_after (const_iterator *__pos*) [inline]

Removes the element pointed to by the iterator following `pos`.

Parameters:

pos Iterator pointing before element to be erased.

This function will erase the element at the given position and thus shorten the forward_list by one.

Due to the nature of a forward_list this operation can be done in constant time, and only invalidates iterators/references to the element being removed. The user is also cautioned that this function only erases the element, and that if the element is itself a pointer, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 936 of file forward_list.h.

Referenced by std::forward_list< _Tp, _Alloc >::operator=(), std::forward_list< _Tp, _Alloc >::resize(), and std::forward_list< _Tp, _Alloc >::unique().

5.462.3.19 template<typename _Tp, typename _Alloc = allocator<_Tp>> const_reference std::forward_list< _Tp, _Alloc >::front () const [inline]

Returns a read-only (constant) reference to the data at the first element of the forward_list.

Definition at line 744 of file forward_list.h.

5.462.3.20 template<typename _Tp, typename _Alloc = allocator<_Tp>> reference std::forward_list< _Tp, _Alloc >::front () [inline]

Returns a read/write reference to the data at the first element of the forward_list.

Definition at line 732 of file forward_list.h.

5.462.3.21 template<typename _Tp, typename _Alloc = allocator<_Tp>> allocator_type std::forward_list< _Tp, _Alloc >::get_allocator () const [inline]

Get a copy of the memory allocation object.

Definition at line 626 of file forward_list.h.

5.462.3.22 template<typename _Tp, typename _Alloc = allocator<_Tp>> iterator std::forward_list< _Tp, _Alloc >::insert_after (const_iterator *__pos*, std::initializer_list< _Tp > *__il*) [inline]

Inserts the contents of an initializer_list into forward_list after the specified iterator.

Parameters:

pos An iterator into the forward_list.

il An initializer_list of value_type.

Returns:

pos.

This function will insert copies of the data in the initializer_list *il* into the forward_list before the location specified by *pos*.

This operation is linear in the number of elements inserted and does not invalidate iterators and references.

Definition at line 912 of file forward_list.h.

5.462.3.23 template<typename _Tp, typename _Alloc = allocator<_Tp>> template<typename _InputIterator > iterator std::forward_list< _Tp, _Alloc >::insert_after (const_iterator *__pos*, _InputIterator *__first*, _InputIterator *__last*) [inline]

Inserts a range into the forward_list.

Parameters:

position An iterator into the forward_list.

first An input iterator.

last An input iterator.

Returns:

pos.

This function will insert copies of the data in the range [*first*,*last*) into the forward_list after the location specified by *pos*.

This operation is linear in the number of elements inserted and does not invalidate iterators and references.

Definition at line 888 of file forward_list.h.

5.462.3.24 template<typename _Tp, typename _Alloc = allocator<_Tp>> iterator std::forward_list< _Tp, _Alloc >::insert_after (const_iterator *__pos*, size_type *__n*, const _Tp & *__val*) [inline]

Inserts a number of copies of given data into the forward_list.

Parameters:

pos An iterator into the forward_list.

n Number of elements to be inserted.

val Data to be inserted.

Returns:

pos.

This function will insert a specified number of copies of the given data after the location specified by *pos*.

This operation is linear in the number of elements inserted and does not invalidate iterators and references.

Definition at line 864 of file forward_list.h.

5.462.3.25 template<typename _Tp, typename _Alloc = allocator<_Tp>> iterator std::forward_list< _Tp, _Alloc >::insert_after (const_iterator *__pos*, const _Tp & *__val*) [inline]

Inserts given value into forward_list after specified iterator.

Parameters:

pos An iterator into the forward_list.

val Data to be inserted.

Returns:

An iterator that points to the inserted data.

This function will insert a copy of the given value after the specified location. Due to the nature of a forward_list this operation can be done in constant time, and does not invalidate iterators and references.

Definition at line 839 of file forward_list.h.

Referenced by std::forward_list< _Tp, _Alloc >::operator=(), and std::forward_list< _Tp, _Alloc >::resize().

5.462.3.26 template<typename _Tp, typename _Alloc = allocator<_Tp>> size_type std::forward_list< _Tp, _Alloc >::max_size () const [inline]

Returns the largest possible size of forward_list.

Definition at line 722 of file forward_list.h.

5.462.3.27 template<typename _Tp , typename _Alloc > template<typename _Comp > void std::forward_list< _Tp, _Alloc >::merge (forward_list< _Tp, _Alloc > && *__list*, _Comp *__comp*) [inline]

Merge sorted lists according to comparison function.

Parameters:

list Sorted list to merge.

comp Comparison function defining sort order.

Assumes that both *list* and this list are sorted according to comp. Merges elements of *list* into this list in sorted order, leaving *list* empty when complete. Elements in this list precede elements in *list* that are equivalent according to comp().

Definition at line 355 of file forward_list.tcc.

5.462.3.28 template<typename _Tp, typename _Alloc = allocator<_Tp>> void std::forward_list< _Tp, _Alloc >::merge (forward_list< _Tp, _Alloc > && *__list*) [inline]

Merge sorted lists.

Parameters:

list Sorted list to merge.

Assumes that both *list* and this list are sorted according to operator<(). Merges elements of *list* into this list in sorted order, leaving *list* empty when complete. Elements in this list precede elements in *list* that are equal.

Definition at line 1146 of file forward_list.h.

References std::forward_list< _Tp, _Alloc >::merge().

Referenced by std::forward_list< _Tp, _Alloc >::merge().

5.462.3.29 template<typename _Tp, typename _Alloc = allocator<_Tp>> forward_list& std::forward_list< _Tp, _Alloc >::operator= (std::initializer_list< _Tp > *__il*) [inline]

The forward_list initializer list assignment operator.

Parameters:

il An initializer_list of value_type.

Replace the contents of the forward_list with copies of the elements in the initializer_list *il*. This is linear in il.size().

Definition at line 566 of file forward_list.h.

5.462.3.30 template<typename _Tp, typename _Alloc = allocator<_Tp>> forward_list& std::forward_list< _Tp, _Alloc >::operator= (forward_list< _Tp, _Alloc > && *__list*) [inline]

The forward_list move assignment operator.

Parameters:

list A forward_list of identical element and allocator types.

The contents of *list* are moved into this forward_list (without copying). *list* is a valid, but unspecified forward_list

Definition at line 548 of file forward_list.h.

References std::swap().

5.462.3.31 template<typename _Tp , typename _Alloc > forward_list< _Tp, _Alloc > & std::forward_list< _Tp, _Alloc >::operator= (const forward_list< _Tp, _Alloc > & *__list*) [inline]

The forward_list assignment operator.

Parameters:

list A forward_list of identical element and allocator types.

All the elements of *list* are copied, but unlike the copy constructor, the allocator object is not copied.

Definition at line 193 of file forward_list.tcc.

References std::forward_list< _Tp, _Alloc >::before_begin(), std::forward_list< _Tp, _Alloc >::begin(), std::forward_list< _Tp, _Alloc >::cbegin(), std::forward_list< _Tp, _Alloc >::cend(), std::forward_list< _Tp, _Alloc >::end(), std::forward_list< _Tp, _Alloc >::erase_after(), and std::forward_list< _Tp, _Alloc >::insert_after().

5.462.3.32 template<typename _Tp, typename _Alloc = allocator<_Tp>> void std::forward_list< _Tp, _Alloc >::pop_front () [inline]

Removes first element. This is a typical stack operation. It shrinks the forward_list by one. Due to the nature of a forward_list this operation can be done in constant time, and only invalidates iterators/references to the element being removed.

Note that no data is returned, and if the first element's data is needed, it should be retrieved before pop_front() is called.

Definition at line 804 of file forward_list.h.

5.462.3.33 template<typename _Tp, typename _Alloc = allocator<_Tp>> void std::forward_list< _Tp, _Alloc >::push_front (const _Tp & *__val*) [inline]

Add data to the front of the forward_list.

Parameters:

val Data to be added.

This is a typical stack operation. The function creates an element at the front of the forward_list and assigns the given data to it. Due to the nature of a forward_list this operation can be done in constant time, and does not invalidate iterators and references.

Definition at line 781 of file forward_list.h.

5.462.3.34 template<typename _Tp , typename _Alloc > void std::forward_list< _Tp, _Alloc >::remove (const _Tp & *__val*) [inline]

Remove all elements equal to value.

Parameters:

val The value to remove.

Removes every element in the list equal to *value*. Remaining elements stay in list order. Note that this function only erases the elements, and that if the elements themselves are pointers, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 294 of file forward_list.tcc.

5.462.3.35 template<typename _Tp , typename _Alloc > template<typename _Pred > void std::forward_list< _Tp, _Alloc >::remove_if (_Pred *__pred*) [inline]

Remove all elements satisfying a predicate.

Parameters:

pred Unary predicate function or object.

Removes every element in the list for which the predicate returns true. Remaining elements stay in list order. Note that this function only erases the elements, and that if the elements themselves are pointers, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 314 of file forward_list.tcc.

5.462.3.36 template<typename _Tp , typename _Alloc > void std::forward_list< _Tp, _Alloc >::resize (size_type __sz, value_type __val) [inline]

Resizes the forward_list to the specified number of elements.

Parameters:

sz Number of elements the forward_list should contain.

val Data with which new elements should be populated.

This function will resize the forward_list to the specified number of elements. If the number is smaller than the forward_list's current size the forward_list is truncated, otherwise the forward_list is extended and new elements are populated with given data.

Definition at line 242 of file forward_list.tcc.

References std::forward_list< _Tp, _Alloc >::before_begin(), std::forward_list< _Tp, _Alloc >::end(), std::forward_list< _Tp, _Alloc >::erase_after(), and std::forward_list< _Tp, _Alloc >::insert_after().

5.462.3.37 template<typename _Tp , typename _Alloc > void std::forward_list< _Tp, _Alloc >::resize (size_type __sz) [inline]

Resizes the forward_list to the specified number of elements.

Parameters:

sz Number of elements the forward_list should contain.

This function will resize the forward_list to the specified number of elements. If the number is smaller than the forward_list's current size the forward_list is truncated, otherwise the forward_list is extended and the new elements are default constructed.

Definition at line 220 of file forward_list.tcc.

References std::forward_list< _Tp, _Alloc >::before_begin(), std::forward_list< _Tp, _Alloc >::end(), std::forward_list< _Tp, _Alloc >::erase_after(), and std::forward_list< _Tp, _Alloc >::splice_after().

5.462.3.38 template<typename _Tp, typename _Alloc = allocator<_Tp>> void std::forward_list< _Tp, _Alloc >::reverse () [inline]

Reverse the elements in list. Reverse the order of elements in the list in linear time.

Definition at line 1190 of file forward_list.h.

5.462.3.39 template<typename _Tp , class _Alloc > template<typename _Comp > void std::forward_list< _Tp, _Alloc >::sort (_Comp *__comp*) [inline]

Sort the forward_list using a comparison function. Sorts the elements of this list in NlogN time. Equivalent elements remain in list order.

Definition at line 401 of file forward_list.tcc.

5.462.3.40 template<typename _Tp, typename _Alloc = allocator<_Tp>> void std::forward_list< _Tp, _Alloc >::sort () [inline]

Sort the elements of the list. Sorts the elements of this list in NlogN time. Equivalent elements remain in list order.

Definition at line 1171 of file forward_list.h.

References std::forward_list< _Tp, _Alloc >::sort().

Referenced by std::forward_list< _Tp, _Alloc >::sort().

5.462.3.41 template<typename _Tp , typename _Alloc > void std::forward_list< _Tp, _Alloc >::splice_after (const_iterator *__pos*, forward_list< _Tp, _Alloc > && *__list*, const_iterator *__before*, const_iterator *__last*) [inline]

Insert range from another forward_list.

Parameters:

pos Iterator referencing the element to insert after.

list Source list.

before Iterator referencing before the start of range in list.

last Iterator referencing the end of range in list.

Removes elements in the range (before,last) and inserts them after *pos* in constant time.

Undefined if *pos* is in (before,last).

Definition at line 278 of file forward_list.tcc.

5.462.3.42 template<typename _Tp, typename _Alloc = allocator<_Tp>> void std::forward_list< _Tp, _Alloc >::splice_after (const_iterator *__pos*, forward_list< _Tp, _Alloc > && *__list*, const_iterator *__i*) [inline]

Insert element from another forward_list.

Parameters:

pos Iterator referencing the element to insert after.

list Source list.

i Iterator referencing the element before the element to move.

Removes the element in list *list* referenced by *i* and inserts it into the current list after *pos*.

Definition at line 1049 of file forward_list.h.

5.462.3.43 template<typename _Tp , typename _Alloc > void std::forward_list< _Tp, _Alloc >::splice_after (const_iterator *__pos*, forward_list< _Tp, _Alloc > && *__list*) [inline]

Insert contents of another forward_list.

Parameters:

pos Iterator referencing the element to insert after.

list Source list.

The elements of *list* are inserted in constant time after the element referenced by *pos*. *list* becomes an empty list.

Requires this != *x*.

Definition at line 261 of file forward_list.tcc.

Referenced by std::forward_list< _Tp, _Alloc >::resize().

5.462.3.44 template<typename _Tp, typename _Alloc = allocator<_Tp>> void std::forward_list< _Tp, _Alloc >::swap (forward_list< _Tp, _Alloc > & *__list*) [inline]

Swaps data with another forward_list.

Parameters:

list A forward_list of the same element and allocator types.

This exchanges the elements between two lists in constant time. Note that the global std::swap() function is specialized such that std::swap(l1,l2) will feed to this function.

Definition at line 978 of file forward_list.h.

References std::swap().

Referenced by std::swap().

5.462.3.45 template<typename _Tp , typename _Alloc > template<typename _BinPred > void std::forward_list< _Tp, _Alloc >::unique (_BinPred *__binary_pred*) [inline]

Remove consecutive elements satisfying a predicate.

Parameters:

binary_pred Binary predicate function or object.

For each consecutive set of elements [first,last) that satisfy predicate(first,i) where i is an iterator in [first,last), remove all but the first one. Remaining elements stay in list order. Note that this function only erases the elements, and that if the elements themselves are pointers, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 334 of file forward_list.tcc.

References std::forward_list< _Tp, _Alloc >::begin(), std::forward_list< _Tp, _Alloc >::end(), and std::forward_list< _Tp, _Alloc >::erase_after().

5.462.3.46 template<typename _Tp, typename _Alloc = allocator<_Tp>> void std::forward_list< _Tp, _Alloc >::unique () [inline]

Remove consecutive duplicate elements. For each consecutive set of elements with the same value, remove all but the first one. Remaining elements stay in list order. Note that this function only erases the elements, and that if the elements themselves are pointers, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 1117 of file forward_list.h.

References std::forward_list< _Tp, _Alloc >::unique().

Referenced by std::forward_list< _Tp, _Alloc >::unique().

The documentation for this class was generated from the following files:

- forward_list.h
- forward_list.tcc

5.463 std::fpos< _StateT > Class Template Reference

Class representing stream positions.

Public Member Functions

- fpos (streamoff __off)
- operator streamoff () const
- fpos operator+ (streamoff __off) const
- fpos & operator+= (streamoff __off)
- streamoff operator- (const fpos &__other) const
- fpos operator- (streamoff __off) const
- fpos & operator-= (streamoff __off)
- _StateT state () const
- void state (_StateT __st)

5.463.1 Detailed Description

template<typename _StateT> class std::fpos< _StateT >

Class representing stream positions. The standard places no requirements upon the template parameter StateT. In this implementation StateT must be DefaultConstructible, CopyConstructible and Assignable. The standard only requires that fpos should contain a member of type StateT. In this implementation it also contains an offset stored as a signed integer.

Parameters:

StateT Type passed to and returned from state().

Definition at line 112 of file postypes.h.

5.463.2 Constructor & Destructor Documentation

5.463.2.1 template<typename _StateT> std::fpos< _StateT >::fpos (streamoff *__off*) [inline]

Construct position from offset.

Definition at line 133 of file postypes.h.

5.463.3 Member Function Documentation

5.463.3.1 template<typename _StateT> std::fpos< _StateT >::operator streamoff () const [inline]

Convert to streamoff.

Definition at line 137 of file postypes.h.

5.463.3.2 template<typename _StateT> fpos std::fpos< _StateT >::operator+ (streamoff *__off*) const [inline]

Add position and offset.

Definition at line 178 of file postypes.h.

5.463.3.3 template<typename _StateT> fpos& std::fpos< _StateT >::operator+= (streamoff *__off*) [inline]

Add offset to this position.

Definition at line 154 of file postypes.h.

5.463.3.4 template<typename _StateT> streamoff std::fpos< _StateT >::operator- (const fpos< _StateT > & *__other*) const [inline]

Subtract position to return offset.

Definition at line 205 of file postypes.h.

5.463.3.5 template<typename _StateT> fpos std::fpos< _StateT >::operator- (streamoff *__off*) const [inline]

Subtract offset from position.

Definition at line 192 of file postypes.h.

5.463.3.6 template<typename _StateT> fpos& std::fpos< _StateT >::operator-= (streamoff *__off*) [inline]

Subtract offset from this position.

Definition at line 165 of file postypes.h.

5.463.3.7 template<typename _StateT> _StateT std::fpos< _StateT >::state () const [inline]

Return the last set value of *st*.

Definition at line 146 of file postypes.h.

5.463.3.8 template<typename _StateT> void std::fpos< _StateT >::state (_StateT __*st*) [inline]

Remember the value of *st*.

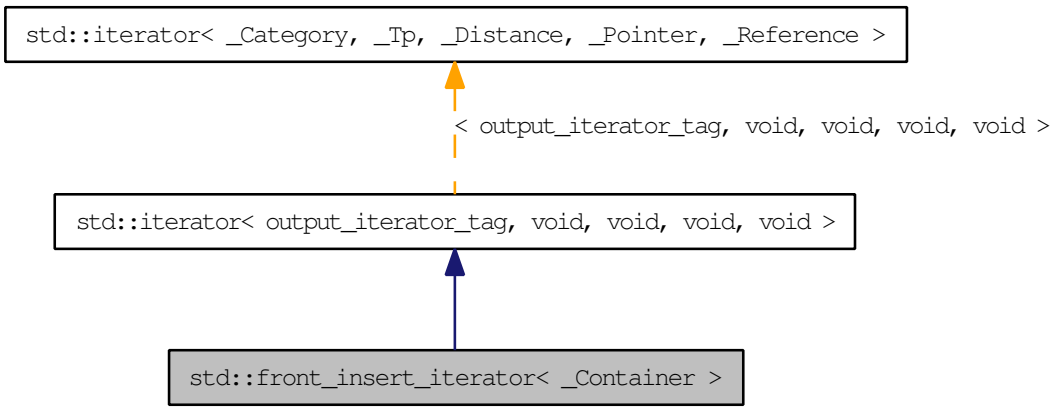
Definition at line 141 of file postypes.h.

The documentation for this class was generated from the following file:

- postypes.h

5.464 std::front_insert_iterator< _Container > Class Template Reference

Turns assignment into insertion. Inheritance diagram for std::front_insert_iterator< _Container >:



Public Types

- typedef _Container container_type
- typedef void difference_type
- typedef output_iterator_tag iterator_category
- typedef void pointer
- typedef void reference
- typedef void value_type

Public Member Functions

- front_insert_iterator (_Container &__x)
- front_insert_iterator & operator* ()
- front_insert_iterator operator++ (int)
- front_insert_iterator & operator++ ()
- front_insert_iterator & **operator=** (typename _Container::value_type &&__value)
- front_insert_iterator & operator= (typename _Container::const_reference __value)

Protected Attributes

- _Container * **container**

5.464.1 Detailed Description

template<typename _Container> class std::front_insert_iterator< _Container >

Turns assignment into insertion. These are output iterators, constructed from a container-of-T. Assigning a T to the iterator prepends it to the container using push_front.

Tip: Using the front_inserter function to create these iterators can save typing.

Definition at line 478 of file stl_iterator.h.

5.464.2 Member Typedef Documentation

5.464.2.1 template<typename _Container > typedef _Container std::front_insert_iterator< _Container >::container_type

A nested typedef for the type of whatever container you used.

Definition at line 486 of file stl_iterator.h.

5.464.2.2 typedef void std::iterator< output_iterator_tag , void , void , void , void >::difference_type [inherited]

Distance between iterators is represented as this type.

Definition at line 115 of file stl_iterator_base_types.h.

5.464.2.3 typedef output_iterator_tag std::iterator< output_iterator_tag , void , void , void , void >::iterator_category [inherited]

One of the tag types.

Definition at line 111 of file stl_iterator_base_types.h.

5.464.2.4 typedef void std::iterator< output_iterator_tag , void , void , void , void >::pointer [inherited]

This type represents a pointer-to-value_type.

Definition at line 117 of file stl_iterator_base_types.h.

5.464.2.5 typedef void std::iterator< output_iterator_tag , void , void , void , void >::reference [inherited]

This type represents a reference-to-value_type.

Definition at line 119 of file stl_iterator_base_types.h.

5.464.2.6 typedef void std::iterator< output_iterator_tag , void , void , void , void >::value_type [inherited]

The type "pointed to" by the iterator.

Definition at line 113 of file stl_iterator_base_types.h.

5.464.3 Constructor & Destructor Documentation

5.464.3.1 template<typename _Container > std::front_insert_iterator< _Container >::front_insert_iterator (_Container & __x) [inline, explicit]

The only way to create this iterator is with a container.

Definition at line 489 of file stl_iterator.h.

5.464.4 Member Function Documentation

5.464.4.1 template<typename _Container > front_insert_iterator& std::front_insert_iterator< _Container >::operator* () [inline]

Simply returns *this.

Definition at line 520 of file stl_iterator.h.

5.464.4.2 template<typename _Container > front_insert_iterator std::front_insert_iterator< _Container >::operator++ (int) [inline]

Simply returns *this. (This iterator does not *move*.).

Definition at line 530 of file stl_iterator.h.

5.464.4.3 template<typename _Container > front_insert_iterator& std::front_insert_iterator< _Container >::operator++ () [inline]

Simply returns ∗this. (This iterator does not *move*.).

Definition at line 525 of file stl_iterator.h.

5.464.4.4 template<typename _Container > front_insert_iterator& std::front_insert_iterator< _Container >::operator= (typename _Container::const_reference *__value*) [inline]

Parameters:

value An instance of whatever type container_type::const_reference is; presumably a reference-to-const T for container<T>.

Returns:

This iterator, for chained operations.

This kind of iterator doesn't really have a *position* in the container (you can think of the position as being permanently at the front, if you like). Assigning a value to the iterator will always prepend the value to the front of the container.

Definition at line 503 of file stl_iterator.h.

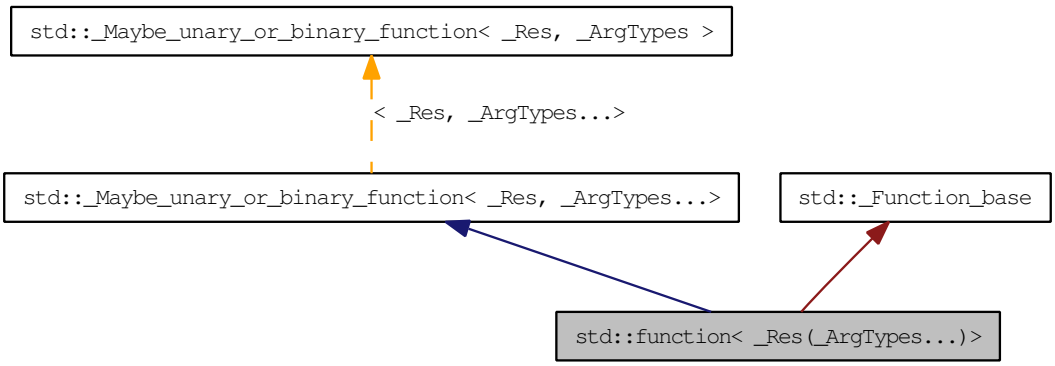
The documentation for this class was generated from the following file:

- stl_iterator.h

5.465 std::function< _Res(_ArgTypes...)> Class Template Reference

Primary class template for std::function.

Polymorphic function wrapper. Inheritance diagram for std::function< _Res(_ArgTypes...)>:



Public Types

- typedef _Res **result_type**

Public Member Functions

- template<typename _Functor >
  function (_Functor __f, typename enable_if< !is_integral< _Functor >::value, _Useless >::type=_Useless())
- function (function &&__x)
- function (const function &__x)
- function (_M_clear_type *)
- function ()
- operator bool () const
- template<typename _Res2 , typename... _ArgTypes2>
  void **operator!=** (const function< _Res2(_ArgTypes2...)> &) const
- _Res operator() (_ArgTypes...__args) const
- template<typename _Functor >
  enable_if<!is_integral< _Functor >::value, function & >::type operator= (reference_wrapper< _Functor > __f)

- template<typename _Functor >
  enable_if<!is_integral< _Functor >::value, function & >::type operator= (_-Functor &&__f)
- function & operator= (_M_clear_type *)
- function & operator= (function &&__x)
- function & operator= (const function &__x)
- template<typename _Res2 , typename... _ArgTypes2>
  void **operator==** (const function< _Res2(_ArgTypes2...)> &) const
- void swap (function &__x)
- template<typename _Functor >
  const _Functor * target () const
- template<typename _Functor >
  _Functor * target ()
- const type_info & target_type () const

Private Types

- typedef bool(* **_Manager_type**)(_Any_data &, const _Any_data &, _-Manager_operation)

Private Member Functions

- bool **_M_empty** () const

Private Attributes

- _Any_data **_M_functor**
- _Manager_type **_M_manager**

Static Private Attributes

- static const std::size_t **_M_max_align**
- static const std::size_t **_M_max_size**

5.465.1 Detailed Description

template<typename _Res, typename... _ArgTypes> class std::function< _Res(_-ArgTypes...)>

Primary class template for std::function.

Polymorphic function wrapper.

Definition at line 1800 of file functional.

5.465.2 Constructor & Destructor Documentation

5.465.2.1 template<typename _Res , typename... _ArgTypes> std::function< _Res(_ArgTypes...)>::function () [inline, explicit]

Default construct creates an empty function call wrapper.

Postcondition:

!(bool)*this

Definition at line 1818 of file functional.

5.465.2.2 template<typename _Res , typename... _ArgTypes> std::function< _Res(_ArgTypes...)>::function (_M_clear_type *) [inline]

Default construct creates an empty function call wrapper.

Postcondition:

!(bool)*this

Definition at line 1824 of file functional.

5.465.2.3 template<typename _Res , typename... _ArgTypes> std::function< _Res(_ArgTypes...)>::function (const function< _Res(_ArgTypes...)> & __x) [inline]

Function copy constructor.

Parameters:

x A function object with identical call signature.

Postcondition:

(bool)*this == (bool)x

The newly-created function contains a copy of the target of *x* (if it has one).

Definition at line 2068 of file functional.

5.465.2.4 template<typename _Res , typename... _ArgTypes> std::function< _Res(_ArgTypes...)>::function (function< _Res(_ArgTypes...)> && __x) [inline]

Function move constructor.

Parameters:

x A function object rvalue with identical call signature.

The newly-created function contains the target of *x* (if it has one).

Definition at line 1843 of file functional.

5.465.2.5 template<typename _Res , typename... _ArgTypes> template<typename _Functor > std::function< _Res(_ArgTypes...)>::function (_Functor __f, typename enable_if< !is_integral< _Functor >::value, _Useless >::type = _Useless()) [inline]

Builds a function that targets a copy of the incoming function object.

Parameters:

f A function object that is callable with parameters of type `T1`, `T2`, ..., `TN` and returns a value convertible to `Res`.

The newly-created function object will target a copy of *f*. If *f* is `reference_wrapper<F>`, then this function object will contain a reference to the function object `f.get()`. If *f* is a NULL function pointer or NULL pointer-to-member, the newly-created object will be empty.

If *f* is a non-NULL function pointer or an object of type `reference_wrapper<F>`, this function will not throw.

Definition at line 2082 of file functional.

5.465.3 Member Function Documentation

5.465.3.1 template<typename _Res , typename... _ArgTypes> std::function< _Res(_ArgTypes...)>::operator bool () const [inline, explicit]

Determine if the function wrapper has a target.

Returns:

`true` when this function object contains a target, or `false` when it is empty.

This function will not throw an exception.

Definition at line 2011 of file functional.

5.465.3.2 template<typename _Res , typename... _ArgTypes> _Res std::function< _Res(_ArgTypes...)>::operator() (_ArgTypes... *__args*) const [inline]

Invokes the function targeted by `*this`.

Returns:

the result of the target.

Exceptions:

bad_function_call when !(bool)*this

The function call operator invokes the target function object stored by `this`.

Definition at line 2100 of file functional.

5.465.3.3 template<typename _Res , typename... _ArgTypes> template<typename _Functor > enable_if<!is_integral<_Functor>::value, function&>::type std::function< _Res(_ArgTypes...)>::operator= (reference_wrapper< _Functor > *__f*) [inline]

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

Definition at line 1955 of file functional.

5.465.3.4 template<typename _Res , typename... _ArgTypes> template<typename _Functor > enable_if<!is_integral<_Functor>::value, function&>::type std::function< _Res(_ArgTypes...)>::operator= (_Functor && *__f*) [inline]

Function assignment to a new target.

Parameters:

f A function object that is callable with parameters of type `T1`, `T2`, ..., `TN` and returns a value convertible to `Res`.

Returns:

`*this`

This function object wrapper will target a copy of *f*. If *f* is `reference_wrapper<F>`, then this function object will contain a reference to the function object `f.get()`. If *f* is a NULL function pointer or NULL pointer-to-member, `this` object will be empty.

If *f* is a non-NULL function pointer or an object of type `reference_wrapper<F>`, this function will not throw.

Definition at line 1946 of file functional.

5.465.3.5 template<typename _Res , typename... _ArgTypes> function& std::function< _Res(_ArgTypes...)>::operator= (_M_clear_type *) [inline]

Function assignment to zero.

Postcondition:

!(bool)*this

Returns:

`*this`

The target of `*this` is deallocated, leaving it empty.

Definition at line 1917 of file functional.

5.465.3.6 template<typename _Res , typename... _ArgTypes> function& std::function< _Res(_ArgTypes...)>::operator= (function< _Res(_ArgTypes...)> && __x) [inline]

Function move-assignment operator.

Parameters:

x A function rvalue with identical call signature.

Returns:

`*this`

The target of *x* is moved to `*this`. If *x* has no target, then `*this` will be empty.

If *x* targets a function pointer or a reference to a function object, then this operation will not throw an exception.

Definition at line 1903 of file functional.

5.465.3.7 template<typename _Res , typename... _ArgTypes> function& std::function< _Res(_ArgTypes...)>::operator= (const function< _Res(_ArgTypes...)> & __x) [inline]

Function assignment operator.

Parameters:

x A function with identical call signature.

Postcondition:

(bool)*this == (bool)x

Returns:

`*this`

The target of *x* is copied to `*this`. If *x* has no target, then `*this` will be empty.

If *x* targets a function pointer or a reference to a function object, then this operation will not throw an exception.

Definition at line 1885 of file functional.

5.465.3.8 template<typename _Res , typename... _ArgTypes> void std::function< _Res(_ArgTypes...)>::swap (function< _Res(_ArgTypes...)> & __x) [inline]

Swap the targets of two function objects.

Parameters:

f A function with identical call signature.

Swap the targets of `this` function object and *f*. This function will not throw an exception.

Definition at line 1970 of file functional.

References std::swap().

5.465.3.9 template<typename _Res , typename... _ArgTypes> template<typename _Functor > const _Functor * std::function< _Res(_ArgTypes...)>::target () const [inline]

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

Definition at line 2146 of file functional.

5.465.3.10 template<typename _Res , typename... _ArgTypes> template<typename _Functor > _Functor * std::function< _Res(_ArgTypes...)>::target () [inline]

Access the stored target function object.

Returns:

Returns a pointer to the stored target function object, if `typeid(Functor)`.equals(target_type()); otherwise, a NULL pointer.

This function will not throw an exception.

Definition at line 2127 of file functional.

5.465.3.11 template<typename _Res , typename... _ArgTypes> const type_info & std::function< _Res(_ArgTypes...)>::target_type () const [inline]

Determine the type of the target of this function object wrapper.

Returns:

the type identifier of the target function object, or `typeid(void)` if !(bool)*this.

This function will not throw an exception.

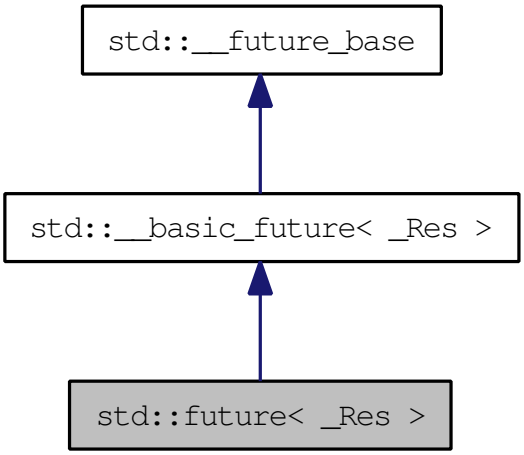
Definition at line 2111 of file functional.

The documentation for this class was generated from the following file:

- functional

5.466 std::future< _Res > Class Template Reference

Primary template for future. Inheritance diagram for std::future< _Res >:



Public Member Functions

- **future** (const future &)
- future (future &&__uf)
- _Res get ()
- future & **operator=** (future &&__fut)
- future & **operator=** (const future &)
- bool **valid** () const
- void **wait** () const
- template<typename _Rep , typename _Period >
  bool **wait_for** (const chrono::duration< _Rep, _Period > &__rel) const
- template<typename _Clock , typename _Duration >
  bool **wait_until** (const chrono::time_point< _Clock, _Duration > &__abs) const

Protected Types

- typedef __future_base::_Result< _Res > & **__result_type**

Protected Member Functions

- __result_type _M_get_result ()

- void **_M_swap** (__basic_future &__that)

Friends

- template<typename _Fn , typename... _Args>
  future< typename result_of< _Fn(_Args...)>::type > **async** (launch, _Fn &&, _Args &&...)
- class **packaged_task**
- class **promise**< **_Res** >

5.466.1 Detailed Description

template<typename _Res> class std::future< _Res >

Primary template for future.

Definition at line 559 of file future.

5.466.2 Constructor & Destructor Documentation

5.466.2.1 template<typename _Res > std::future< _Res >::future (future< _Res > && *__uf*) [inline]

Move constructor.

Definition at line 577 of file future.

5.466.3 Member Function Documentation

5.466.3.1 template<typename _Res> __result_type std::__basic_future< _Res >::_M_get_result () [inline, protected, inherited]

Wait for the state to be ready and rethrow any stored exception.

Definition at line 513 of file future.

Referenced by std::shared_future< _Res >::get(), std::future< void >::get(), and std::future< _Res >::get().

5.466.3.2 template<typename _Res > _Res std::future< _Res >::get () [inline]

Retrieving the value.

Definition at line 591 of file future.

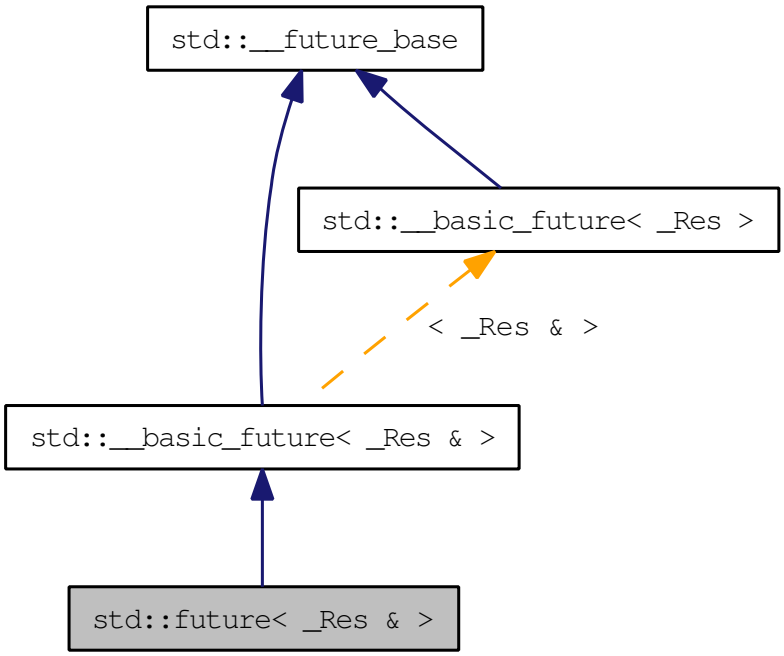
References std::__basic_future< _Res >::_M_get_result().

The documentation for this class was generated from the following file:

- future

5.467 std::future< _Res & > Class Template Reference

Partial specialization for future<R&>. Inheritance diagram for std::future< _Res & >:



Public Member Functions

- **future** (const future &)
- future (future &&__uf)
- _Res & get ()
- future & **operator=** (future &&__fut)
- future & **operator=** (const future &)
- bool **valid** () const
- void **wait** () const
- bool **wait_for** (const chrono::duration< _Rep, _Period > &__rel) const
- bool **wait_until** (const chrono::time_point< _Clock, _Duration > &__abs) const

Protected Types

- typedef __future_base::_Result< _Res & > & **__result_type**

Protected Member Functions

- __result_type _M_get_result ()
- void **_M_swap** (__basic_future &__that)

Friends

- template<typename _Fn , typename... _Args>
  future< typename result_of< _Fn(_Args...)>::type > **async** (launch, _Fn &&, _Args &&...)
- class **packaged_task**
- class **promise**< **_Res &** >

5.467.1 Detailed Description

template<typename _Res> class std::future< _Res & >

Partial specialization for future<R&>.

Definition at line 600 of file future.

5.467.2 Constructor & Destructor Documentation

5.467.2.1 template<typename _Res > std::future< _Res & >::future (future< _Res & > && *__uf*) [inline]

Move constructor.

Definition at line 618 of file future.

5.467.3 Member Function Documentation

5.467.3.1 __result_type std::__basic_future< _Res & >::_M_get_result () [inline, protected, inherited]

Wait for the state to be ready and rethrow any stored exception.

Definition at line 513 of file future.

References std::rethrow_exception().

5.467.3.2 template<typename _Res > _Res& std::future< _Res & >::get () [inline]

Retrieving the value.

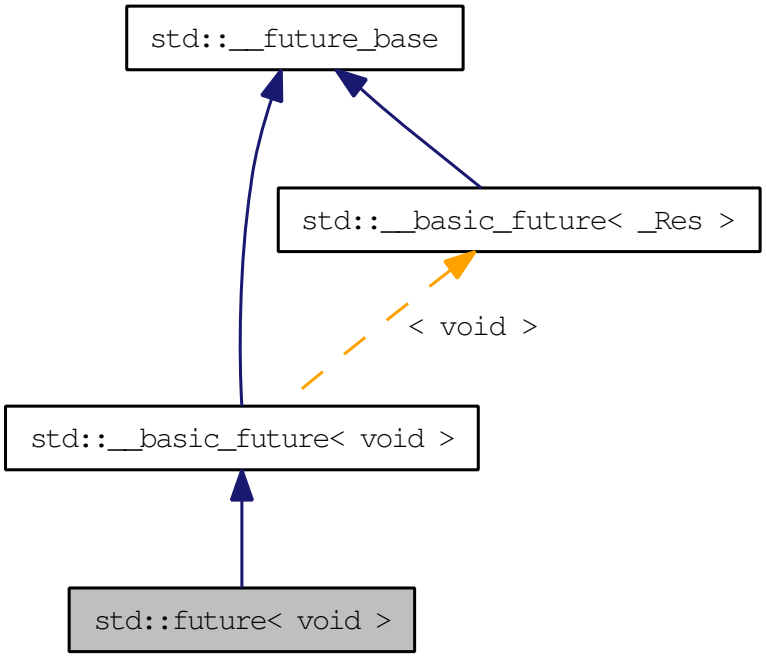
Definition at line 632 of file future.

The documentation for this class was generated from the following file:

- future

5.468 std::future< void > Class Template Reference

Explicit specialization for future<void>. Inheritance diagram for std::future< void >:



Public Member Functions

- **future** (const future &)
- future (future &&__uf)
- void get ()
- future & **operator=** (future &&__fut)
- future & **operator=** (const future &)
- bool **valid** () const
- void **wait** () const
- bool **wait_for** (const chrono::duration< _Rep, _Period > &__rel) const
- bool **wait_until** (const chrono::time_point< _Clock, _Duration > &__abs) const

Protected Types

- typedef __future_base::_Result< void > & **__result_type**

Protected Member Functions

- __result_type _M_get_result ()
- void **_M_swap** (__basic_future &__that)

Friends

- template<typename _Fn , typename... _Args>
  future< typename result_of< _Fn(_Args...)>::type > **async** (launch, _Fn &&, _Args &&...)
- class **packaged_task**
- class **promise< void >**

5.468.1 Detailed Description

template<> class std::future< void >

Explicit specialization for future<void>.

Definition at line 641 of file future.

5.468.2 Constructor & Destructor Documentation

5.468.2.1 std::future< void >::future (future< void > && *__uf*) [inline]

Move constructor.

Definition at line 659 of file future.

5.468.3 Member Function Documentation

5.468.3.1 __result_type std::__basic_future< void >::_M_get_result () [inline, protected, inherited]

Wait for the state to be ready and rethrow any stored exception.

Definition at line 513 of file future.

5.468.3.2 void std::future< void >::get () [inline]

Retrieving the value.

Definition at line 673 of file future.

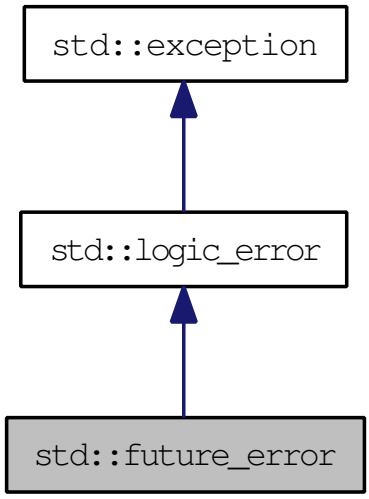
References std::__basic_future< _Res >::_M_get_result().

The documentation for this class was generated from the following file:

- future

5.469 std::future_error Class Reference

Exception type thrown by futures. Inheritance diagram for std::future_error:



Public Member Functions

- **future_error** (error_code __ec)
- const error_code & **code** () const throw ()
- virtual const char * what () const throw ()

5.469.1 Detailed Description

Exception type thrown by futures.

Definition at line 85 of file future.

5.469.2 Member Function Documentation

5.469.2.1 virtual const char* std::future_error::what () const throw () [virtual]

Returns a C-style character string describing the general cause of the current error (the same string passed to the ctor).

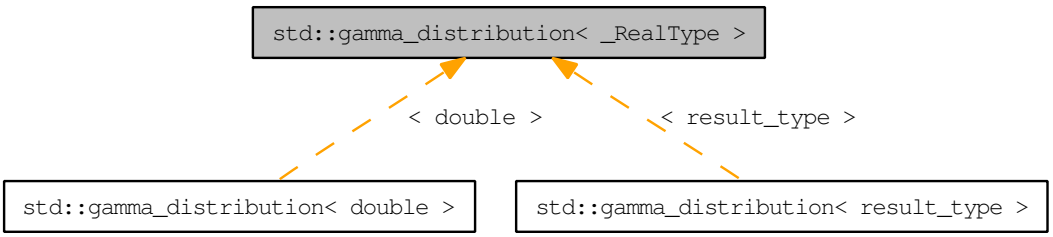
Reimplemented from std::logic_error.

The documentation for this class was generated from the following file:

- future

5.470 std::gamma_distribution< _RealType > Class Template Reference

A gamma continuous distribution for random numbers. Inheritance diagram for std::gamma_distribution< _RealType >:



Classes

- struct param_type

Public Types

- typedef _RealType result_type

Public Member Functions

- **gamma_distribution** (const param_type &__p)
- gamma_distribution (_RealType __alpha_val=_RealType(1), _RealType __beta_val=_RealType(1))
- _RealType alpha () const
- _RealType beta () const
- result_type max () const
- result_type min () const
- template<typename _UniformRandomNumberGenerator > result_type operator() (_UniformRandomNumberGenerator &__urng, const param_type &__p)
- template<typename _UniformRandomNumberGenerator > result_type **operator()** (_UniformRandomNumberGenerator &__urng)
- void param (const param_type &__param)
- param_type param () const
- void reset ()

Friends

- template<typename _RealType1 , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & operator<< (std::basic_ostream< _CharT, _Traits > &, const std::gamma_distribution< _RealType1 > &)
- template<typename _RealType1 , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & operator>> (std::basic_istream< _CharT, _Traits > &, std::gamma_distribution< _RealType1 > &)

5.470.1 Detailed Description

template<typename _RealType = double> class std::gamma_distribution< _RealType >

A gamma continuous distribution for random numbers. The formula for the gamma probability density function is:

$$p(x|\alpha,\beta) = \frac{1}{\beta\Gamma(\alpha)}(x/\beta)^{\alpha-1}e^{-x/\beta}$$

Definition at line 2118 of file random.h.

5.470.2 Member Typedef Documentation

5.470.2.1 template<typename _RealType = double> typedef _RealType std::gamma_distribution< _RealType >::result_type

The type of the range of the distribution.

Definition at line 2125 of file random.h.

5.470.3 Constructor & Destructor Documentation

5.470.3.1 template<typename _RealType = double> std::gamma_distribution< _RealType >::gamma_distribution (_RealType *__alpha_val* = `_RealType(1)`, _RealType *__beta_val* = `_RealType(1)`) `[inline, explicit]`

Constructs a gamma distribution with parameters α and β.

Definition at line 2165 of file random.h.

5.470.4 Member Function Documentation

5.470.4.1 template<typename _RealType = double> _RealType std::gamma_distribution< _RealType >::alpha () const [inline]

Returns the α of the distribution.

Definition at line 2186 of file random.h.

5.470.4.2 template<typename _RealType = double> _RealType std::gamma_distribution< _RealType >::beta () const [inline]

Returns the β of the distribution.

Definition at line 2193 of file random.h.

5.470.4.3 template<typename _RealType = double> result_type std::gamma_distribution< _RealType >::max () const [inline]

Returns the least upper bound value of the distribution.

Definition at line 2222 of file random.h.

Referenced by std::gamma_distribution< result_type >::max().

5.470.4.4 template<typename _RealType = double> result_type std::gamma_distribution< _RealType >::min () const [inline]

Returns the greatest lower bound value of the distribution.

Definition at line 2215 of file random.h.

5.470.4.5 template<typename _RealType > template<typename _UniformRandomNumberGenerator > gamma_distribution< _RealType >::result_type std::gamma_distribution< _RealType >::operator() (_UniformRandomNumberGenerator & *__urng*, const param_type & *__param*) [inline]

Marsaglia, G. and Tsang, W. W. "A Simple Method for Generating Gamma Variables" ACM Transactions on Mathematical Software, 26, 3, 363-372, 2000.

Definition at line 1945 of file random.tcc.

References std::log(), and std::pow().

5.470.4.6 template<typename _RealType = double> void std::gamma_distribution< _RealType >::param (const param_type & *__param*) [inline]

Sets the parameter set of the distribution.

Parameters:

__param The new parameter set of the distribution.

Definition at line 2208 of file random.h.

5.470.4.7 template<typename _RealType = double> param_type std::gamma_distribution< _RealType >::param () const [inline]

Returns the parameter set of the distribution.

Definition at line 2200 of file random.h.

5.470.4.8 template<typename _RealType = double> void std::gamma_distribution< _RealType >::reset () [inline]

Resets the distribution state.

Definition at line 2179 of file random.h.

Referenced by std::negative_binomial_distribution< _IntType >::reset(), std::student_t_distribution< _RealType >::reset(), std::fisher_f_distribution< _RealType >::reset(), and std::chi_squared_distribution< _RealType >::reset().

5.470.5 Friends And Related Function Documentation

5.470.5.1 template<typename _RealType = double> template<typename _RealType1 , typename _CharT , typename _Traits > std::basic_ostream<_CharT, _Traits>& operator<< (std::basic_ostream< _CharT, _Traits > &, const std::gamma_distribution< _RealType1 > &) [friend]

Inserts a gamma_distribution random number distribution `__x` into the output stream `__os`.

Parameters:

__os An output stream.

__x A gamma_distribution random number distribution.

Returns:

The output stream with the state of __x inserted or in an error state.

5.470.5.2 template<typename _RealType = double> template<typename _RealType1 , typename _CharT , typename _Traits > std::basic_istream<_CharT, _Traits>& operator>> (std::basic_istream< _CharT, _Traits > &, std::gamma_distribution< _RealType1 > &) [friend]

Extracts a gamma_distribution random number distribution __x from the input stream __is.

Parameters:

__is An input stream.

__x A gamma_distribution random number generator engine.

Returns:

The input stream with __x extracted or in an error state.

The documentation for this class was generated from the following files:

- random.h
- random.tcc

5.471 std::gamma_distribution< _RealType >::param_type Struct Reference

Public Types

- typedef gamma_distribution< _RealType > **distribution_type**

Public Member Functions

- **param_type** (_RealType __alpha_val=_RealType(1), _RealType __beta_val=_RealType(1))
- _RealType **alpha** () const
- _RealType **beta** () const

Friends

- class **gamma_distribution< _RealType >**

5.471.1 Detailed Description

template<typename _RealType = double> struct std::gamma_distribution< _RealType >::param_type

Parameter type.

Definition at line 2127 of file random.h.

The documentation for this struct was generated from the following files:

- random.h
- random.tcc

5.472 std::geometric_distribution< _IntType > Class Template Reference

A discrete geometric random number distribution.

Classes

- struct param_type

Public Types

- typedef _IntType result_type

Public Member Functions

- **geometric_distribution** (const param_type &__p)
- **geometric_distribution** (double __p=0.5)
- result_type max () const
- result_type min () const
- template<typename _UniformRandomNumberGenerator > result_type **operator()** (_UniformRandomNumberGenerator &__urng, const param_type &__p)
- template<typename _UniformRandomNumberGenerator > result_type **operator()** (_UniformRandomNumberGenerator &__urng)
- double p () const
- void param (const param_type &__param)
- param_type param () const
- void reset ()

5.472.1 Detailed Description

template<typename _IntType = int> class std::geometric_distribution< _IntType >

A discrete geometric random number distribution. The formula for the geometric probability density function is $p(i|p) = (1-p)p^{i-1}$ where p is the parameter of the distribution.

Definition at line 3194 of file random.h.

5.472.2 Member Typedef Documentation

5.472.2.1 template<typename _IntType = int> typedef _IntType std::geometric_distribution< _IntType >::result_type

The type of the range of the distribution.

Definition at line 3201 of file random.h.

5.472.3 Member Function Documentation

5.472.3.1 template<typename _IntType = int> result_type std::geometric_distribution< _IntType >::max () const [inline]

Returns the least upper bound value of the distribution.

Definition at line 3283 of file random.h.

5.472.3.2 template<typename _IntType = int> result_type std::geometric_distribution< _IntType >::min () const [inline]

Returns the greatest lower bound value of the distribution.

Definition at line 3276 of file random.h.

5.472.3.3 template<typename _IntType = int> double std::geometric_distribution< _IntType >::p () const [inline]

Returns the distribution parameter p.

Definition at line 3254 of file random.h.

5.472.3.4 template<typename _IntType = int> void std::geometric_distribution< _IntType >::param (const param_type & *__param*) [inline]

Sets the parameter set of the distribution.

Parameters:

__param The new parameter set of the distribution.

Definition at line 3269 of file random.h.

5.472.3.5 template<typename _IntType = int> param_type std::geometric_distribution< _IntType >::param () const [inline]

Returns the parameter set of the distribution.

Definition at line 3261 of file random.h.

Referenced by std::operator>>().

5.472.3.6 template<typename _IntType = int> void std::geometric_distribution< _IntType >::reset () [inline]

Resets the distribution state. Does nothing for the geometric distribution.

Definition at line 3248 of file random.h.

The documentation for this class was generated from the following files:

- random.h
- random.tcc

5.473 std::geometric_distribution< _IntType >::param_type Struct Reference

Public Types

- typedef geometric_distribution< _IntType > **distribution_type**

Public Member Functions

- **param_type** (double __p=0.5)
- double **p** () const

Friends

- class **geometric_distribution< _IntType >**

5.473.1 Detailed Description

template<typename _IntType = int> struct std::geometric_distribution< _IntType >::param_type

Parameter type.

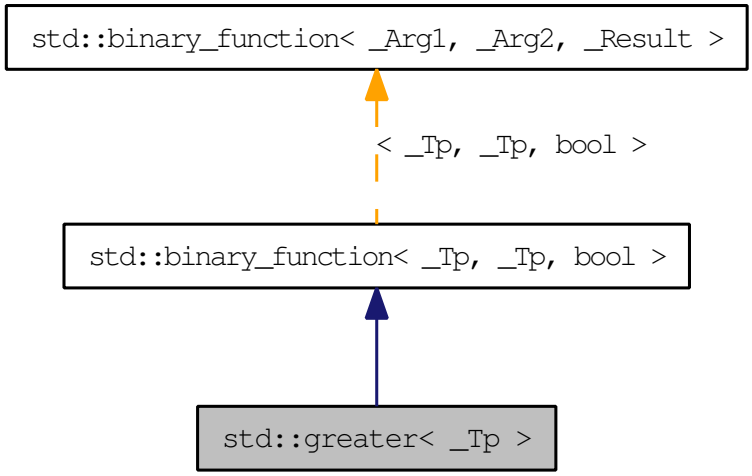
Definition at line 3203 of file random.h.

The documentation for this struct was generated from the following file:

- random.h

5.474 std::greater< _Tp > Struct Template Reference

One of the comparison functors. Inheritance diagram for std::greater< _Tp >:



Public Types

- typedef _Tp first_argument_type
- typedef bool result_type
- typedef _Tp second_argument_type

Public Member Functions

- bool **operator()** (const _Tp &__x, const _Tp &__y) const

5.474.1 Detailed Description

template<typename _Tp> struct std::greater< _Tp >

One of the comparison functors.

Definition at line 217 of file stl_function.h.

5.474.2 Member Typedef Documentation

5.474.2.1 typedef _Tp std::binary_function< _Tp , _Tp , bool >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.474.2.2 typedef bool std::binary_function< _Tp , _Tp , bool >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.474.2.3 typedef _Tp std::binary_function< _Tp , _Tp , bool >::second_argument_type [inherited]

the type of the second argument

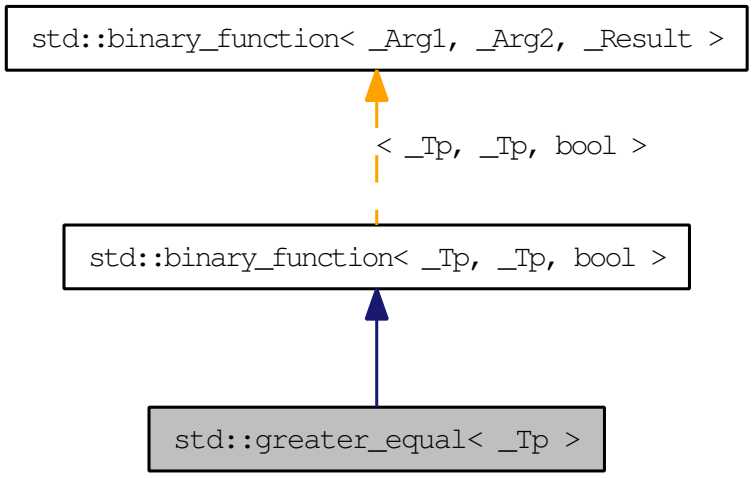
Definition at line 117 of file stl_function.h.

The documentation for this struct was generated from the following file:

- stl_function.h

5.475 std::greater_equal< _Tp > Struct Template Reference

One of the comparison functors. Inheritance diagram for std::greater_equal< _Tp >:



Public Types

- typedef _Tp first_argument_type
- typedef bool result_type
- typedef _Tp second_argument_type

Public Member Functions

- bool **operator()** (const _Tp &__x, const _Tp &__y) const

5.475.1 Detailed Description

template<typename _Tp> struct std::greater_equal< _Tp >

One of the comparison functors.

Definition at line 235 of file stl_function.h.

5.475.2 Member Typedef Documentation

5.475.2.1 typedef _Tp std::binary_function< _Tp , _Tp , bool >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.475.2.2 typedef bool std::binary_function< _Tp , _Tp , bool >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.475.2.3 typedef _Tp std::binary_function< _Tp , _Tp , bool >::second_argument_type [inherited]

the type of the second argument

Definition at line 117 of file stl_function.h.

The documentation for this struct was generated from the following file:

- stl_function.h

5.476 std::gslice Class Reference

Class defining multi-dimensional subset of an array.

Public Member Functions

- gslice (const gslice &)
- gslice (size_t, const valarray< size_t > &, const valarray< size_t > &)
- gslice ()
- ~gslice ()
- gslice & operator= (const gslice &)
- valarray< size_t > size () const
- size_t start () const
- valarray< size_t > stride () const

Friends

- class **valarray**

5.476.1 Detailed Description

Class defining multi-dimensional subset of an array. The slice class represents a multi-dimensional subset of an array, specified by three parameter sets: start offset, size array, and stride array. The start offset is the index of the first element of the array that is part of the subset. The size and stride array describe each dimension of the slice. Size is the number of elements in that dimension, and stride is the distance in the array between successive elements in that dimension. Each dimension's size and stride is taken to begin at an array element described by the previous dimension. The size array and stride array must be the same size.

For example, if you have offset==3, stride[0]==11, size[1]==3, stride[1]==3, then slice[0,0]==array[3], slice[0,1]==array[6], slice[0,2]==array[9], slice[1,0]==array[14], slice[1,1]==array[17], slice[1,2]==array[20].

Definition at line 63 of file gslice.h.

The documentation for this class was generated from the following file:

- gslice.h

5.477 std::gslice_array< _Tp > Class Template Reference

Reference to multi-dimensional subset of an array.

Public Types

- typedef _Tp **value_type**

Public Member Functions

- gslice_array (const gslice_array &)
- template<class _Dom >
  void **operator%=** (const _Expr< _Dom, _Tp > &) const
- void operator%= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator&=** (const _Expr< _Dom, _Tp > &) const
- void operator&= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator*=** (const _Expr< _Dom, _Tp > &) const
- void operator*= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator+=** (const _Expr< _Dom, _Tp > &) const
- void operator+= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator-=** (const _Expr< _Dom, _Tp > &) const
- void operator-= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator/=** (const _Expr< _Dom, _Tp > &) const
- void operator/= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator<<=** (const _Expr< _Dom, _Tp > &) const
- void operator<<= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator=** (const _Expr< _Dom, _Tp > &) const
- void operator= (const _Tp &) const
- void operator= (const valarray< _Tp > &) const
- gslice_array & operator= (const gslice_array &)
- template<class _Dom >
  void **operator>>=** (const _Expr< _Dom, _Tp > &) const
- void operator>>= (const valarray< _Tp > &) const

- template<class _Dom >
  void **operator^=** (const _Expr< _Dom, _Tp > &) const
- void operator^= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator|=** (const _Expr< _Dom, _Tp > &) const
- void operator|= (const valarray< _Tp > &) const

Friends

- class **valarray**< **_Tp** >

5.477.1 Detailed Description

template<typename _Tp> class std::gslice_array< _Tp >

Reference to multi-dimensional subset of an array. A gslice_array is a reference to the actual elements of an array specified by a gslice. The way to get a gslice_array is to call operator[ ](gslice) on a valarray. The returned gslice_array then permits carrying operations out on the referenced subset of elements in the original valarray. For example, operator+=(valarray) will add values to the subset of elements in the underlying valarray this gslice_array refers to.

Parameters:

Tp Element type.

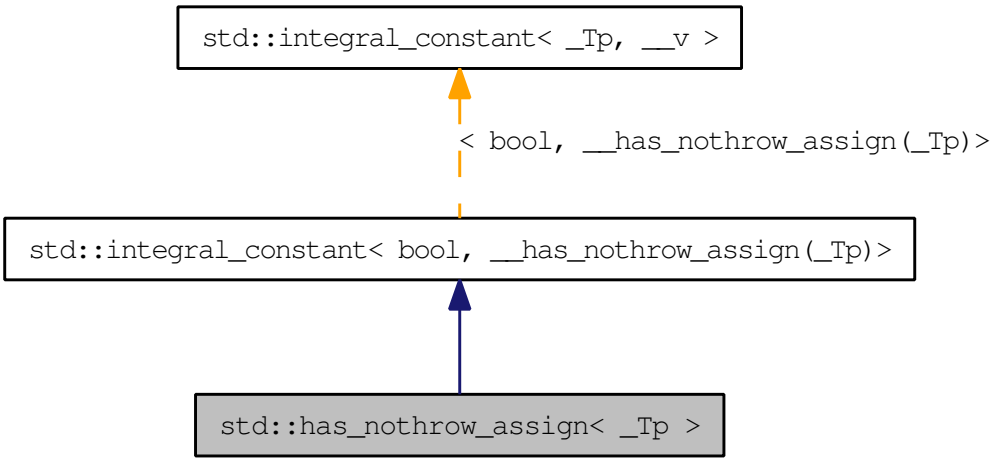
Definition at line 59 of file gslice_array.h.

The documentation for this class was generated from the following file:

- gslice_array.h

5.478 std::has_nothrow_assign< _Tp > Struct Template Reference

has_nothrow_assign Inheritance diagram for std::has_nothrow_assign< _Tp >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.478.1 Detailed Description

template<typename _Tp> struct std::has_nothrow_assign< _Tp >

has_nothrow_assign

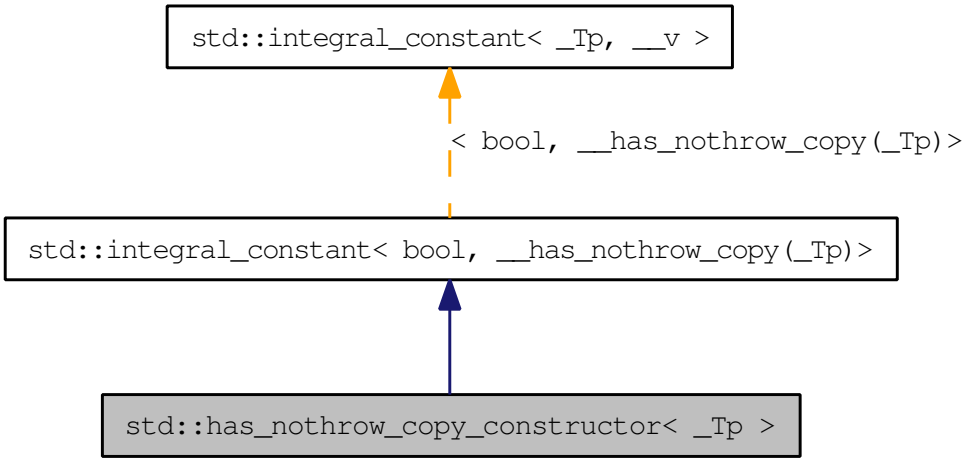
Definition at line 275 of file type_traits.

The documentation for this struct was generated from the following file:

- type_traits

5.479 std::has_nothrow_copy_constructor< _Tp > Struct Template Reference

has_nothrow_copy_constructor Inheritance diagram for std::has_nothrow_copy_-constructor< _Tp >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.479.1 Detailed Description

template<typename _Tp> struct std::has_nothrow_copy_constructor< _Tp >

has_nothrow_copy_constructor

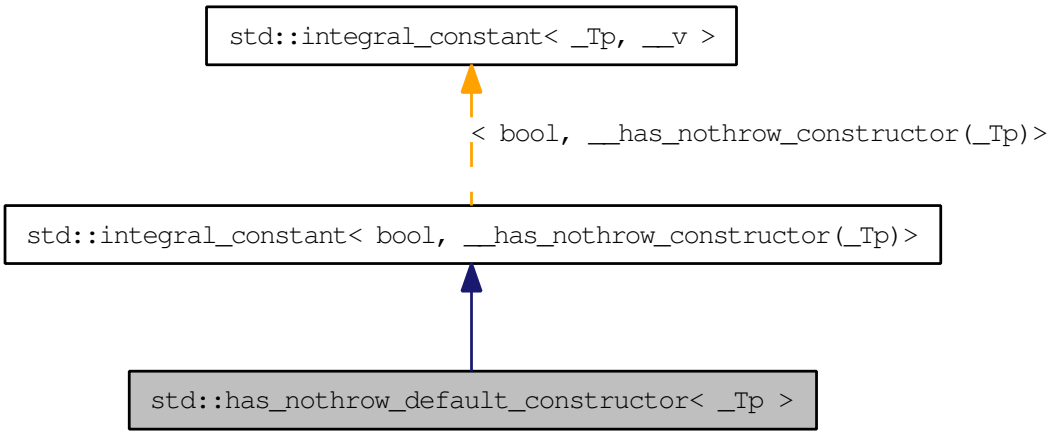
Definition at line 269 of file type_traits.

The documentation for this struct was generated from the following file:

- type_traits

5.480 std::has_nothrow_default_constructor< _Tp > Struct Template Reference

has_nothrow_default_constructor Inheritance diagram for std::has_nothrow_default_-constructor< _Tp >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.480.1 Detailed Description

template<typename _Tp> struct std::has_nothrow_default_constructor< _Tp >

has_nothrow_default_constructor

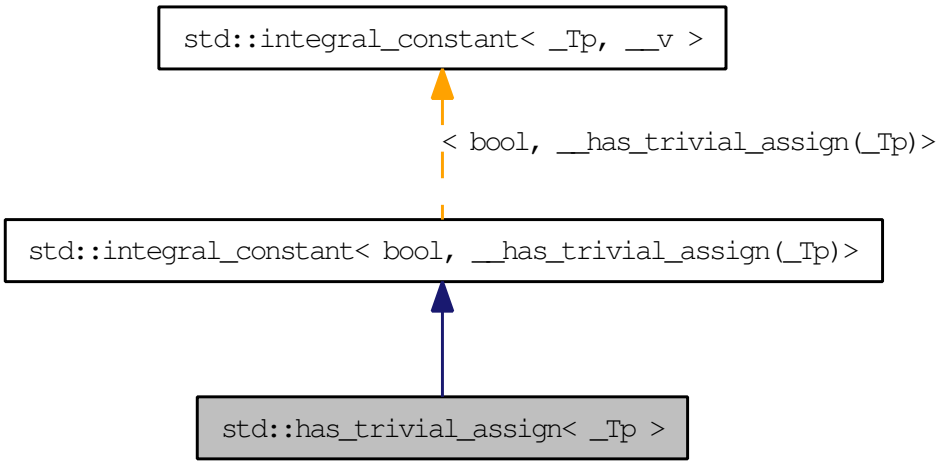
Definition at line 263 of file type_traits.

The documentation for this struct was generated from the following file:

- type_traits

5.481 std::has_trivial_assign< _Tp > Struct Template Reference

has_trivial_assign Inheritance diagram for std::has_trivial_assign< _Tp >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.481.1 Detailed Description

template<typename _Tp> struct std::has_trivial_assign< _Tp >

has_trivial_assign

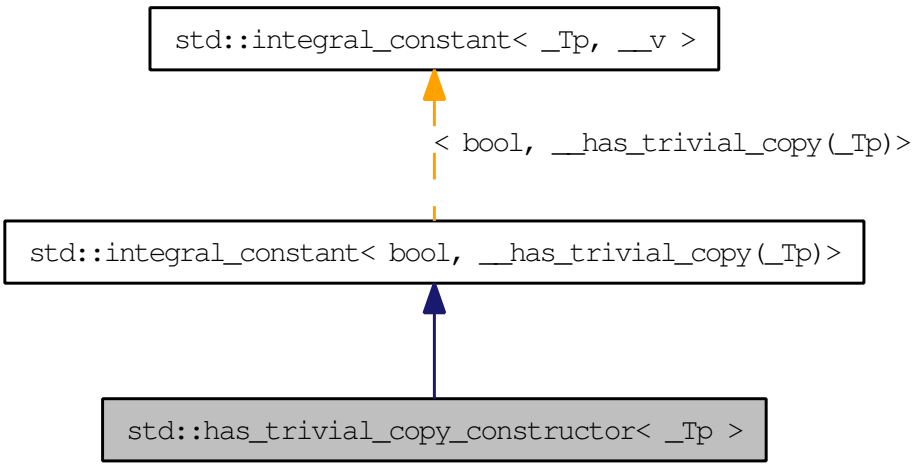
Definition at line 251 of file type_traits.

The documentation for this struct was generated from the following file:

- type_traits

5.482 std::has_trivial_copy_constructor< _Tp > Struct Template Reference

has_trivial_copy_constructor Inheritance diagram for std::has_trivial_copy_-constructor< _Tp >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.482.1 Detailed Description

template<typename _Tp> struct std::has_trivial_copy_constructor< _Tp >

has_trivial_copy_constructor

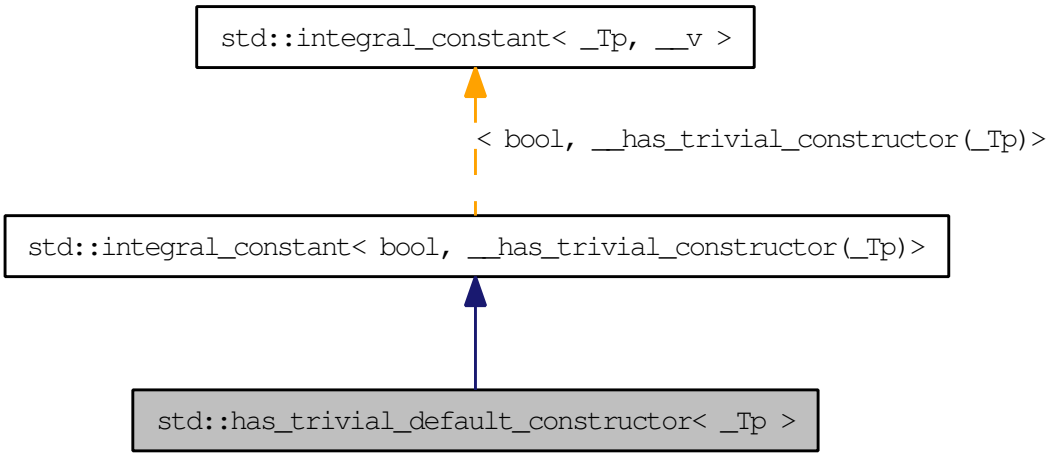
Definition at line 245 of file type_traits.

The documentation for this struct was generated from the following file:

- type_traits

5.483 std::has_trivial_default_constructor< _Tp > Struct Template Reference

has_trivial_default_constructor Inheritance diagram for std::has_trivial_default_constructor< _Tp >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.483.1 Detailed Description

template<typename _Tp> struct std::has_trivial_default_constructor< _Tp >

has_trivial_default_constructor

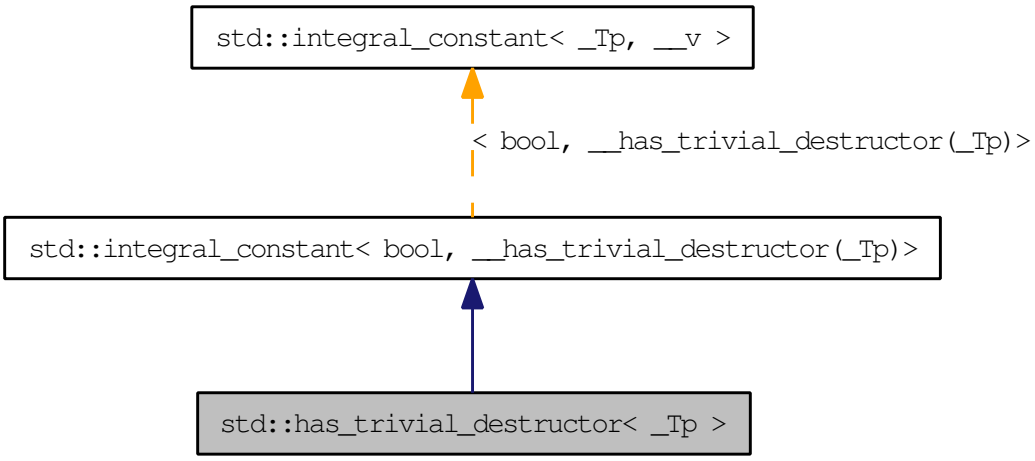
Definition at line 239 of file type_traits.

The documentation for this struct was generated from the following file:

- type_traits

5.484 std::has_trivial_destructor< _Tp > Struct Template Reference

has_trivial_destructor Inheritance diagram for std::has_trivial_destructor< _Tp >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.484.1 Detailed Description

template<typename _Tp> struct std::has_trivial_destructor< _Tp >

has_trivial_destructor

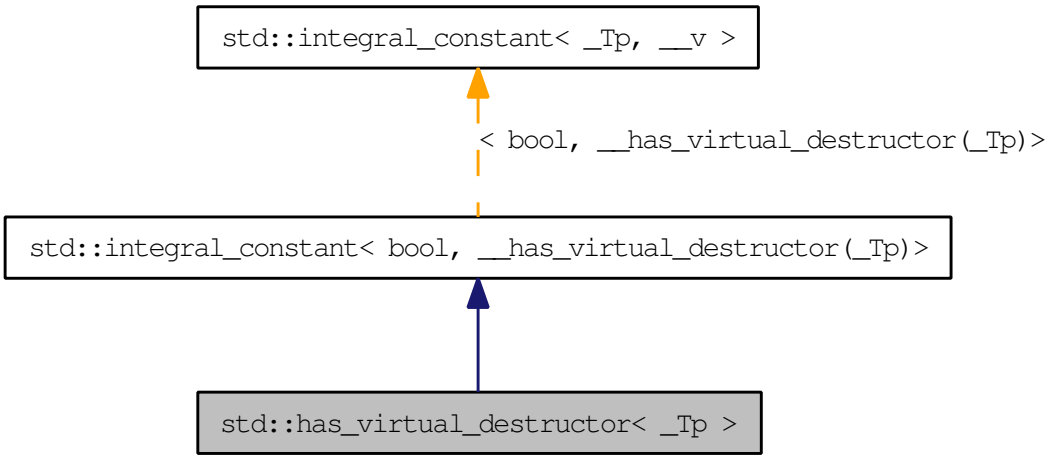
Definition at line 257 of file type_traits.

The documentation for this struct was generated from the following file:

- type_traits

5.485 std::has_virtual_destructor< _Tp > Struct Template Reference

has_virtual_destructor Inheritance diagram for std::has_virtual_destructor< _Tp >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.485.1 Detailed Description

template<typename _Tp> struct std::has_virtual_destructor< _Tp >

has_virtual_destructor

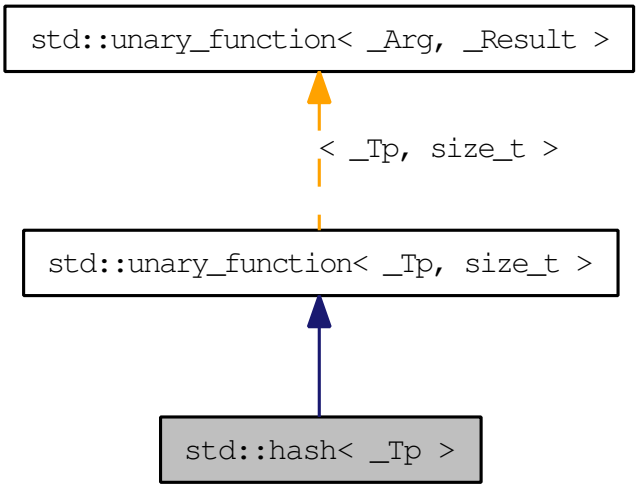
Definition at line 344 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.486 std::hash< _Tp > Struct Template Reference

Primary class template hash. Inheritance diagram for std::hash< _Tp >:



Public Types

- typedef _Tp argument_type
- typedef size_t result_type

Public Member Functions

- template<>
  size_t **operator()** (double __val) const
- template<>
  size_t **operator()** (float __val) const
- template<>
  size_t **operator()** (unsigned long long __val) const
- template<>
  size_t **operator()** (unsigned long __val) const
- template<>
  size_t **operator()** (unsigned int __val) const
- template<>
  size_t **operator()** (unsigned short __val) const
- template<>
  size_t **operator()** (long long __val) const

- template<>
  size_t **operator()** (long __val) const
- template<>
  size_t **operator()** (int __val) const
- template<>
  size_t **operator()** (short __val) const
- template<>
  size_t **operator()** (char32_t __val) const
- template<>
  size_t **operator()** (char16_t __val) const
- template<>
  size_t **operator()** (wchar_t __val) const
- template<>
  size_t **operator()** (unsigned char __val) const
- template<>
  size_t **operator()** (signed char __val) const
- template<>
  size_t **operator()** (char __val) const
- template<>
  size_t **operator()** (bool __val) const
- size_t **operator()** (_Tp __val) const

5.486.1 Detailed Description

template<typename _Tp> struct std::hash< _Tp >

Primary class template hash.

Definition at line 50 of file functional_hash.h.

5.486.2 Member Typedef Documentation

5.486.2.1 typedef _Tp std::unary_function< _Tp , size_t >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.486.2.2 typedef size_t std::unary_function< _Tp , size_t >::result_type [inherited]

`result_type` is the return type

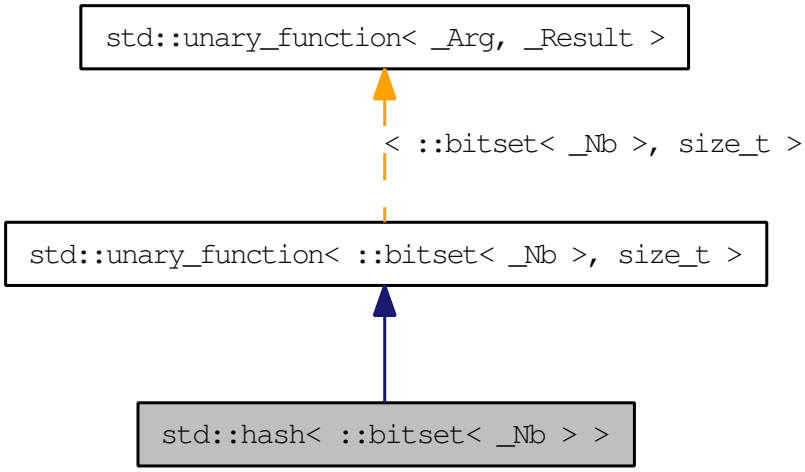
Definition at line 105 of file stl_function.h.

The documentation for this struct was generated from the following file:

- functional_hash.h

5.487 std::hash< ::bitset< _Nb > > Struct Template Reference

std::hash specialization for bitset. Inheritance diagram for std::hash< ::bitset< _Nb > >:



Public Types

- typedef ::bitset< _Nb > argument_type
- typedef size_t result_type

Public Member Functions

- size_t **operator()** (const ::bitset< _Nb > &__b) const

5.487.1 Detailed Description

template<size_t _Nb> struct std::hash< ::bitset< _Nb > >

std::hash specialization for bitset.

Definition at line 1498 of file bitset.

5.487.2 Member Typedef Documentation

5.487.2.1 typedef ::bitset< _Nb > std::unary_function< ::bitset< _Nb > , size_t >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.487.2.2 typedef size_t std::unary_function< ::bitset< _Nb > , size_t >::result_type [inherited]

`result_type` is the return type

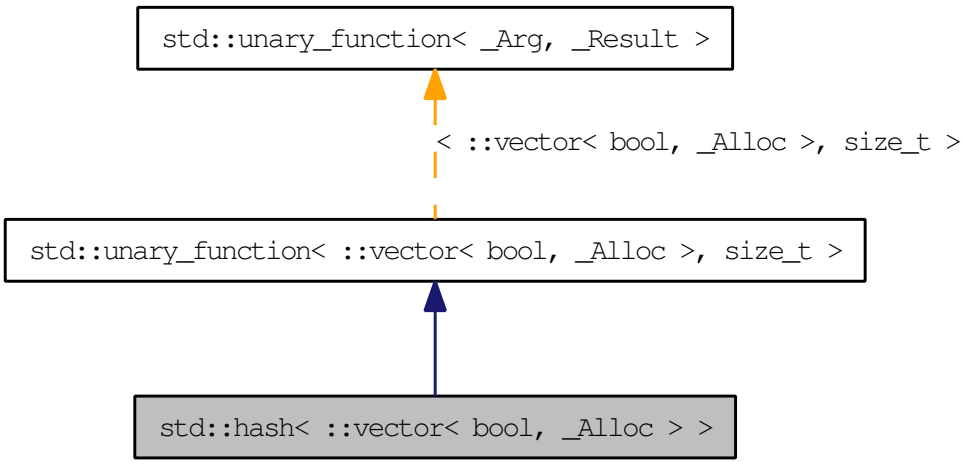
Definition at line 105 of file stl_function.h.

The documentation for this struct was generated from the following file:

- bitset

5.488 std::hash< ::vector< bool, _Alloc > > Struct Template Reference

std::hash specialization for vector<bool>. Inheritance diagram for std::hash< ::vector< bool, _Alloc > >:



Public Types

- typedef ::vector< bool, _Alloc > argument_type
- typedef size_t result_type

Public Member Functions

- size_t **operator()** (const ::vector< bool, _Alloc > &__b) const

5.488.1 Detailed Description

template<typename _Alloc> struct std::hash< ::vector< bool, _Alloc > >

std::hash specialization for vector<bool>.

Definition at line 1040 of file stl_bvector.h.

5.488.2 Member Typedef Documentation

5.488.2.1 typedef ::vector< bool, _Alloc > std::unary_function< ::vector< bool, _Alloc > , size_t >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.488.2.2 typedef size_t std::unary_function< ::vector< bool, _Alloc > , size_t >::result_type [inherited]

`result_type` is the return type

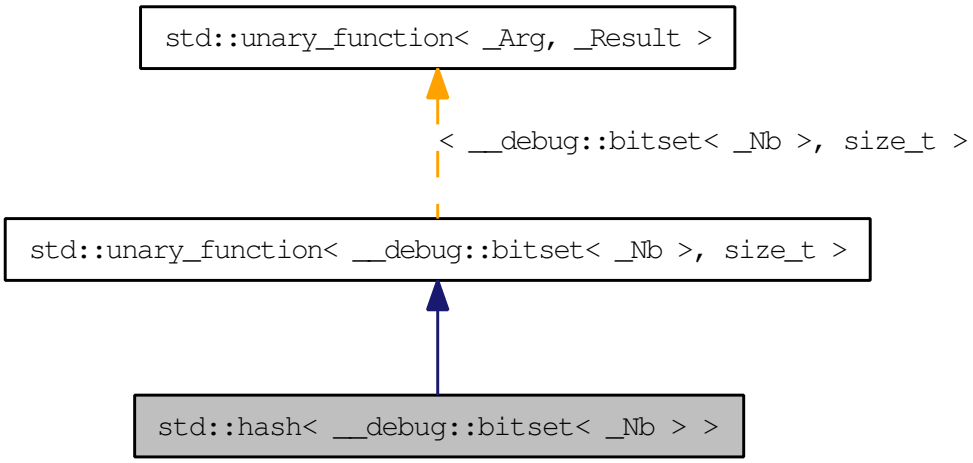
Definition at line 105 of file stl_function.h.

The documentation for this struct was generated from the following file:

- stl_bvector.h

5.489 std::hash< __debug::bitset< _Nb > > Struct Template Reference

std::hash specialization for bitset. Inheritance diagram for std::hash< __debug::bitset< _Nb > >:



Public Types

- typedef __debug::bitset< _Nb > argument_type
- typedef size_t result_type

Public Member Functions

- size_t **operator()** (const __debug::bitset< _Nb > &__b) const

5.489.1 Detailed Description

template<size_t _Nb> struct std::hash< __debug::bitset< _Nb > >

std::hash specialization for bitset.

Definition at line 387 of file debug/bitset.

5.489.2 Member Typedef Documentation

5.489.2.1 typedef __debug::bitset< _Nb > std::unary_function< __debug::bitset< _Nb > , size_t >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.489.2.2 typedef size_t std::unary_function< __debug::bitset< _Nb > , size_t >::result_type [inherited]

`result_type` is the return type

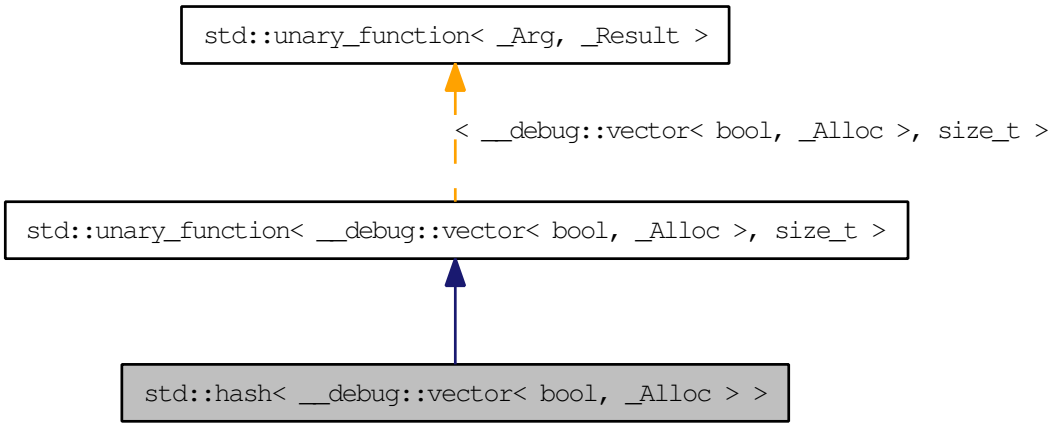
Definition at line 105 of file stl_function.h.

The documentation for this struct was generated from the following file:

- debug/bitset

5.490 std::hash< __debug::vector< bool, _Alloc > > Struct Template Reference

std::hash specialization for vector<bool>. Inheritance diagram for std::hash< __debug::vector< bool, _Alloc > >:



Public Types

- typedef __debug::vector< bool, _Alloc > argument_type
- typedef size_t result_type

Public Member Functions

- size_t **operator()** (const __debug::vector< bool, _Alloc > &__b) const

5.490.1 Detailed Description

template<typename _Alloc> struct std::hash< __debug::vector< bool, _Alloc > >

std::hash specialization for vector<bool>.

Definition at line 544 of file debug/vector.

5.490.2 Member Typedef Documentation

5.490.2.1 typedef __debug::vector< bool, _Alloc > std::unary_function< __debug::vector< bool, _Alloc > , size_t >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.490.2.2 typedef size_t std::unary_function< __debug::vector< bool, _Alloc > , size_t >::result_type [inherited]

`result_type` is the return type

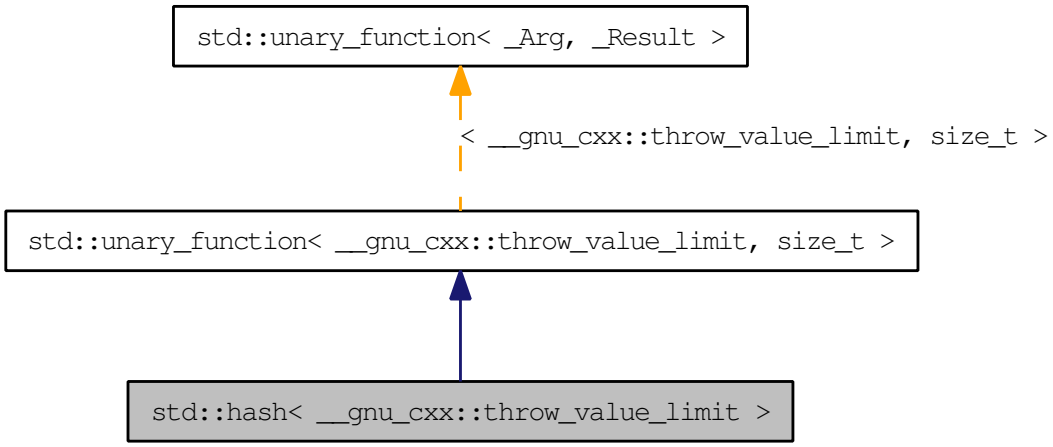
Definition at line 105 of file stl_function.h.

The documentation for this struct was generated from the following file:

- debug/vector

5.491 std::hash< __gnu_cxx::throw_value_limit > Struct Template Reference

Explicit specialization of std::hash for __gnu_cxx::throw_value_limit. Inheritance diagram for std::hash< __gnu_cxx::throw_value_limit >:



Public Types

- typedef __gnu_cxx::throw_value_limit argument_type
- typedef size_t result_type

Public Member Functions

- size_t **operator()** (const __gnu_cxx::throw_value_limit &__val) const

5.491.1 Detailed Description

template<> struct std::hash< __gnu_cxx::throw_value_limit >

Explicit specialization of std::hash for __gnu_cxx::throw_value_limit.

Definition at line 728 of file throw_allocator.h.

5.491.2 Member Typedef Documentation

5.491.2.1 typedef __gnu_cxx::throw_value_limit std::unary_function< __gnu_cxx::throw_value_limit , size_t >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.491.2.2 typedef size_t std::unary_function< __gnu_cxx::throw_value_limit , size_t >::result_type [inherited]

`result_type` is the return type

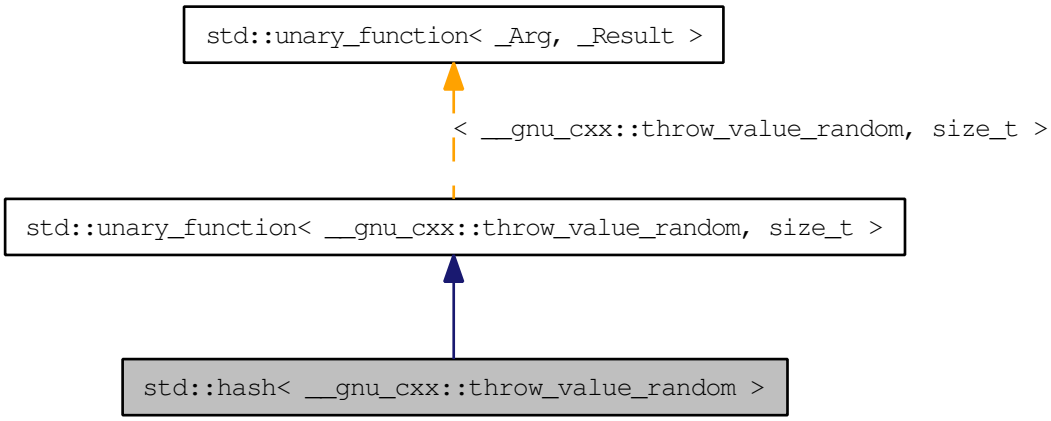
Definition at line 105 of file stl_function.h.

The documentation for this struct was generated from the following file:

- throw_allocator.h

5.492 std::hash< __gnu_cxx::throw_value_random > Struct Template Reference

Explicit specialization of std::hash for __gnu_cxx::throw_value_limit. Inheritance diagram for std::hash< __gnu_cxx::throw_value_random >:



Public Types

- typedef __gnu_cxx::throw_value_random argument_type
- typedef size_t result_type

Public Member Functions

- size_t **operator()** (const __gnu_cxx::throw_value_random &__val) const

5.492.1 Detailed Description

template<> struct std::hash< __gnu_cxx::throw_value_random >

Explicit specialization of std::hash for __gnu_cxx::throw_value_limit.

Definition at line 742 of file throw_allocator.h.

5.492.2 Member Typedef Documentation

5.492.2.1 typedef __gnu_cxx::throw_value_random std::unary_function< __gnu_cxx::throw_value_random , size_t >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.492.2.2 typedef size_t std::unary_function< __gnu_cxx::throw_value_random , size_t >::result_type [inherited]

`result_type` is the return type

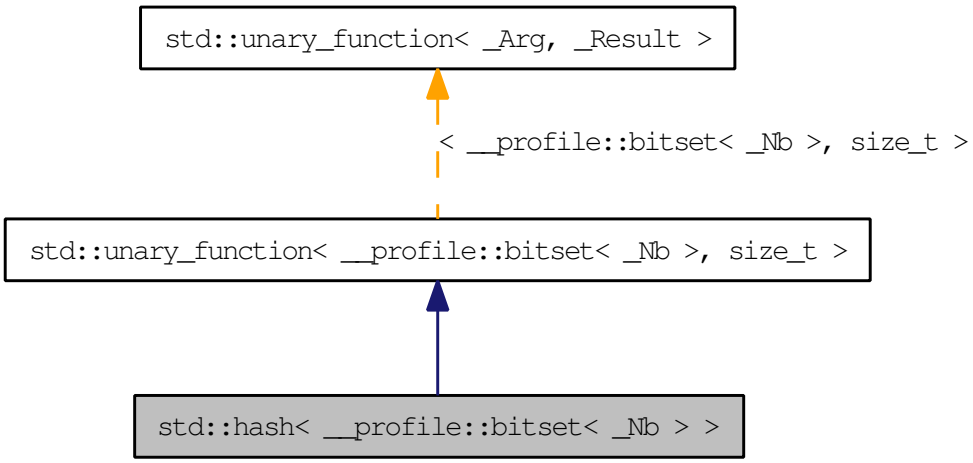
Definition at line 105 of file stl_function.h.

The documentation for this struct was generated from the following file:

- throw_allocator.h

5.493 std::hash< __profile::bitset< _Nb > > Struct Template Reference

std::hash specialization for bitset. Inheritance diagram for std::hash< __profile::bitset< _Nb > >:



Public Types

- typedef __profile::bitset< _Nb > argument_type
- typedef size_t result_type

Public Member Functions

- size_t **operator()** (const __profile::bitset< _Nb > &__b) const

5.493.1 Detailed Description

template<size_t _Nb> struct std::hash< __profile::bitset< _Nb > >

std::hash specialization for bitset.

Definition at line 361 of file profile/bitset.

5.493.2 Member Typedef Documentation

5.493.2.1 typedef __profile::bitset< _Nb > std::unary_function< __profile::bitset< _Nb > , size_t >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.493.2.2 typedef size_t std::unary_function< __profile::bitset< _Nb > , size_t >::result_type [inherited]

`result_type` is the return type

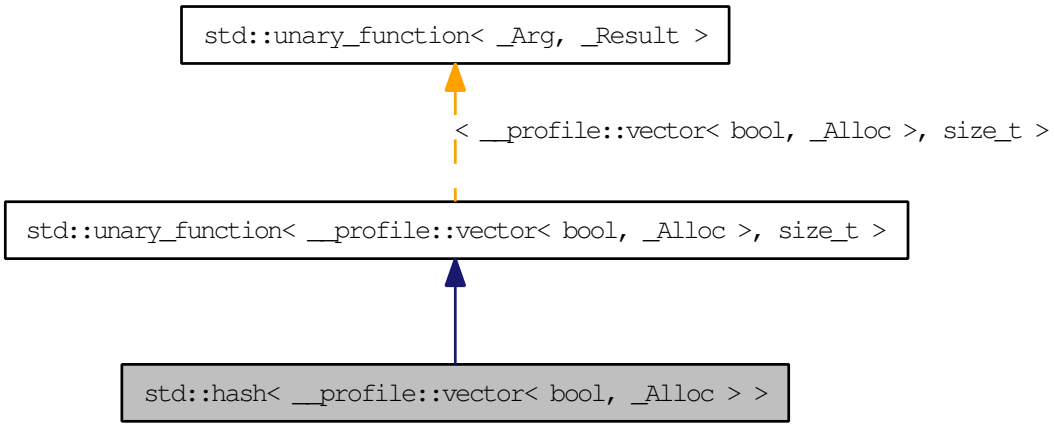
Definition at line 105 of file stl_function.h.

The documentation for this struct was generated from the following file:

- profile/bitset

5.494 std::hash< __profile::vector< bool, _Alloc > > Struct Template Reference

std::hash specialization for vector<bool>. Inheritance diagram for std::hash< __profile::vector< bool, _Alloc > >:



Public Types

- typedef __profile::vector< bool, _Alloc > argument_type
- typedef size_t result_type

Public Member Functions

- size_t **operator()** (const __profile::vector< bool, _Alloc > &__b) const

5.494.1 Detailed Description

template<typename _Alloc> struct std::hash< __profile::vector< bool, _Alloc > >

std::hash specialization for vector<bool>.

Definition at line 469 of file profile/vector.

5.494.2 Member Typedef Documentation

5.494.2.1 typedef __profile::vector< bool, _Alloc > std::unary_function< __profile::vector< bool, _Alloc > , size_t >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.494.2.2 typedef size_t std::unary_function< __profile::vector< bool, _Alloc > , size_t >::result_type [inherited]

`result_type` is the return type

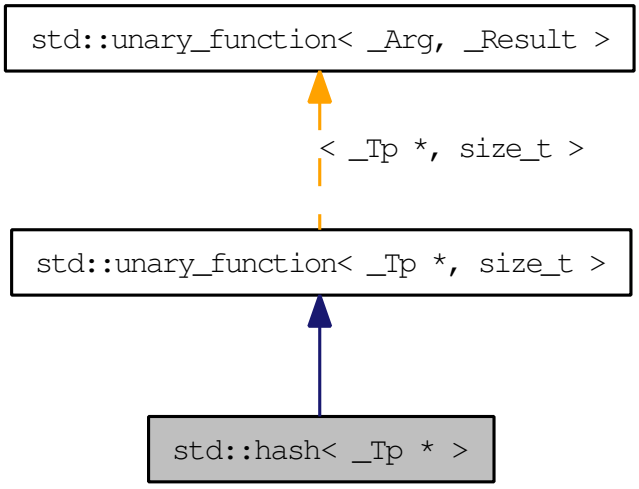
Definition at line 105 of file stl_function.h.

The documentation for this struct was generated from the following file:

- profile/vector

5.495 std::hash< _Tp * > Struct Template Reference

Partial specializations for pointer types. Inheritance diagram for std::hash< _Tp * >:



Public Types

- typedef _Tp * argument_type
- typedef size_t result_type

Public Member Functions

- size_t **operator()** (_Tp *__p) const

5.495.1 Detailed Description

template<typename _Tp> struct std::hash< _Tp * >

Partial specializations for pointer types.

Definition at line 58 of file functional_hash.h.

5.495.2 Member Typedef Documentation

5.495.2.1 typedef _Tp * std::unary_function< _Tp * , size_t >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.495.2.2 typedef size_t std::unary_function< _Tp * , size_t >::result_type [inherited]

`result_type` is the return type

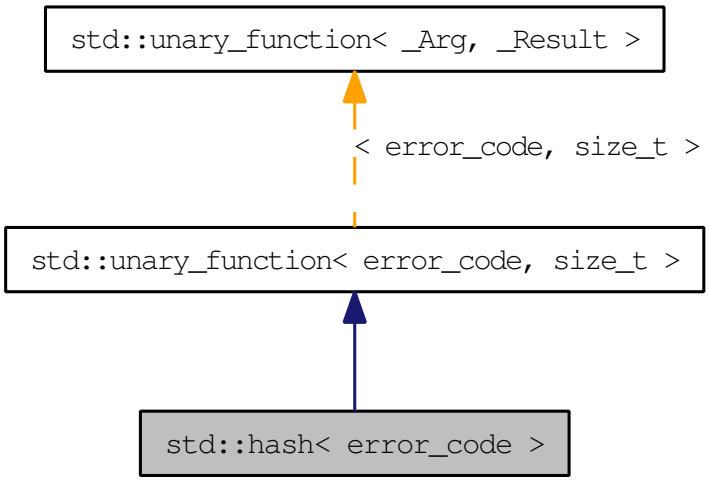
Definition at line 105 of file stl_function.h.

The documentation for this struct was generated from the following file:

- functional_hash.h

5.496 std::hash< error_code > Struct Template Reference

std::hash specialization for error_code. Inheritance diagram for std::hash< error_code >:



Public Types

- typedef error_code argument_type
- typedef size_t result_type

Public Member Functions

- size_t **operator()** (const error_code &__e) const

5.496.1 Detailed Description

template<> struct std::hash< error_code >

std::hash specialization for error_code.

Definition at line 352 of file system_error.

5.496.2 Member Typedef Documentation

5.496.2.1 typedef error_code std::unary_function< error_code , size_t >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.496.2.2 typedef size_t std::unary_function< error_code , size_t >::result_type [inherited]

`result_type` is the return type

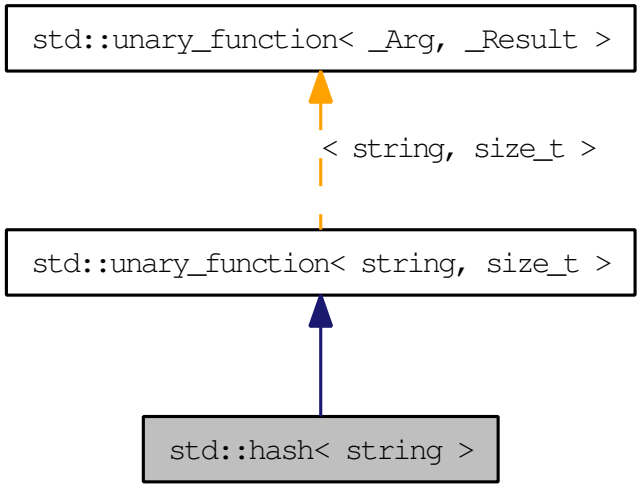
Definition at line 105 of file stl_function.h.

The documentation for this struct was generated from the following file:

- system_error

5.497 std::hash< string > Struct Template Reference

std::hash specialization for string. Inheritance diagram for std::hash< string >:



Public Types

- typedef string argument_type
- typedef size_t result_type

Public Member Functions

- size_t **operator()** (const string &__s) const

5.497.1 Detailed Description

template<> struct std::hash< string >

std::hash specialization for string.

Definition at line 2885 of file basic_string.h.

5.497.2 Member Typedef Documentation

5.497.2.1 typedef string std::unary_function< string , size_t >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.497.2.2 typedef size_t std::unary_function< string , size_t >::result_type [inherited]

`result_type` is the return type

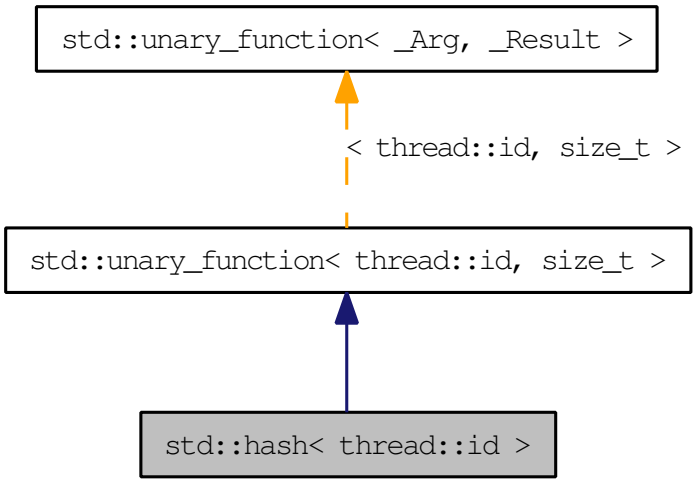
Definition at line 105 of file stl_function.h.

The documentation for this struct was generated from the following file:

- basic_string.h

5.498 std::hash< thread::id > Struct Template Reference

std::hash specialization for thread::id. Inheritance diagram for std::hash< thread::id >:



Public Types

- typedef thread::id argument_type
- typedef size_t result_type

Public Member Functions

- size_t **operator()** (const thread::id &__id) const

5.498.1 Detailed Description

template<> struct std::hash< thread::id >

std::hash specialization for thread::id.

Definition at line 226 of file thread.

5.498.2 Member Typedef Documentation

5.498.2.1 typedef thread::id std::unary_function< thread::id , size_t >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.498.2.2 typedef size_t std::unary_function< thread::id , size_t >::result_type [inherited]

`result_type` is the return type

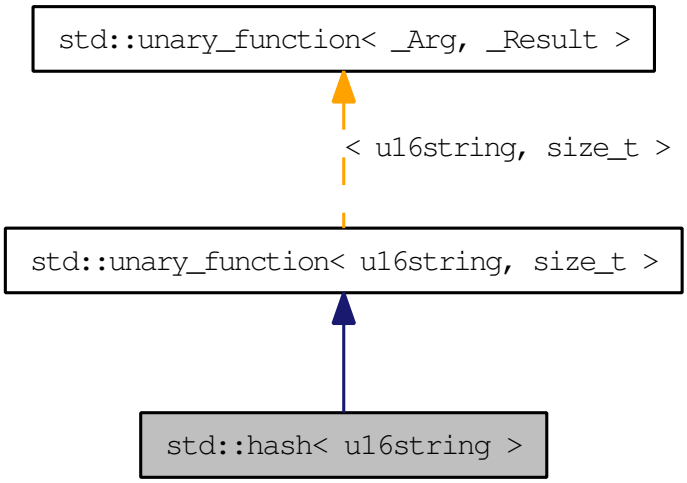
Definition at line 105 of file stl_function.h.

The documentation for this struct was generated from the following file:

- thread

5.499 std::hash< u16string > Struct Template Reference

std::hash specialization for u16string. Inheritance diagram for std::hash< u16string >:



Public Types

- typedef u16string argument_type
- typedef size_t result_type

Public Member Functions

- size_t **operator()** (const u16string &__s) const

5.499.1 Detailed Description

template<> struct std::hash< u16string >

std::hash specialization for u16string.

Definition at line 2910 of file basic_string.h.

5.499.2 Member Typedef Documentation

5.499.2.1 typedef u16string std::unary_function< u16string , size_t >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.499.2.2 typedef size_t std::unary_function< u16string , size_t >::result_type [inherited]

`result_type` is the return type

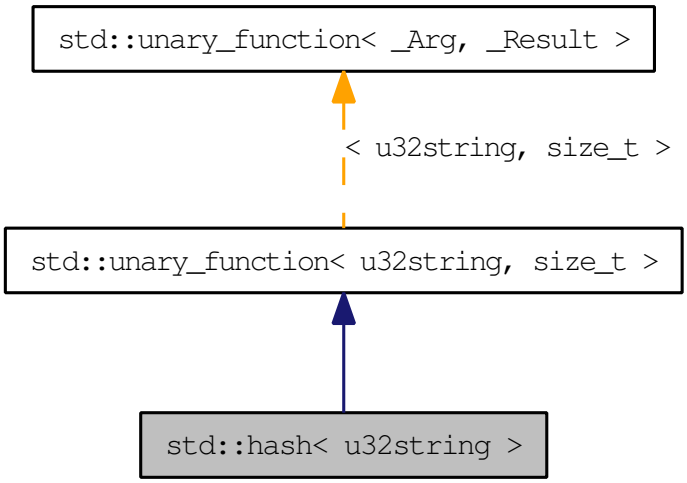
Definition at line 105 of file stl_function.h.

The documentation for this struct was generated from the following file:

- basic_string.h

5.500 std::hash< u32string > Struct Template Reference

std::hash specialization for u32string. Inheritance diagram for std::hash< u32string >:



Public Types

- typedef u32string argument_type
- typedef size_t result_type

Public Member Functions

- size_t **operator()** (const u32string &__s) const

5.500.1 Detailed Description

template<> struct std::hash< u32string >

std::hash specialization for u32string.

Definition at line 2921 of file basic_string.h.

5.500.2 Member Typedef Documentation

5.500.2.1 typedef u32string std::unary_function< u32string , size_t >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.500.2.2 typedef size_t std::unary_function< u32string , size_t >::result_type [inherited]

`result_type` is the return type

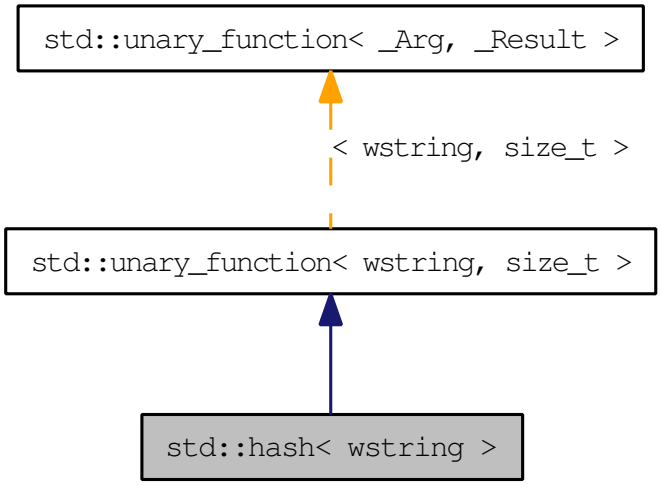
Definition at line 105 of file stl_function.h.

The documentation for this struct was generated from the following file:

- basic_string.h

5.501 std::hash< wstring > Struct Template Reference

std::hash specialization for wstring. Inheritance diagram for std::hash< wstring >:



Public Types

- typedef wstring argument_type
- typedef size_t result_type

Public Member Functions

- size_t **operator()** (const wstring &__s) const

5.501.1 Detailed Description

template<> struct std::hash< wstring >

std::hash specialization for wstring.

Definition at line 2896 of file basic_string.h.

5.501.2 Member Typedef Documentation

5.501.2.1 typedef wstring std::unary_function< wstring , size_t >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.501.2.2 typedef size_t std::unary_function< wstring , size_t >::result_type [inherited]

`result_type` is the return type

Definition at line 105 of file stl_function.h.

The documentation for this struct was generated from the following file:

- basic_string.h

5.502 std::identity< _Tp > Struct Template Reference

identity

Public Types

- typedef _Tp **type**

5.502.1 Detailed Description

template<typename _Tp> struct std::identity< _Tp >

identity

Definition at line 44 of file move.h.

The documentation for this struct was generated from the following file:

- move.h

5.503 std::independent_bits_engine< _RandomNumberEngine, __w, _UIntType > Class Template Reference

Public Types

- typedef _UIntType result_type

Public Member Functions

- template<typename _Sseq , typename = typename std::enable_if<!std::is_same<_Sseq, independent_bits_engine>::value && !std::is_same<_Sseq, _RandomNumberEngine>::value> ::type>
  independent_bits_engine (_Sseq &__q)
- independent_bits_engine (result_type __s)
- independent_bits_engine (_RandomNumberEngine &&__rne)
- independent_bits_engine (const _RandomNumberEngine &__rne)
- independent_bits_engine ()
- const _RandomNumberEngine & base () const
- void discard (unsigned long long __z)
- result_type max () const
- result_type min () const
- result_type operator() ()
- template<typename _Sseq >
  void seed (_Sseq &__q)
- void seed (result_type __s)
- void seed ()

Friends

- bool operator== (const independent_bits_engine &__lhs, const independent_bits_engine &__rhs)
- template<typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & operator>> (std::basic_istream< _CharT, _Traits > &__is, std::independent_bits_engine< _RandomNumberEngine, __w, _UIntType > &__x)

5.503.1 Detailed Description

template<typename _RandomNumberEngine, size_t __w, typename _UIntType> class std::independent_bits_engine< _RandomNumberEngine, __w, _UIntType >

Produces random numbers by combining random numbers from some base engine to produce random numbers with a specifies number of bits __w.

Definition at line 921 of file random.h.

5.503.2 Member Typedef Documentation

5.503.2.1 template<typename _RandomNumberEngine, size_t __w, typename _UIntType> typedef _UIntType std::independent_bits_engine< _RandomNumberEngine, __w, _UIntType >::result_type

The type of the generated random value.

Definition at line 930 of file random.h.

5.503.3 Constructor & Destructor Documentation

5.503.3.1 template<typename _RandomNumberEngine, size_t __w, typename _UIntType> std::independent_bits_engine< _RandomNumberEngine, __w, _UIntType >::independent_bits_engine () [inline]

Constructs a default independent_bits_engine engine. The underlying engine is default constructed as well.

Definition at line 937 of file random.h.

5.503.3.2 template<typename _RandomNumberEngine, size_t __w, typename _UIntType> std::independent_bits_engine< _RandomNumberEngine, __w, _UIntType >::independent_bits_engine (const _RandomNumberEngine & *__rne*) [inline, explicit]

Copy constructs a independent_bits_engine engine. Copies an existing base class random number generator.

Parameters:

rng An existing (base class) engine object.

Definition at line 947 of file random.h.

5.503.3.3 template<typename _RandomNumberEngine, size_t __w, typename _UIntType> std::independent_bits_engine< _RandomNumberEngine, __w, _UIntType >::independent_bits_engine (_RandomNumberEngine && *__rne*) [inline, explicit]

Move constructs a independent_bits_engine engine. Copies an existing base class random number generator.

Parameters:

rng An existing (base class) engine object.

Definition at line 957 of file random.h.

5.503.3.4 template<typename _RandomNumberEngine, size_t __w, typename _UIntType> std::independent_bits_engine< _RandomNumberEngine, __w, _UIntType >::independent_bits_engine (result_type *__s*) [inline, explicit]

Seed constructs a independent_bits_engine engine. Constructs the underlying generator engine seeded with __s.

Parameters:

__s A seed value for the base class engine.

Definition at line 967 of file random.h.

5.503.3.5 template<typename _RandomNumberEngine, size_t __w, typename _UIntType> template<typename _Sseq , typename = typename std::enable_if<!std::is_same<_Sseq, independent_bits_engine>::value && !std::is_same<_Sseq, _RandomNumberEngine>::value> ::type> std::independent_bits_engine< _RandomNumberEngine, __w, _UIntType >::independent_bits_engine (_Sseq & *__q*) [inline, explicit]

Generator construct a independent_bits_engine engine.

Parameters:

__q A seed sequence.

Definition at line 980 of file random.h.

5.503.4 Member Function Documentation

5.503.4.1 template<typename _RandomNumberEngine, size_t __w, typename _UIntType> const _RandomNumberEngine& std::independent_bits_engine< _RandomNumberEngine, __w, _UIntType >::base () const [inline]

Gets a const reference to the underlying generator engine object.

Definition at line 1015 of file random.h.

5.503.4.2 template<typename _RandomNumberEngine, size_t __w, typename _UIntType> void std::independent_bits_engine< _RandomNumberEngine, __w, _UIntType >::discard (unsigned long long __z) [inline]

Discard a sequence of random numbers.

Todo

Look for a faster way to do discard.

Definition at line 1042 of file random.h.

5.503.4.3 template<typename _RandomNumberEngine, size_t __w, typename _UIntType> result_type std::independent_bits_engine< _RandomNumberEngine, __w, _UIntType >::max () const [inline]

Gets the maximum value in the generated random number range.

Todo

This should be constexpr.

Definition at line 1033 of file random.h.

5.503.4.4 template<typename _RandomNumberEngine, size_t __w, typename _UIntType> result_type std::independent_bits_engine< _RandomNumberEngine, __w, _UIntType >::min () const [inline]

Gets the minimum value in the generated random number range.

Todo

This should be constexpr.

Definition at line 1024 of file random.h.

5.503.4.5 template<typename _RandomNumberEngine , size_t __w, typename _UIntType > independent_bits_engine< _RandomNumberEngine, __w, _UIntType >::result_type std::independent_bits_engine< _RandomNumberEngine, __w, _UIntType >::operator() () [inline]

Gets the next value in the generated random number sequence.

Definition at line 709 of file random.tcc.

References std::log().

5.503.4.6 template<typename _RandomNumberEngine, size_t __w, typename _UIntType> template<typename _Sseq > void std::independent_bits_engine< _RandomNumberEngine, __w, _UIntType >::seed (_Sseq & *__q*) [inline]

Reseeds the independent_bits_engine object with the given seed sequence.

Parameters:

__q A seed generator function.

Definition at line 1007 of file random.h.

5.503.4.7 template<typename _RandomNumberEngine, size_t __w, typename _UIntType> void std::independent_bits_engine< _RandomNumberEngine, __w, _UIntType >::seed (result_type *__s*) [inline]

Reseeds the independent_bits_engine object with the default seed for the underlying base class generator engine.

Definition at line 997 of file random.h.

5.503.4.8 template<typename _RandomNumberEngine, size_t __w, typename _UIntType> void std::independent_bits_engine< _RandomNumberEngine, __w, _UIntType >::seed () [inline]

Reseeds the independent_bits_engine object with the default seed for the underlying base class generator engine.

Definition at line 989 of file random.h.

5.503.5 Friends And Related Function Documentation

5.503.5.1 template<typename _RandomNumberEngine, size_t __w, typename _UIntType> bool operator== (const independent_bits_engine< _RandomNumberEngine, __w, _UIntType > & *__lhs*, const independent_bits_engine< _RandomNumberEngine, __w, _UIntType > & *__rhs*) [friend]

Compares two independent_bits_engine random number generator objects of the same type for equality.

Parameters:

__lhs A independent_bits_engine random number generator object.

__rhs Another independent_bits_engine random number generator object.

Returns:

true if the two objects are equal, false otherwise.

Definition at line 1066 of file random.h.

5.503.5.2 template<typename _RandomNumberEngine, size_t __w, typename _UIntType> template<typename _CharT , typename _Traits > std::basic_istream<_CharT, _Traits>& operator>> (std::basic_istream< _CharT, _Traits > & *__is*, std::independent_bits_engine< _RandomNumberEngine, __w, _UIntType > & *__x*) [friend]

Extracts the current state of a % subtract_with_carry_engine random number generator engine `__x` from the input stream `__is`.

Parameters:

__is An input stream.

__x A independent_bits_engine random number generator engine.

Returns:

The input stream with the state of `__x` extracted or in an error state.

Definition at line 1084 of file random.h.

The documentation for this class was generated from the following files:

- random.h
- random.tcc

5.504 std::indirect_array< _Tp > Class Template Reference

Reference to arbitrary subset of an array.

Public Types

- typedef _Tp **value_type**

Public Member Functions

- indirect_array (const indirect_array &)
- template<class _Dom >
  void **operator%=** (const _Expr< _Dom, _Tp > &) const
- void operator%= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator&=** (const _Expr< _Dom, _Tp > &) const
- void operator&= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator*=** (const _Expr< _Dom, _Tp > &) const
- void operator*= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator+=** (const _Expr< _Dom, _Tp > &) const
- void operator+= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator-=** (const _Expr< _Dom, _Tp > &) const
- void operator-= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator/=** (const _Expr< _Dom, _Tp > &) const
- void operator/= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator<<=** (const _Expr< _Dom, _Tp > &) const
- void operator<<= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator=** (const _Expr< _Dom, _Tp > &) const
- void operator= (const _Tp &) const
- void operator= (const valarray< _Tp > &) const
- indirect_array & operator= (const indirect_array &)
- template<class _Dom >
  void **operator>>=** (const _Expr< _Dom, _Tp > &) const
- void operator>>= (const valarray< _Tp > &) const

- template<class _Dom >
  void **operator^=** (const _Expr< _Dom, _Tp > &) const
- void operator^= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator|=** (const _Expr< _Dom, _Tp > &) const
- void operator|= (const valarray< _Tp > &) const

Friends

- class **gslice_array**< **_Tp** >
- class **valarray**< **_Tp** >

5.504.1 Detailed Description

template<class _Tp> class std::indirect_array< _Tp >

Reference to arbitrary subset of an array. An indirect_array is a reference to the actual elements of an array specified by an ordered array of indices. The way to get an indirect_array is to call operator[ ](valarray<size_t>) on a valarray. The returned indirect_array then permits carrying operations out on the referenced subset of elements in the original valarray.

For example, if an indirect_array is obtained using the array (4,2,0) as an argument, and then assigned to an array containing (1,2,3), then the underlying array will have array[0]==3, array[2]==2, and array[4]==1.

Parameters:

Tp Element type.

Definition at line 61 of file indirect_array.h.

The documentation for this class was generated from the following file:

- indirect_array.h

5.505 std::initializer_list< _E > Class Template Reference

initializer_list

Public Types

- typedef const _E * **const_iterator**
- typedef const _E & **const_reference**
- typedef const _E * **iterator**
- typedef const _E & **reference**
- typedef size_t **size_type**
- typedef _E **value_type**

Public Member Functions

- const_iterator **begin** () const
- const_iterator **end** () const
- size_type **size** () const

5.505.1 Detailed Description

template<class _E> class std::initializer_list< _E >

initializer_list

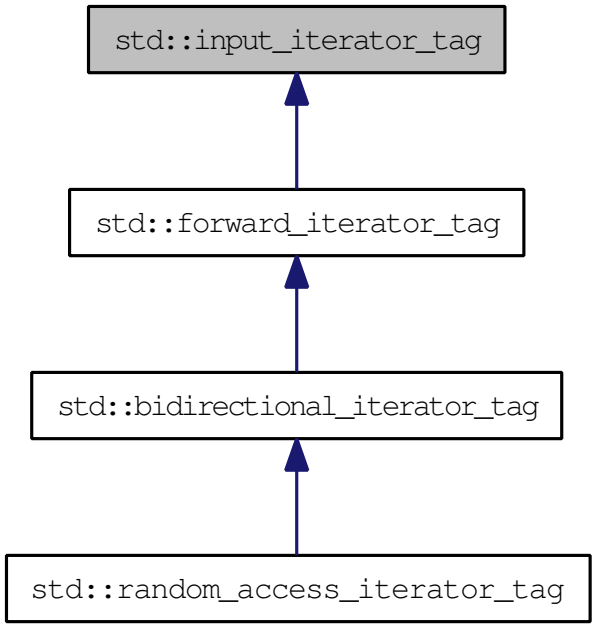
Definition at line 45 of file initializer_list.

The documentation for this class was generated from the following file:

- initializer_list

5.506 std::input_iterator_tag Struct Reference

Marking input iterators. Inheritance diagram for std::input_iterator_tag:



5.506.1 Detailed Description

Marking input iterators.

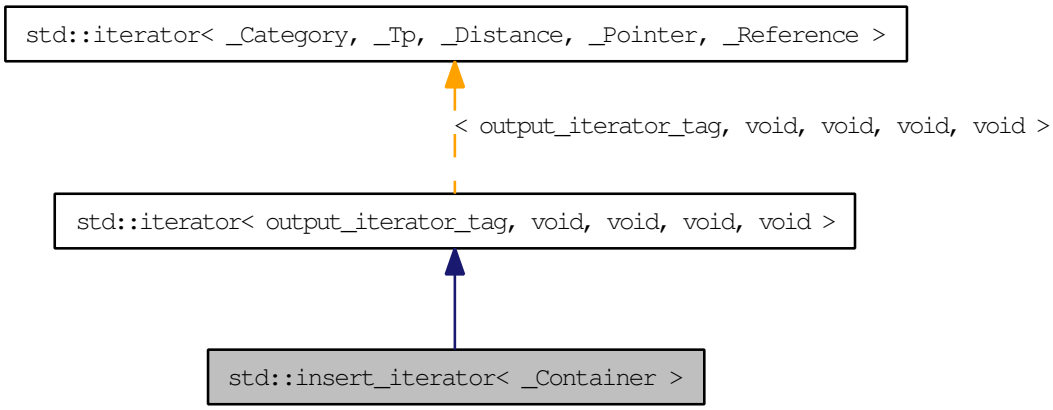
Definition at line 79 of file stl_iterator_base_types.h.

The documentation for this struct was generated from the following file:

- stl_iterator_base_types.h

5.507 std::insert_iterator< _Container > Class Template Reference

Turns assignment into insertion. Inheritance diagram for std::insert_iterator< _Container >:



Public Types

- typedef _Container container_type
- typedef void difference_type
- typedef output_iterator_tag iterator_category
- typedef void pointer
- typedef void reference
- typedef void value_type

Public Member Functions

- insert_iterator (_Container &__x, typename _Container::iterator __i)
- insert_iterator & operator* ()
- insert_iterator & operator++ (int)
- insert_iterator & operator++ ()
- insert_iterator & **operator=** (typename _Container::value_type &&__value)
- insert_iterator & operator= (typename _Container::const_reference __value)

Protected Attributes

- _Container * **container**
- _Container::iterator **iter**

5.507.1 Detailed Description

template<typename _Container> class std::insert_iterator< _Container >

Turns assignment into insertion. These are output iterators, constructed from a container-of-T. Assigning a T to the iterator inserts it in the container at the iterator's position, rather than overwriting the value at that position.

(Sequences will actually insert a *copy* of the value before the iterator's position.)

Tip: Using the inserter function to create these iterators can save typing.

Definition at line 565 of file stl_iterator.h.

5.507.2 Member Typedef Documentation

5.507.2.1 template<typename _Container> typedef _Container std::insert_iterator< _Container >::container_type

A nested typedef for the type of whatever container you used.

Definition at line 574 of file stl_iterator.h.

5.507.2.2 typedef void std::iterator< output_iterator_tag , void , void , void , void >::difference_type [inherited]

Distance between iterators is represented as this type.

Definition at line 115 of file stl_iterator_base_types.h.

5.507.2.3 typedef output_iterator_tag std::iterator< output_iterator_tag , void , void , void , void >::iterator_category [inherited]

One of the tag types.

Definition at line 111 of file stl_iterator_base_types.h.

5.507.2.4 typedef void std::iterator< output_iterator_tag , void , void , void , void >::pointer [inherited]

This type represents a pointer-to-value_type.

Definition at line 117 of file stl_iterator_base_types.h.

5.507.2.5 typedef void std::iterator< output_iterator_tag , void , void , void , void >::reference [inherited]

This type represents a reference-to-value_type.

Definition at line 119 of file stl_iterator_base_types.h.

5.507.2.6 typedef void std::iterator< output_iterator_tag , void , void , void , void >::value_type [inherited]

The type "pointed to" by the iterator.

Definition at line 113 of file stl_iterator_base_types.h.

5.507.3 Constructor & Destructor Documentation

5.507.3.1 template<typename _Container> std::insert_iterator< _Container >::insert_iterator (_Container & __x, typename _Container::iterator __i) [inline]

The only way to create this iterator is with a container and an initial position (a normal iterator into the container).

Definition at line 580 of file stl_iterator.h.

5.507.4 Member Function Documentation

5.507.4.1 template<typename _Container> insert_iterator& std::insert_iterator< _Container >::operator* () [inline]

Simply returns *this.

Definition at line 626 of file stl_iterator.h.

5.507.4.2 template<typename _Container> insert_iterator& std::insert_iterator< _Container >::operator++ (int) [inline]

Simply returns *this. (This iterator does not *move*.).

Definition at line 636 of file stl_iterator.h.

5.507.4.3 template<typename _Container> insert_iterator& std::insert_iterator< _Container >::operator++ () [inline]

Simply returns *this. (This iterator does not *move*.).

Definition at line 631 of file stl_iterator.h.

5.507.4.4 template<typename _Container> insert_iterator& std::insert_iterator< _Container >::operator= (typename _Container::const_reference __value) [inline]

Parameters:

value An instance of whatever type container_type::const_reference is; presumably a reference-to-const T for container<T>.

Returns:

This iterator, for chained operations.

This kind of iterator maintains its own position in the container. Assigning a value to the iterator will insert the value into the container at the place before the iterator.

The position is maintained such that subsequent assignments will insert values immediately after one another. For example,

```
// vector v contains A and Z

insert_iterator i (v, ++v.begin());
i = 1;
i = 2;
i = 3;

// vector v contains A, 1, 2, 3, and Z
```

Definition at line 607 of file stl_iterator.h.

The documentation for this class was generated from the following file:

- stl_iterator.h

5.508 std::integral_constant< _Tp, __v > Struct Template Reference

integral_constant

Inherited by std::__is_integral_helper< typename >, std::__is_member_object_pointer_helper< typename >, std::__is_signed_helper< _Tp, bool, bool >, std::__is_void_helper< typename >, std::is_bind_expression< _Bind< _Signature > >, std::is_bind_expression< _Bind_result< _Result, _Signature > >, std::is_const< typename >, std::is_const< _Tp const >, std::is_error_code_enum< _Tp >, std::is_error_code_enum< future_errc >, std::is_error_condition_enum< errc >, std::is_function< typename >, std::is_function< _Res(_ArgTypes...) const volatile >, std::is_function< _Res(_ArgTypes...)>, std::is_function< _Res(_ArgTypes.....) const >, std::is_function< _Res(_ArgTypes.....) volatile >, std::is_rvalue_reference< typename >, and std::is_rvalue_reference< _Tp && >.

Public Types

- typedef integral_constant< _Tp, __v > **type**
- typedef _Tp **value_type**

Static Public Attributes

- static const _Tp **value**

5.508.1 Detailed Description

template<typename _Tp, _Tp __v> struct std::integral_constant< _Tp, __v >

integral_constant

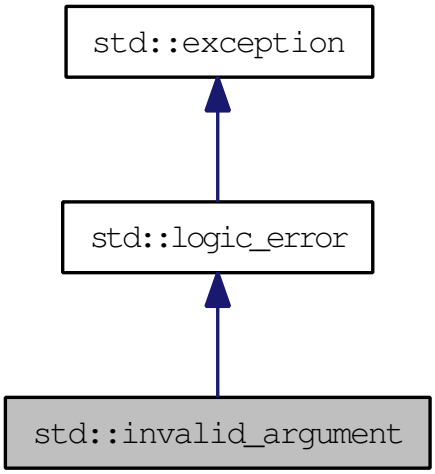
Definition at line 67 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.509 std::invalid_argument Class Reference

Inheritance diagram for std::invalid_argument:



Public Member Functions

- **invalid_argument** (const string &__arg)
- virtual const char * what () const throw ()

5.509.1 Detailed Description

Thrown to report invalid arguments to functions.

Definition at line 80 of file stdexcept.

5.509.2 Member Function Documentation

5.509.2.1 virtual const char* std::logic_error::what () const throw () [virtual, inherited]

Returns a C-style character string describing the general cause of the current error (the same string passed to the ctor).

Reimplemented from std::exception.

Reimplemented in std::future_error.

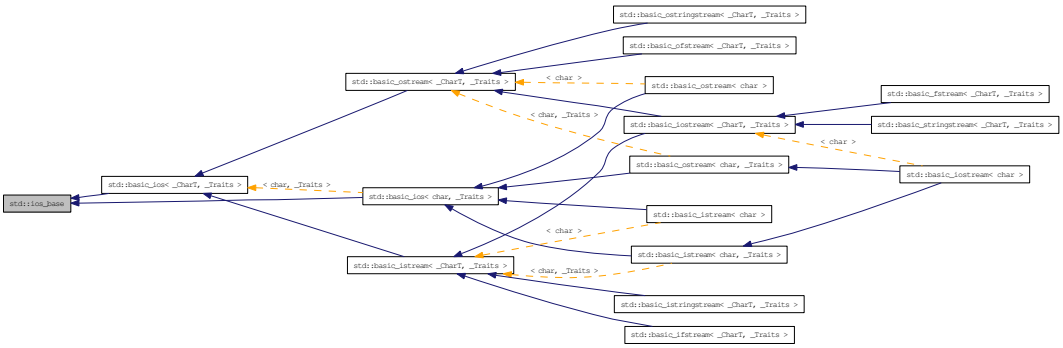
The documentation for this class was generated from the following file:

- stdexcept

5.510 std::ios_base Class Reference

The base of the I/O class hierarchy.

This class defines everything that can be defined about I/O that does not depend on the type of characters being input or output. Most people will only see `ios_base` when they need to specify the full name of the various I/O flags (e.g., the openmodes). Inheritance diagram for std::ios_base:



Classes

- class failure

  These are thrown to indicate problems with io.
  27.4.2.1.1 Class ios_base::failure.

Public Types

- enum event { **erase_event**, **imbue_event**, **copyfmt_event** }
- typedef void(∗ event_callback)(event, ios_base &, int)
- typedef _Ios_Fmtflags fmtflags
- typedef int **io_state**
- typedef _Ios_Iostate iostate
- typedef int **open_mode**
- typedef _Ios_Openmode openmode
- typedef int **seek_dir**
- typedef _Ios_Seekdir seekdir
- typedef std::streamoff **streamoff**
- typedef std::streampos **streampos**

Public Member Functions

- virtual ~ios_base ()
- const locale & _M_getloc () const
- fmtflags flags (fmtflags __fmtfl)
- fmtflags flags () const
- locale getloc () const
- locale imbue (const locale &__loc) throw ()
- long & iword (int __ix)
- streamsize precision (streamsize __prec)
- streamsize precision () const
- void *& pword (int __ix)
- void register_callback (event_callback __fn, int __index)
- fmtflags setf (fmtflags __fmtfl, fmtflags __mask)
- fmtflags setf (fmtflags __fmtfl)
- void unsetf (fmtflags __mask)
- streamsize width (streamsize __wide)
- streamsize width () const

Static Public Member Functions

- static bool sync_with_stdio (bool __sync=true)
- static int xalloc () throw ()

Static Public Attributes

- static const fmtflags adjustfield
- static const openmode app
- static const openmode ate
- static const iostate badbit
- static const fmtflags basefield
- static const seekdir beg
- static const openmode binary
- static const fmtflags boolalpha
- static const seekdir cur
- static const fmtflags dec
- static const seekdir end
- static const iostate eofbit
- static const iostate failbit
- static const fmtflags fixed
- static const fmtflags floatfield
- static const iostate goodbit

- static const fmtflags hex
- static const openmode in
- static const fmtflags internal
- static const fmtflags left
- static const fmtflags oct
- static const openmode out
- static const fmtflags right
- static const fmtflags scientific
- static const fmtflags showbase
- static const fmtflags showpoint
- static const fmtflags showpos
- static const fmtflags skipws
- static const openmode trunc
- static const fmtflags unitbuf
- static const fmtflags uppercase

Protected Types

- enum { **_S_local_word_size** }

Protected Member Functions

- void **_M_call_callbacks** (event __ev) throw ()
- void **_M_dispose_callbacks** (void) throw ()
- _Words & **_M_grow_words** (int __index, bool __iword)
- void **_M_init** () throw ()

Protected Attributes

- _Callback_list * **_M_callbacks**
- iostate **_M_exception**
- fmtflags **_M_flags**
- locale **_M_ios_locale**
- _Words **_M_local_word** [_S_local_word_size]
- streamsize **_M_precision**
- iostate **_M_streambuf_state**
- streamsize **_M_width**
- _Words * **_M_word**
- int **_M_word_size**
- _Words **_M_word_zero**

5.510.1 Detailed Description

The base of the I/O class hierarchy.

This class defines everything that can be defined about I/O that does not depend on the type of characters being input or output. Most people will only see `ios_base` when they need to specify the full name of the various I/O flags (e.g., the openmodes).

Definition at line 207 of file ios_base.h.

5.510.2 Member Typedef Documentation

5.510.2.1 typedef void(∗ std::ios_base::event_callback)(event, ios_base &, int)

The type of an event callback function.

Parameters:

event One of the members of the event enum.

ios_base Reference to the ios_base object.

int The integer provided when the callback was registered.

Event callbacks are user defined functions that get called during several ios_base and basic_ios functions, specifically imbue(), copyfmt(), and ∼ios().

Definition at line 444 of file ios_base.h.

5.510.2.2 typedef _Ios_Fmtflags std::ios_base::fmtflags

This is a bitmask type. *`_Ios_Fmtflags`* `is` implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type fmtflags are:

- boolalpha
- dec
- fixed
- hex
- internal
- left
- oct
- right

- scientific
- showbase
- showpoint
- showpos
- skipws
- unitbuf
- uppercase
- adjustfield
- basefield
- floatfield

Definition at line 263 of file ios_base.h.

5.510.2.3 typedef _Ios_Iostate std::ios_base::iostate

This is a bitmask type. *_Ios_Iostate* is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type iostate are:

- badbit
- eofbit
- failbit
- goodbit

Definition at line 338 of file ios_base.h.

5.510.2.4 typedef _Ios_Openmode std::ios_base::openmode

This is a bitmask type. *_Ios_Openmode* is implementation-defined, but it is valid to perform bitwise operations on these values and expect the Right Thing to happen. Defined objects of type openmode are:

- app
- ate
- binary

- in
- out
- trunc

Definition at line 369 of file ios_base.h.

5.510.2.5 typedef _Ios_Seekdir std::ios_base::seekdir

This is an enumerated type. *_Ios_Seekdir* is implementation-defined. Defined values of type seekdir are:

- beg
- cur, equivalent to SEEK_CUR in the C standard library.
- end, equivalent to SEEK_END in the C standard library.

Definition at line 401 of file ios_base.h.

5.510.3 Member Enumeration Documentation

5.510.3.1 enum std::ios_base::event

The set of events that may be passed to an event callback. erase_event is used during ~ios() and copyfmt(). imbue_event is used during imbue(). copyfmt_event is used during copyfmt().

Definition at line 427 of file ios_base.h.

5.510.4 Constructor & Destructor Documentation

5.510.4.1 virtual std::ios_base::~ios_base () [virtual]

Invokes each callback with erase_event. Destroys local storage.

Note that the ios_base object for the standard streams never gets destroyed. As a result, any callbacks registered with the standard streams will not get invoked with erase_event (unless copyfmt is used).

5.510.5 Member Function Documentation

5.510.5.1 const locale& std::ios_base::_M_getloc () const [inline]

Locale access.

Returns:

A reference to the current locale.

Like getloc above, but returns a reference instead of generating a copy.

Definition at line 705 of file ios_base.h.

Referenced by std::money_get< _CharT, _InIter >::do_get(), std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_date(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_time(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::time_put< _CharT, _OutIter >::do_put(), std::num_put< _CharT, _OutIter >::do_put(), and std::time_put< _CharT, _OutIter >::put().

5.510.5.2 fmtflags std::ios_base::flags (fmtflags *__fmtfl*) `[inline]`

Setting new format flags all at once.

Parameters:

fmtfl The new flags to set.

Returns:

The previous format control flags.

This function overwrites all the format flags with *fmtfl*.

Definition at line 561 of file ios_base.h.

5.510.5.3 fmtflags std::ios_base::flags () const `[inline]`

Access to format flags.

Returns:

The format control flags for both input and output.

Definition at line 550 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::num_get< _CharT, _InIter >::do_get(), std::num_put< _CharT, _OutIter >::do_put(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator<<(), and std::operator>>().

5.510.5.4 locale std::ios_base::getloc () const `[inline]`

Locale access.

Returns:

A copy of the current locale.

If `imbue(loc)` has previously been called, then this function returns `loc`. Otherwise, it returns a copy of `std::locale()`, the global C++ locale.

Definition at line 694 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::money_put< _CharT, _OutIter >::do_put(), std::basic_ios< _CharT, _Traits >::imbue(), std::operator>>(), and std::ws().

5.510.5.5 locale std::ios_base::imbue (const locale & *__loc*) throw ()

Setting a new locale.

Parameters:

loc The new locale.

Returns:

The previous locale.

Sets the new locale for this stream, and then invokes each callback with imbue_event.

Reimplemented in std::basic_ios< _CharT, _Traits >, and std::basic_ios< char, _Traits >.

5.510.5.6 long& std::ios_base::iword (int *__ix*) `[inline]`

Access to integer array.

Parameters:

__ix Index into the array.

Returns:

A reference to an integer associated with the index.

The iword function provides access to an array of integers that can be used for any purpose. The array grows as required to hold the supplied index. All integers in the array are initialized to 0.

The implementation reserves several indices. You should use xalloc to obtain an index that is safe to use. Also note that since the array can grow dynamically, it is not safe to hold onto the reference.

Definition at line 740 of file ios_base.h.

5.510.5.7 streamsize std::ios_base::precision (streamsize *__prec*) [inline]

Changing flags.

Parameters:

prec The new precision value.

Returns:

The previous value of precision().

Definition at line 629 of file ios_base.h.

5.510.5.8 streamsize std::ios_base::precision () const [inline]

Flags access.

Returns:

The precision to generate on certain output operations.

Be careful if you try to give a definition of *precision* here; see DR 189.

Definition at line 620 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), and std::operator<<().

5.510.5.9 void*& std::ios_base::pword (int *__ix*) [inline]

Access to void pointer array.

Parameters:

__ix Index into the array.

Returns:

A reference to a void* associated with the index.

The pword function provides access to an array of pointers that can be used for any purpose. The array grows as required to hold the supplied index. All pointers in the array are initialized to 0.

The implementation reserves several indices. You should use xalloc to obtain an index that is safe to use. Also note that since the array can grow dynamically, it is not safe to hold onto the reference.

Definition at line 761 of file ios_base.h.

5.510.5.10 void std::ios_base::register_callback (event_callback *__fn*, int *__index*)

Add the callback __fn with parameter __index.

Parameters:

__fn The function to add.

__index The integer to pass to the function when invoked.

Registers a function as an event callback with an integer parameter to be passed to the function when invoked. Multiple copies of the function are allowed. If there are multiple callbacks, they are invoked in the order they were registered.

5.510.5.11 fmtflags std::ios_base::setf (fmtflags *__fmtfl*, fmtflags *__mask*) `[inline]`

Setting new format flags.

Parameters:

fmtfl Additional flags to set.

mask The flags mask for *fmtfl*.

Returns:

The previous format control flags.

This function clears *mask* in the format flags, then sets *fmtfl* & *mask*. An example mask is `ios_base::adjustfield`.

Definition at line 594 of file ios_base.h.

5.510.5.12 fmtflags std::ios_base::setf (fmtflags *__fmtfl*) `[inline]`

Setting new format flags.

Parameters:

fmtfl Additional flags to set.

Returns:

The previous format control flags.

This function sets additional flags in format control. Flags that were previously set remain set.

Definition at line 577 of file ios_base.h.

Referenced by std::boolalpha(), std::dec(), std::fixed(), std::hex(), std::internal(), std::left(), std::oct(), std::right(), std::scientific(), std::showbase(), std::showpoint(), std::showpos(), std::skipws(), std::unitbuf(), and std::uppercase().

5.510.5.13 static bool std::ios_base::sync_with_stdio (bool *__sync* = `true`) `[static]`

Interaction with the standard C I/O objects.

Parameters:

sync Whether to synchronize or not.

Returns:

True if the standard streams were previously synchronized.

The synchronization referred to is *only* that between the standard C facilities (e.g., stdout) and the standard C++ objects (e.g., cout). User-declared streams are unaffected. See http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch28s02.html

5.510.5.14 void std::ios_base::unsetf (fmtflags *__mask*) `[inline]`

Clearing format flags.

Parameters:

mask The flags to unset.

This function clears *mask* in the format flags.

Definition at line 609 of file ios_base.h.

Referenced by std::noboolalpha(), std::noshowbase(), std::noshowpoint(), std::noshowpos(), std::noskipws(), std::nounitbuf(), and std::nouppercase().

5.510.5.15 streamsize std::ios_base::width (streamsize *__wide*) `[inline]`

Changing flags.

Parameters:

wide The new width value.

Returns:

The previous value of width().

Definition at line 652 of file ios_base.h.

5.510.5.16 streamsize std::ios_base::width () const [inline]

Flags access.

Returns:

The minimum field width to generate on output operations.

Minimum field width refers to the number of characters.

Definition at line 643 of file ios_base.h.

Referenced by std::basic_ios< _CharT, _Traits >::copyfmt(), std::num_put< _CharT, _OutIter >::do_put(), and std::operator>>().

5.510.5.17 static int std::ios_base::xalloc () throw () [static]

Access to unique indices.

Returns:

An integer different from all previous calls.

This function returns a unique integer every time it is called. It can be used for any purpose, but is primarily intended to be a unique index for the iword and pword functions. The expectation is that an application calls xalloc in order to obtain an index in the iword and pword arrays that can be used without fear of conflict.

The implementation maintains a static variable that is incremented and returned on each invocation. xalloc is guaranteed to return an index that is safe to use in the iword and pword arrays.

5.510.6 Member Data Documentation

5.510.6.1 const fmtflags std::ios_base::adjustfield [static]

A mask of left|right|internal. Useful for the 2-arg form of `setf`.

Definition at line 318 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

5.510.6.2 const openmode std::ios_base::app [static]

Seek to end before each write.

Definition at line 372 of file ios_base.h.

5.510.6.3 const openmode std::ios_base::ate [static]

Open and seek to end immediately after opening.

Definition at line 375 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::open().

5.510.6.4 const iostate std::ios_base::badbit [static]

Indicates a loss of integrity in an input or output sequence (such as an irrecoverable read error from a file).

Definition at line 342 of file ios_base.h.

Referenced by std::basic_ostream< _CharT, _Traits >::flush(), std::basic_-istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ios< _CharT, _Traits >::init(), std::operator<<(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_-istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_-istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_ostream< _CharT, _Traits >::tellp(), std::basic_istream< _CharT, _Traits >::unget(), and std::basic_ostream< _CharT, _Traits >::write().

5.510.6.5 const fmtflags std::ios_base::basefield [static]

A mask of dec|oct|hex. Useful for the 2-arg form of `setf`.

Definition at line 321 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), and std::basic_ostream< _CharT, _Traits >::operator<<().

5.510.6.6 const seekdir std::ios_base::beg [static]

Request a seek relative to the beginning of the stream.

Definition at line 404 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::seekpos().

5.510.6.7 const openmode std::ios_base::binary [static]

Perform input and output in binary mode (as opposed to text mode). This is probably not what you think it is; see http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch27s02.html.

Definition at line 380 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::showmanyc().

5.510.6.8 const fmtflags std::ios_base::boolalpha [static]

Insert/extract `bool` in alphabetic rather than numeric format.

Definition at line 266 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), and std::num_put< _CharT, _OutIter >::do_put().

5.510.6.9 const seekdir std::ios_base::cur [static]

Request a seek relative to the current position within the sequence.

Definition at line 407 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::imbue(), std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_filebuf< _CharT, _Traits >::seekoff(), std::basic_istream< _CharT, _Traits >::tellg(), and std::basic_ostream< _CharT, _Traits >::tellp().

5.510.6.10 const fmtflags std::ios_base::dec [static]

Converts integer input or generates integer output in decimal base.

Definition at line 269 of file ios_base.h.

5.510.6.11 const seekdir std::ios_base::end [static]

Request a seek relative to the current end of the sequence.

Definition at line 410 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::open(), and std::basic_-stringbuf< _CharT, _Traits, _Alloc >::seekoff().

5.510.6.12 const iostate std::ios_base::eofbit [static]

Indicates that an input operation reached the end of an input sequence.

Definition at line 345 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_date(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_time(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_-istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::operator>>(), std::basic_-istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _-CharT, _Traits >::readsome(), and std::ws().

5.510.6.13 const iostate std::ios_base::failbit [static]

Indicates that an input operation failed to read the expected characters, or that an output operation failed to generate the desired characters.

Definition at line 350 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _-CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_-weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_istream< _-CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_-ostream< _CharT, _Traits >::operator<<(), std::basic_istream< _CharT, _Traits >::operator>>(), std::operator>>(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::seekg(), and std::basic_ostream< _CharT, _-Traits >::seekp().

5.510.6.14 const fmtflags std::ios_base::fixed [static]

Generate floating-point output in fixed-point notation.

Definition at line 272 of file ios_base.h.

5.510.6.15 const fmtflags std::ios_base::floatfield [static]

A mask of scientific|fixed. Useful for the 2-arg form of `setf`.

Definition at line 324 of file ios_base.h.

5.510.6.16 const iostate std::ios_base::goodbit [static]

Indicates all is well.

Definition at line 353 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::time_get< _CharT, _InIter >::do_get_monthname(), std::time_get< _CharT, _InIter >::do_get_weekday(), std::time_get< _CharT, _InIter >::do_get_year(), std::basic_ostream< _CharT, _Traits >::flush(), std::basic_istream< _CharT, _Traits >::get(), std::basic_istream< _CharT, _Traits >::getline(), std::basic_istream< _CharT, _Traits >::ignore(), std::basic_ios< _CharT, _Traits >::init(), std::basic_ostream< _CharT, _Traits >::operator<<(), std::operator>>(), std::basic_istream< _CharT, _Traits >::operator>>(), std::basic_istream< _CharT, _Traits >::peek(), std::basic_ostream< _CharT, _Traits >::put(), std::basic_istream< _CharT, _Traits >::putback(), std::basic_istream< _CharT, _Traits >::read(), std::basic_istream< _CharT, _Traits >::readsome(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_istream< _CharT, _Traits >::sync(), and std::basic_istream< _CharT, _Traits >::unget().

5.510.6.17 const fmtflags std::ios_base::hex [static]

Converts integer input or generates integer output in hexadecimal base.

Definition at line 275 of file ios_base.h.

Referenced by std::num_get< _CharT, _InIter >::do_get(), std::num_put< _CharT, _OutIter >::do_put(), and std::basic_ostream< _CharT, _Traits >::operator<<().

5.510.6.18 const openmode std::ios_base::in [static]

Open for input. Default for `ifstream` and fstream.

Definition at line 383 of file ios_base.h.

Referenced by std::basic_filebuf< _CharT, _Traits >::pbackfail(), std::basic_istream< _CharT, _Traits >::seekg(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_filebuf< _CharT, _Traits >::showmanyc(), std::basic_istream< _CharT, _Traits >::tellg(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::underflow(), std::basic_filebuf< _CharT, _Traits >::underflow(), and std::basic_filebuf< _CharT, _Traits >::xsgetn().

5.510.6.19 const fmtflags std::ios_base::internal [static]

Adds fill characters at a designated internal point in certain generated output, or identical to `right` if no such point is designated.

Definition at line 280 of file ios_base.h.

5.510.6.20 const fmtflags std::ios_base::left [static]

Adds fill characters on the right (final positions) of certain generated output. (I.e., the thing you print is flush left.).

Definition at line 284 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

5.510.6.21 const fmtflags std::ios_base::oct [static]

Converts integer input or generates integer output in octal base.

Definition at line 287 of file ios_base.h.

Referenced by std::basic_ostream< _CharT, _Traits >::operator<<().

5.510.6.22 const openmode std::ios_base::out [static]

Open for output. Default for `ofstream` and fstream.

Definition at line 386 of file ios_base.h.

Referenced by std::basic_stringbuf< _CharT, _Traits, _Alloc >::overflow(), std::basic_filebuf< _CharT, _Traits >::overflow(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekoff(), std::basic_ostream< _CharT, _Traits >::seekp(), std::basic_stringbuf< _CharT, _Traits, _Alloc >::seekpos(), std::basic_ostream< _CharT, _Traits >::tellp(), and std::basic_filebuf< _CharT, _Traits >::xsputn().

5.510.6.23 const fmtflags std::ios_base::right [static]

Adds fill characters on the left (initial positions) of certain generated output. (I.e., the thing you print is flush right.).

Definition at line 291 of file ios_base.h.

5.510.6.24 const fmtflags std::ios_base::scientific [static]

Generates floating-point output in scientific notation.

Definition at line 294 of file ios_base.h.

5.510.6.25 const fmtflags std::ios_base::showbase [static]

Generates a prefix indicating the numeric base of generated integer output.

Definition at line 298 of file ios_base.h.

5.510.6.26 const fmtflags std::ios_base::showpoint [static]

Generates a decimal-point character unconditionally in generated floating-point output.

Definition at line 302 of file ios_base.h.

5.510.6.27 const fmtflags std::ios_base::showpos [static]

Generates a + sign in non-negative generated numeric output.

Definition at line 305 of file ios_base.h.

5.510.6.28 const fmtflags std::ios_base::skipws [static]

Skips leading white space before certain input operations.

Definition at line 308 of file ios_base.h.

5.510.6.29 const openmode std::ios_base::trunc [static]

Open for input. Default for `ofstream`.

Definition at line 389 of file ios_base.h.

5.510.6.30 const fmtflags std::ios_base::unitbuf [static]

Flushes output after each output operation.

Definition at line 311 of file ios_base.h.

5.510.6.31 const fmtflags std::ios_base::uppercase [static]

Replaces certain lowercase letters with their uppercase equivalents in generated output.

Definition at line 315 of file ios_base.h.

Referenced by std::num_put< _CharT, _OutIter >::do_put().

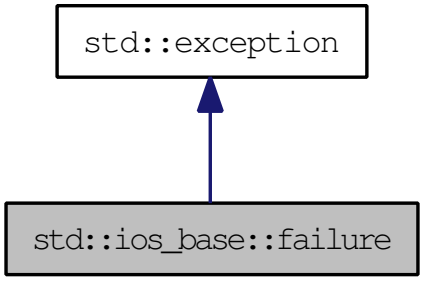
The documentation for this class was generated from the following file:

- ios_base.h

5.511 std::ios_base::failure Class Reference

These are thrown to indicate problems with io.

27.4.2.1.1 Class ios_base::failure. Inheritance diagram for std::ios_base::failure:



Public Member Functions

- **failure** (const string &__str) throw ()
- virtual const char * what () const throw ()

5.511.1 Detailed Description

These are thrown to indicate problems with io.

27.4.2.1.1 Class ios_base::failure.

Definition at line 217 of file ios_base.h.

5.511.2 Member Function Documentation

5.511.2.1 virtual const char* std::ios_base::failure::what () const throw () [virtual]

Returns a C-style character string describing the general cause of the current error.

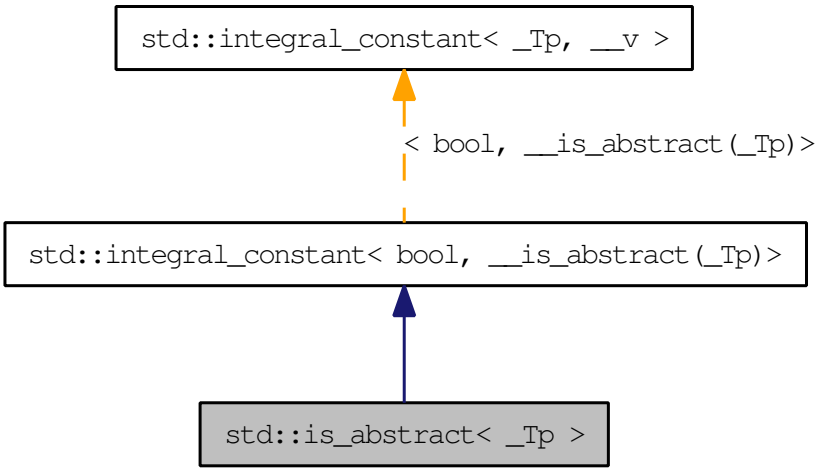
Reimplemented from std::exception.

The documentation for this class was generated from the following file:

- ios_base.h

5.512 std::is_abstract< _Tp > Struct Template Reference

is_abstract Inheritance diagram for std::is_abstract< _Tp >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.512.1 Detailed Description

template<typename _Tp> struct std::is_abstract< _Tp >

is_abstract

Definition at line 338 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.513 std::is_arithmetic< _Tp > Struct Template Reference

is_arithmetic Inheritance diagram for std::is_arithmetic< _Tp >:

Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.513.1 Detailed Description

template<typename _Tp> struct std::is_arithmetic< _Tp >

is_arithmetic

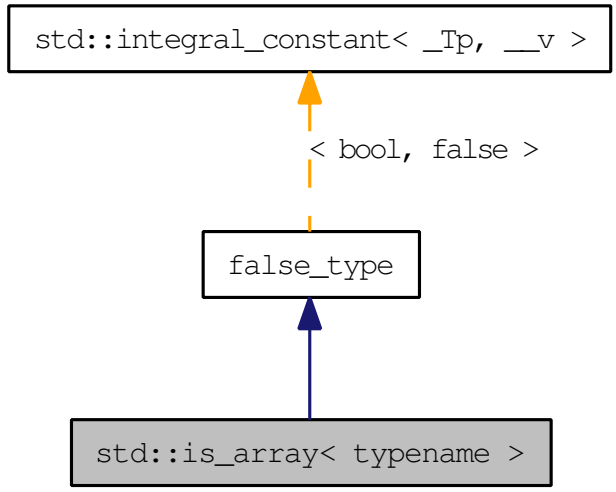
Definition at line 255 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.514 std::is_array< typename > Struct Template Reference

is_array Inheritance diagram for std::is_array< typename >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.514.1 Detailed Description

template<typename> struct std::is_array< typename >

is_array

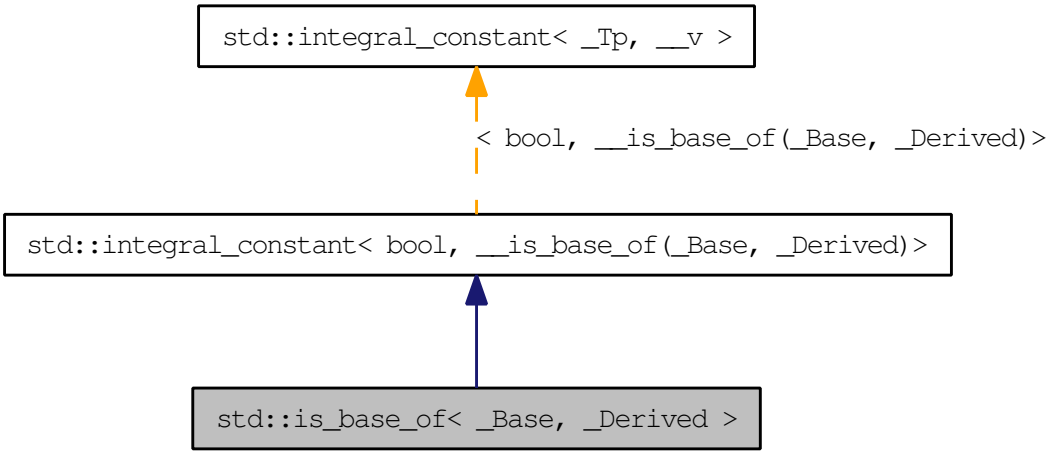
Definition at line 147 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.515 std::is_base_of< _Base, _Derived > Struct Template Reference

is_base_of Inheritance diagram for std::is_base_of< _Base, _Derived >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.515.1 Detailed Description

template<typename _Base, typename _Derived> struct std::is_base_of< _Base, _Derived >

is_base_of

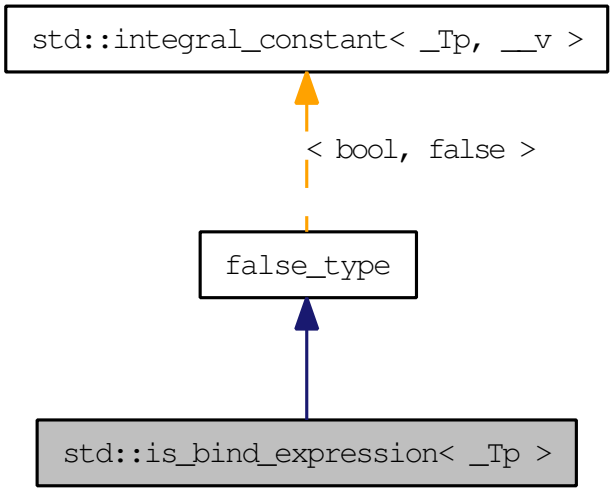
Definition at line 283 of file type_traits.

The documentation for this struct was generated from the following file:

- type_traits

5.516 std::is_bind_expression< _Tp > Struct Template Reference

Determines if the given type _Tp is a function object should be treated as a subexpression when evaluating calls to function objects returned by bind(). [TR1 3.6.1].
Inheritance diagram for std::is_bind_expression< _Tp >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.516.1 Detailed Description

template<typename _Tp> struct std::is_bind_expression< _Tp >

Determines if the given type _Tp is a function object should be treated as a subexpression when evaluating calls to function objects returned by bind(). [TR1 3.6.1].

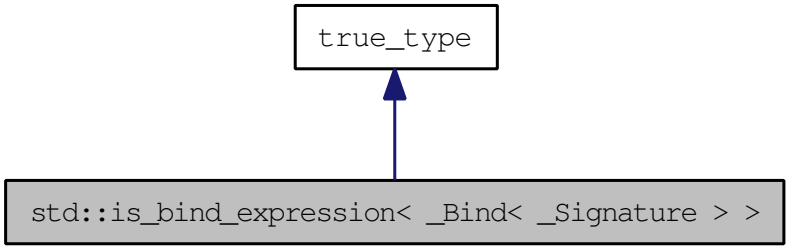
Definition at line 778 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.517 std::is_bind_expression< _Bind< _Signature > > Struct Template Reference

Class template _Bind is always a bind expression. Inheritance diagram for std::is_bind_expression< _Bind< _Signature > >:



Public Types

- typedef integral_constant< _Tp, __v > **type**
- typedef _Tp **value_type**

Static Public Attributes

- static const _Tp **value**

5.517.1 Detailed Description

template<typename _Signature> struct std::is_bind_expression< _Bind< _Signature > >

Class template _Bind is always a bind expression.

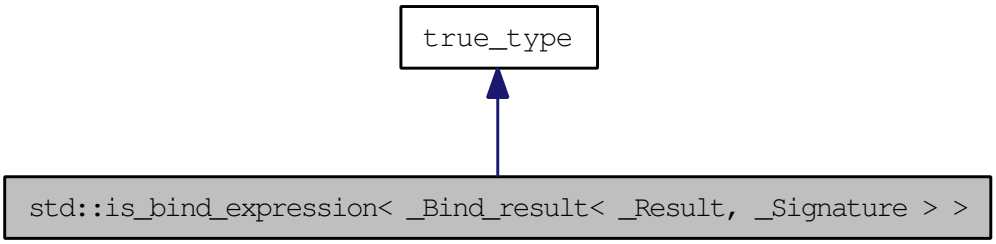
Definition at line 1354 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.518 std::is_bind_expression< _Bind_result< _Result, _Signature > > Struct Template Reference

Class template _Bind is always a bind expression. Inheritance diagram for std::is_bind_expression< _Bind_result< _Result, _Signature > >:



Public Types

- typedef integral_constant< _Tp, __v > **type**
- typedef _Tp **value_type**

Static Public Attributes

- static const _Tp **value**

5.518.1 Detailed Description

template<typename _Result, typename _Signature> struct std::is_bind_expression< _Bind_result< _Result, _Signature > >

Class template _Bind is always a bind expression.

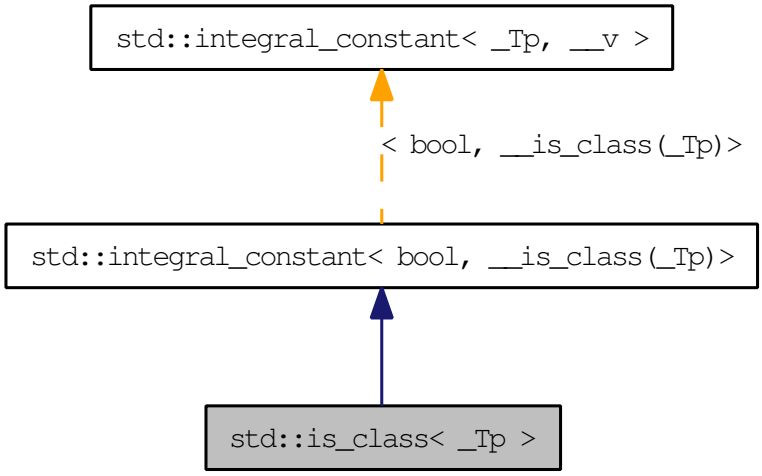
Definition at line 1362 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.519 std::is_class< _Tp > Struct Template Reference

is_class Inheritance diagram for std::is_class< _Tp >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.519.1 Detailed Description

template<typename _Tp> struct std::is_class< _Tp >

is_class

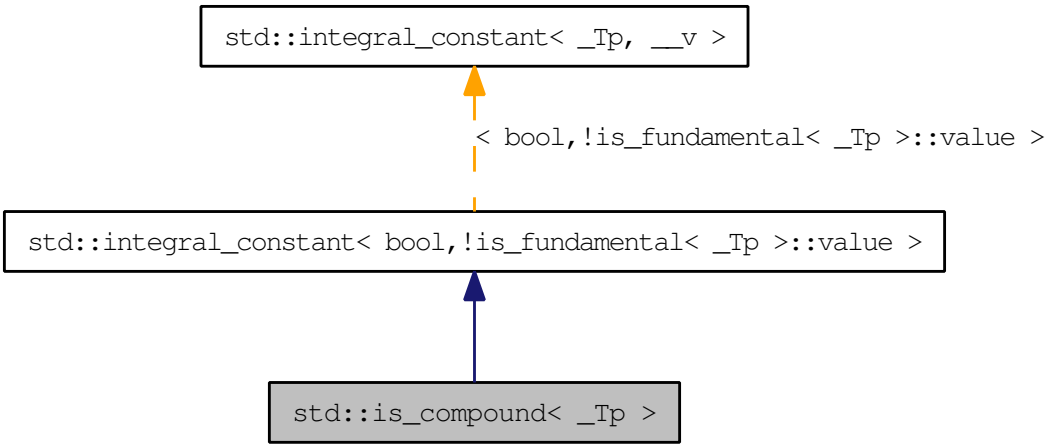
Definition at line 218 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.520 std::is_compound< _Tp > Struct Template Reference

is_compound Inheritance diagram for std::is_compound< _Tp >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.520.1 Detailed Description

template<typename _Tp> struct std::is_compound< _Tp >

is_compound

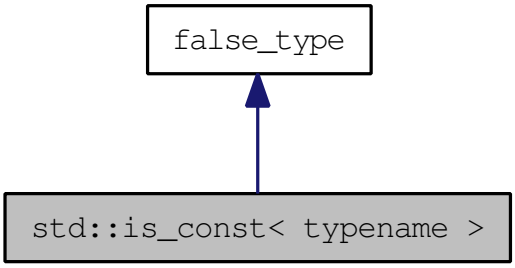
Definition at line 290 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.521 std::is_const< typename > Struct Template Reference

is_const Inheritance diagram for std::is_const< typename >:



Public Types

- typedef integral_constant< _Tp, __v > **type**
- typedef _Tp **value_type**

Static Public Attributes

- static const _Tp **value**

5.521.1 Detailed Description

template<typename> struct std::is_const< typename >

is_const

Definition at line 308 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.522 std::is_constructible< _Tp, _Args > Struct Template Reference

is_constructible Inheritance diagram for std::is_constructible< _Tp, _Args >:

Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.522.1 Detailed Description

template<typename _Tp, typename... _Args> struct std::is_constructible< _Tp, _Args >

is_constructible

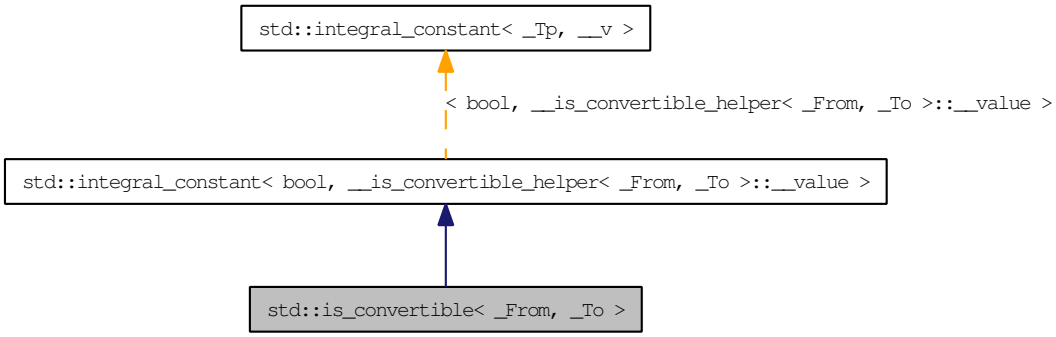
Definition at line 231 of file type_traits.

The documentation for this struct was generated from the following file:

- type_traits

5.523 std::is_convertible< _From, _To > Struct Template Reference

is_convertible Inheritance diagram for std::is_convertible< _From, _To >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.523.1 Detailed Description

template<typename _From, typename _To> struct std::is_convertible< _From, _To >

is_convertible

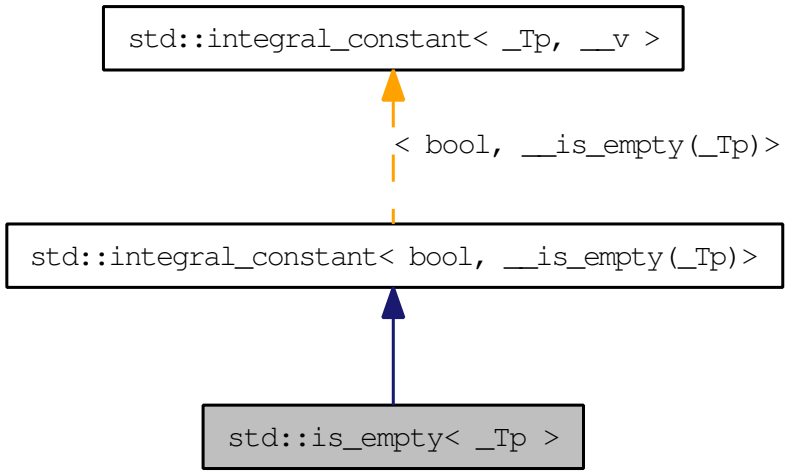
Definition at line 309 of file type_traits.

The documentation for this struct was generated from the following file:

- type_traits

5.524 std::is_empty< _Tp > Struct Template Reference

is_empty Inheritance diagram for std::is_empty< _Tp >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.524.1 Detailed Description

template<typename _Tp> struct std::is_empty< _Tp >

is_empty

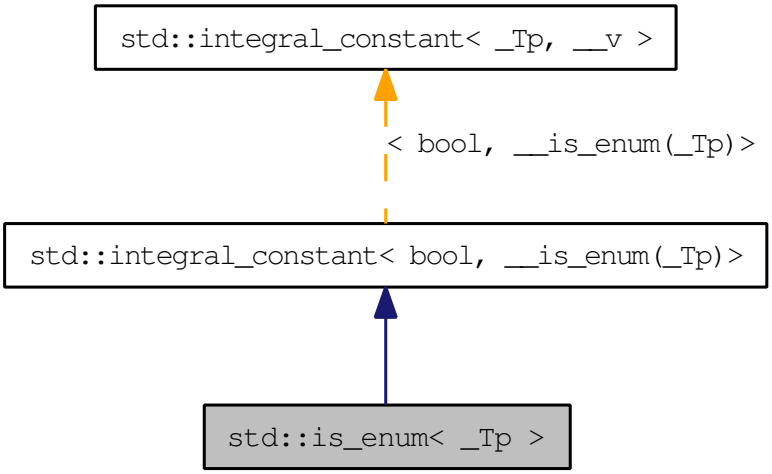
Definition at line 326 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.525 std::is_enum< _Tp > Struct Template Reference

is_enum Inheritance diagram for std::is_enum< _Tp >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.525.1 Detailed Description

template<typename _Tp> struct std::is_enum< _Tp >

is_enum

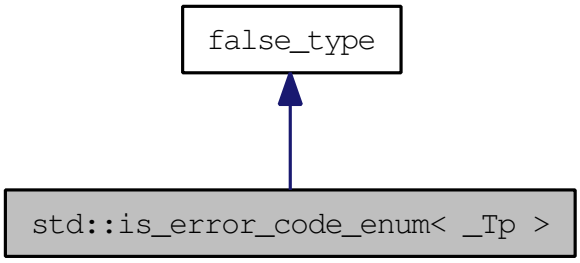
Definition at line 206 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.526 std::is_error_code_enum< _Tp > Struct Template Reference

is_error_code_enum Inheritance diagram for std::is_error_code_enum< _Tp >:



Public Types

- typedef integral_constant< _Tp, __v > **type**
- typedef _Tp **value_type**

Static Public Attributes

- static const _Tp **value**

5.526.1 Detailed Description

template<typename _Tp> struct std::is_error_code_enum< _Tp >

is_error_code_enum

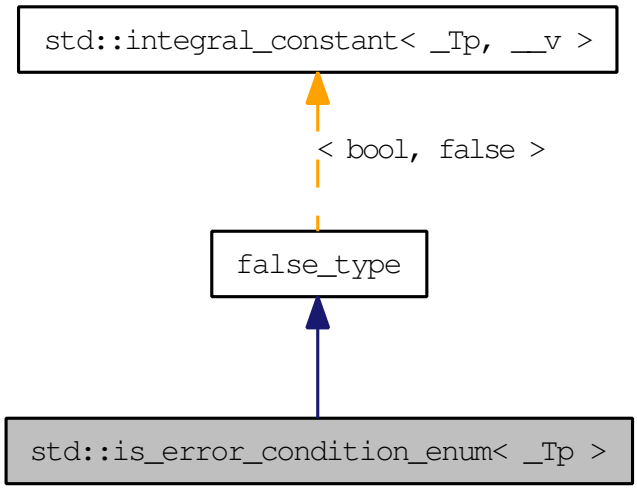
Definition at line 52 of file system_error.

The documentation for this struct was generated from the following file:

- system_error

5.527 std::is_error_condition_enum< _Tp > Struct Template Reference

is_error_condition_enum Inheritance diagram for std::is_error_condition_enum< _Tp >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.527.1 Detailed Description

template<typename _Tp> struct std::is_error_condition_enum< _Tp >

is_error_condition_enum

Definition at line 56 of file system_error.

The documentation for this struct was generated from the following file:

- system_error

5.528 std::is_explicitly_convertible< _From, _To > Struct Template Reference

is_explicitly_convertible Inheritance diagram for std::is_explicitly_convertible< _From, _To >:

Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.528.1 Detailed Description

template<typename _From, typename _To> struct std::is_explicitly_convertible< _From, _To >

is_explicitly_convertible

Definition at line 316 of file type_traits.

The documentation for this struct was generated from the following file:

- type_traits

5.529 std::is_floating_point< _Tp > Struct Template Reference

is_floating_point Inheritance diagram for std::is_floating_point< _Tp >:

Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.529.1 Detailed Description

template<typename _Tp> struct std::is_floating_point< _Tp >

is_floating_point

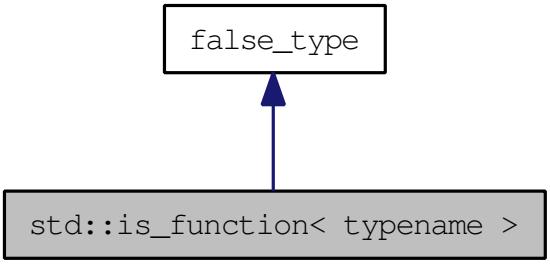
Definition at line 140 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.530 std::is_function< typename > Struct Template Reference

is_function Inheritance diagram for std::is_function< typename >:



Public Types

- typedef integral_constant< _Tp, __v > **type**
- typedef _Tp **value_type**

Static Public Attributes

- static const _Tp **value**

5.530.1 Detailed Description

template<typename> struct std::is_function< typename >

is_function

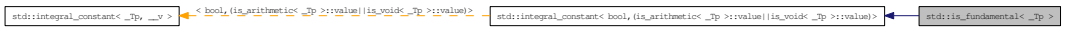
Definition at line 224 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.531 std::is_fundamental< _Tp > Struct Template Reference

is_fundamental Inheritance diagram for std::is_fundamental< _Tp >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.531.1 Detailed Description

template<typename _Tp> struct std::is_fundamental< _Tp >

is_fundamental

Definition at line 262 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.532 std::is_integral< _Tp > Struct Template Reference

is_integral Inheritance diagram for std::is_integral< _Tp >:

Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.532.1 Detailed Description

template<typename _Tp> struct std::is_integral< _Tp >

is_integral

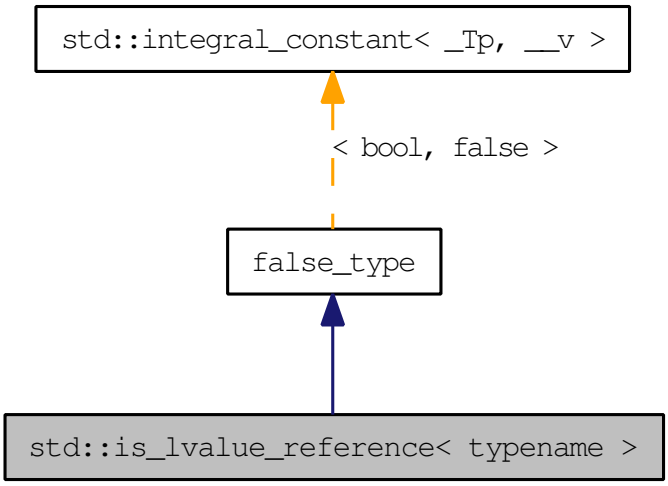
Definition at line 126 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.533 std::is_lvalue_reference< typename > Struct Template Reference

is_lvalue_reference Inheritance diagram for std::is_lvalue_reference< typename >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.533.1 Detailed Description

template<typename> struct std::is_lvalue_reference< typename >

is_lvalue_reference

Definition at line 69 of file type_traits.

The documentation for this struct was generated from the following file:

- type_traits

5.534 std::is_member_function_pointer< _Tp > Struct Template Reference

is_member_function_pointer Inheritance diagram for std::is_member_function_pointer< _Tp >:

Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.534.1 Detailed Description

template<typename _Tp> struct std::is_member_function_pointer< _Tp >

is_member_function_pointer

Definition at line 199 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.535 std::is_member_object_pointer< _Tp > Struct Template Reference

is_member_object_pointer Inheritance diagram for std::is_member_object_pointer< _Tp >:

Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.535.1 Detailed Description

template<typename _Tp> struct std::is_member_object_pointer< _Tp >

is_member_object_pointer

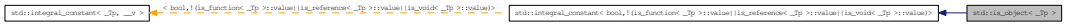
Definition at line 186 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.536 std::is_object< _Tp > Struct Template Reference

is_object Inheritance diagram for std::is_object< _Tp >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.536.1 Detailed Description

template<typename _Tp> struct std::is_object< _Tp >

is_object

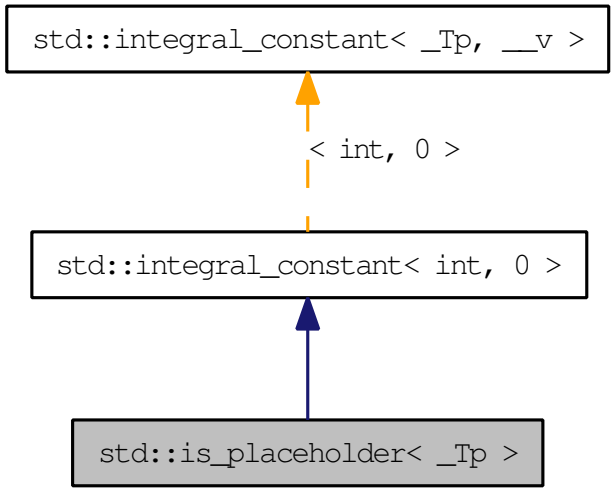
Definition at line 269 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.537 std::is_placeholder< _Tp > Struct Template Reference

Determines if the given type _Tp is a placeholder in a bind() expression and, if so, which placeholder it is. [TR1 3.6.2]. Inheritance diagram for std::is_placeholder< _Tp >:



Public Types

- typedef integral_constant< int, __v > **type**
- typedef int **value_type**

Static Public Attributes

- static const int **value**

5.537.1 Detailed Description

template<typename _Tp> struct std::is_placeholder< _Tp >

Determines if the given type _Tp is a placeholder in a bind() expression and, if so, which placeholder it is. [TR1 3.6.2].

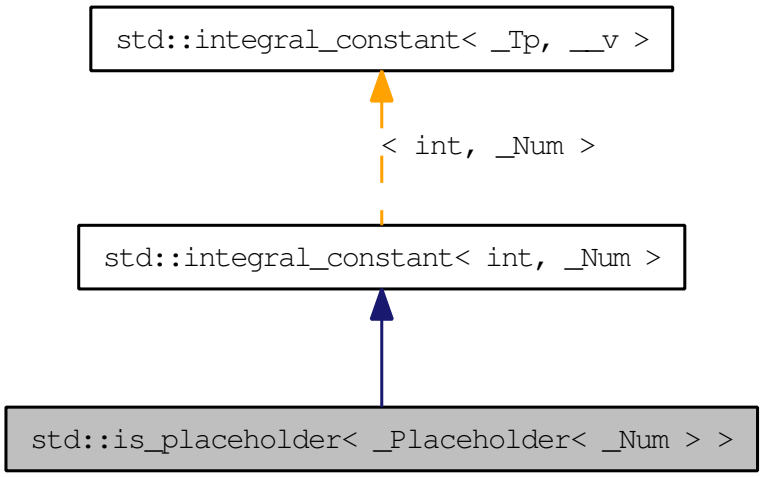
Definition at line 787 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.538 std::is_placeholder< _Placeholder< _Num > > Struct Template Reference

Inheritance diagram for std::is_placeholder< _Placeholder< _Num > >:



Public Types

- typedef integral_constant< int, __v > **type**
- typedef int **value_type**

Static Public Attributes

- static const int **value**

5.538.1 Detailed Description

template<int _Num> struct std::is_placeholder< _Placeholder< _Num > >

Partial specialization of is_placeholder that provides the placeholder number for the placeholder objects defined by libstdc++.

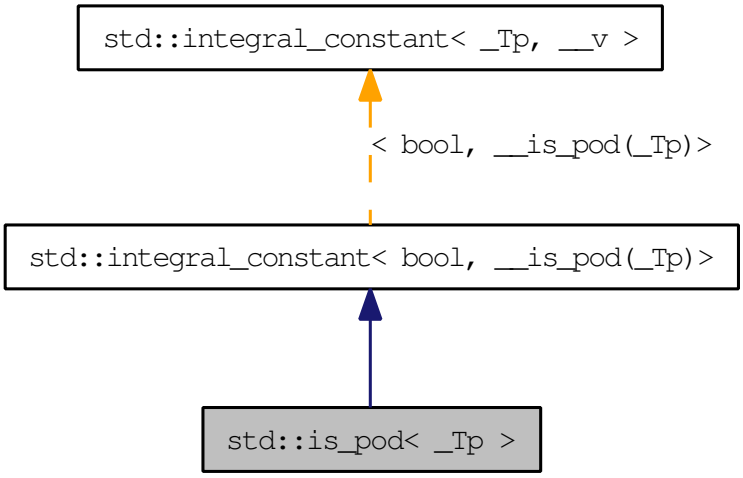
Definition at line 844 of file functional.

The documentation for this struct was generated from the following file:

- functional

5.539 std::is_pod< _Tp > Struct Template Reference

is_pod Inheritance diagram for std::is_pod< _Tp >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.539.1 Detailed Description

template<typename _Tp> struct std::is_pod< _Tp >

is_pod

Definition at line 191 of file type_traits.

The documentation for this struct was generated from the following file:

- type_traits

5.540 std::is_pointer< _Tp > Struct Template Reference

is_pointer Inheritance diagram for std::is_pointer< _Tp >:

Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.540.1 Detailed Description

template<typename _Tp> struct std::is_pointer< _Tp >

is_pointer

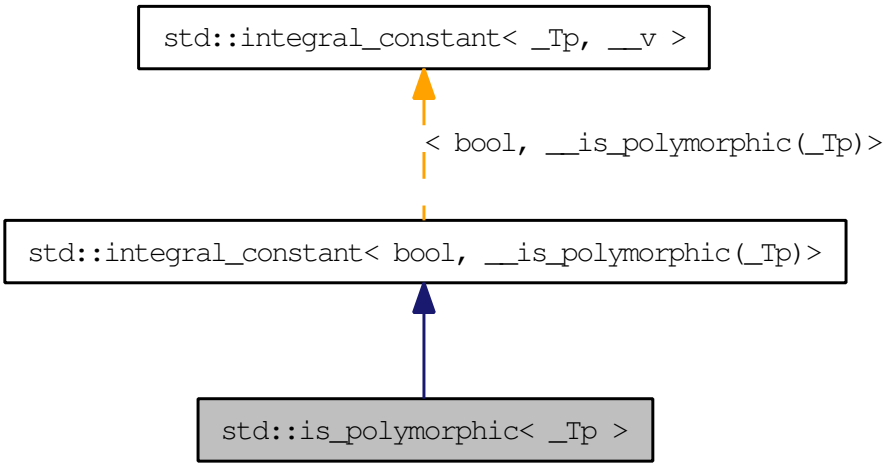
Definition at line 165 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.541 std::is_polymorphic< _Tp > Struct Template Reference

is_polymorphic Inheritance diagram for std::is_polymorphic< _Tp >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.541.1 Detailed Description

template<typename _Tp> struct std::is_polymorphic< _Tp >

is_polymorphic

Definition at line 332 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.542 std::is_reference< _Tp > Struct Template Reference

is_reference Inheritance diagram for std::is_reference< _Tp >:

Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.542.1 Detailed Description

template<typename _Tp> struct std::is_reference< _Tp >

is_reference

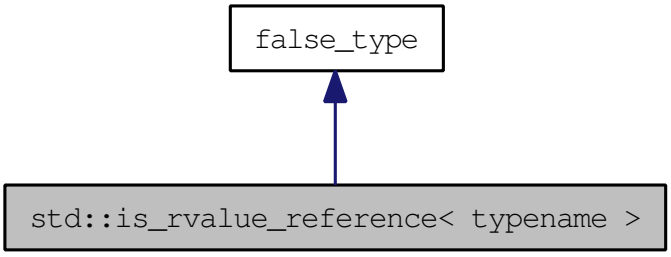
Definition at line 89 of file type_traits.

The documentation for this struct was generated from the following file:

- type_traits

5.543 std::is_rvalue_reference< typename > Struct Template Reference

is_rvalue_reference Inheritance diagram for std::is_rvalue_reference< typename >:



Public Types

- typedef integral_constant< _Tp, __v > **type**
- typedef _Tp **value_type**

Static Public Attributes

- static const _Tp **value**

5.543.1 Detailed Description

template<typename> struct std::is_rvalue_reference< typename >

is_rvalue_reference

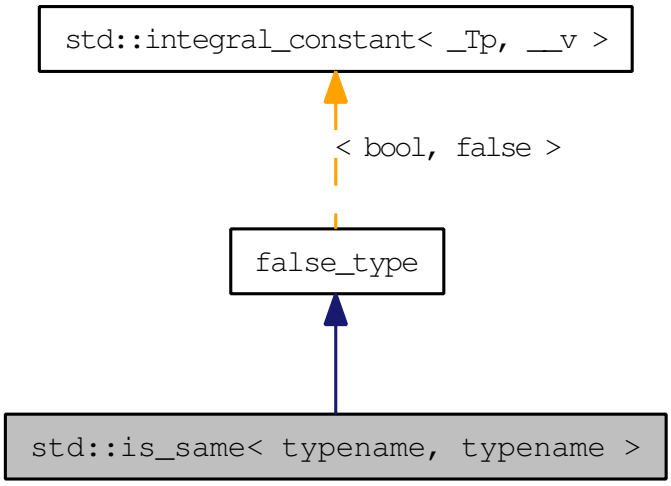
Definition at line 78 of file type_traits.

The documentation for this struct was generated from the following file:

- type_traits

5.544 std::is_same< typename, typename > Struct Template Reference

is_same Inheritance diagram for std::is_same< typename, typename >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.544.1 Detailed Description

template<typename, typename> struct std::is_same< typename, typename >

is_same

Definition at line 389 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.545 std::is_scalar< _Tp > Struct Template Reference

is_scalar Inheritance diagram for std::is_scalar< _Tp >:

Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.545.1 Detailed Description

template<typename _Tp> struct std::is_scalar< _Tp >

is_scalar

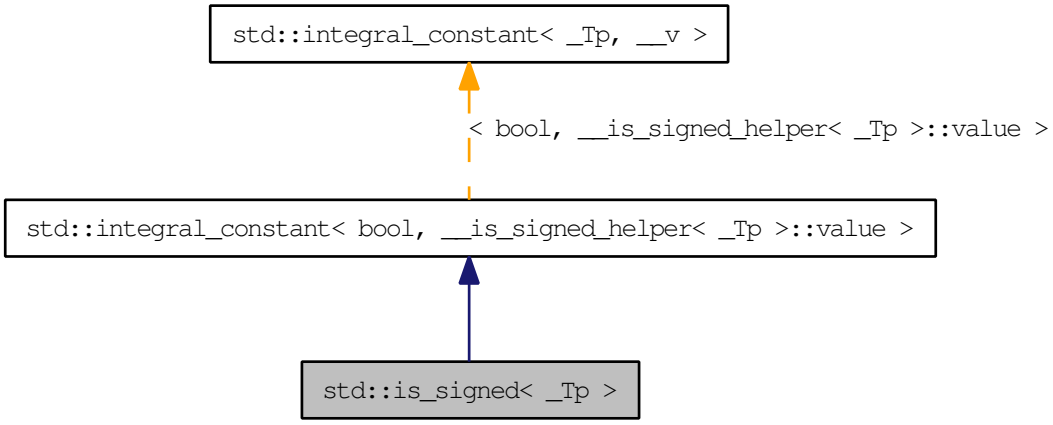
Definition at line 281 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.546 std::is_signed< _Tp > Struct Template Reference

is_signed Inheritance diagram for std::is_signed< _Tp >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.546.1 Detailed Description

template<typename _Tp> struct std::is_signed< _Tp >

is_signed

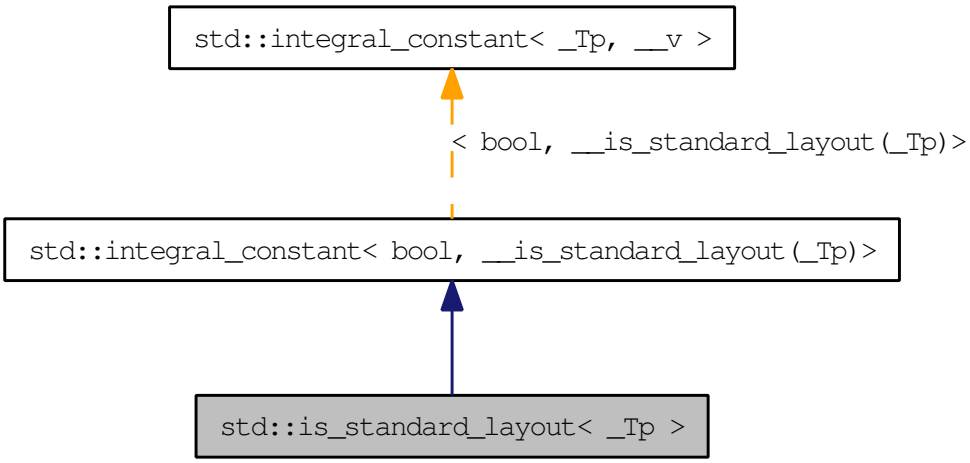
Definition at line 163 of file type_traits.

The documentation for this struct was generated from the following file:

- type_traits

5.547 std::is_standard_layout< _Tp > Struct Template Reference

is_standard_layout Inheritance diagram for std::is_standard_layout< _Tp >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.547.1 Detailed Description

template<typename _Tp> struct std::is_standard_layout< _Tp >

is_standard_layout

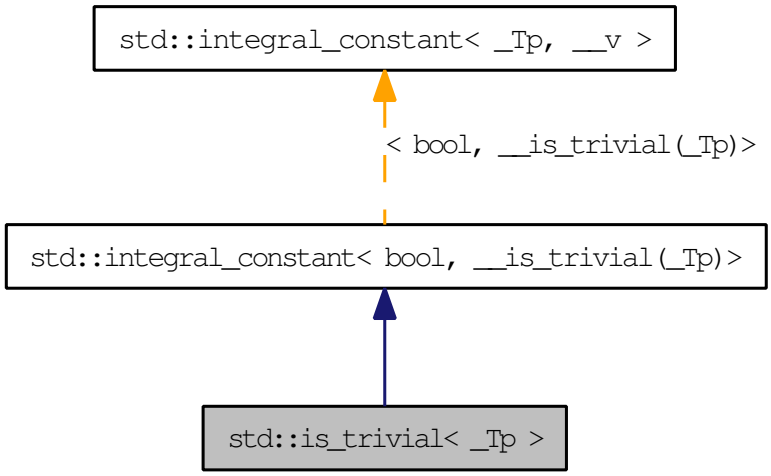
Definition at line 184 of file type_traits.

The documentation for this struct was generated from the following file:

- type_traits

5.548 std::is_trivial< _Tp > Struct Template Reference

is_trivial Inheritance diagram for std::is_trivial< _Tp >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.548.1 Detailed Description

template<typename _Tp> struct std::is_trivial< _Tp >

is_trivial

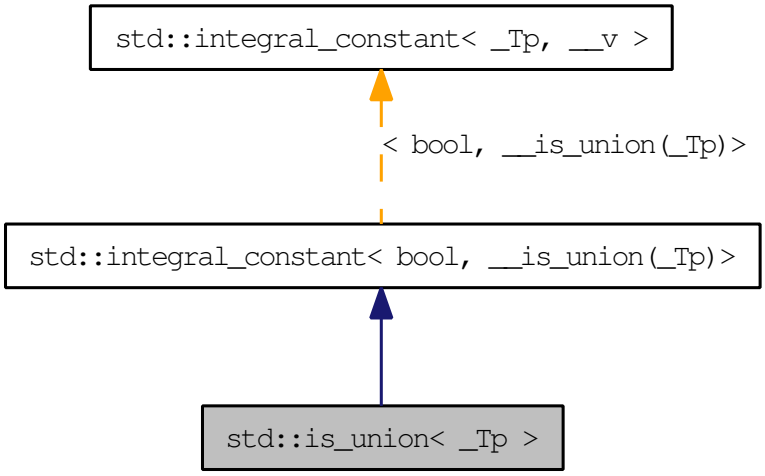
Definition at line 178 of file type_traits.

The documentation for this struct was generated from the following file:

- type_traits

5.549 std::is_union< _Tp > Struct Template Reference

is_union Inheritance diagram for std::is_union< _Tp >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.549.1 Detailed Description

template<typename _Tp> struct std::is_union< _Tp >

is_union

Definition at line 212 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.550 std::is_unsigned< _Tp > Struct Template Reference

is_unsigned Inheritance diagram for std::is_unsigned< _Tp >:

Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.550.1 Detailed Description

template<typename _Tp> struct std::is_unsigned< _Tp >

is_unsigned

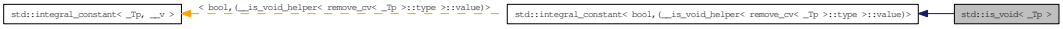
Definition at line 169 of file type_traits.

The documentation for this struct was generated from the following file:

- type_traits

5.551 std::is_void< _Tp > Struct Template Reference

is_void Inheritance diagram for std::is_void< _Tp >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.551.1 Detailed Description

template<typename _Tp> struct std::is_void< _Tp >

is_void

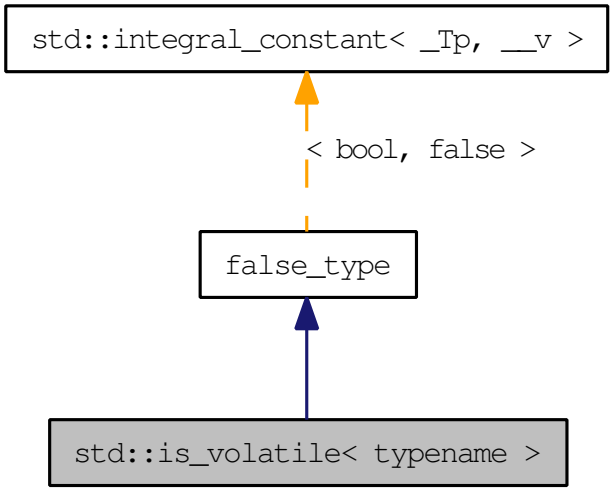
Definition at line 96 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.552 std::is_volatile< typename > Struct Template Reference

is_volatile Inheritance diagram for std::is_volatile< typename >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.552.1 Detailed Description

template<typename> struct std::is_volatile< typename >

is_volatile

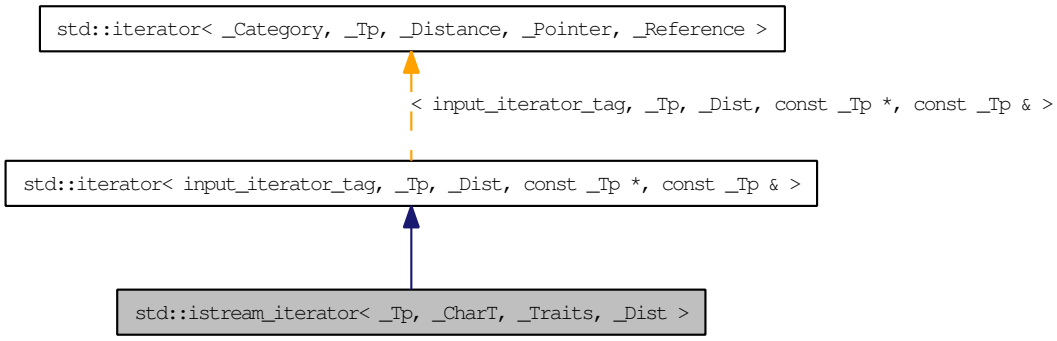
Definition at line 317 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.553 std::istream_iterator< _Tp, _CharT, _Traits, _Dist > Class Template Reference

Provides input iterator semantics for streams. Inheritance diagram for std::istream_iterator< _Tp, _CharT, _Traits, _Dist >:



Public Types

- typedef _CharT **char_type**
- typedef _Dist difference_type
- typedef basic_istream< _CharT, _Traits > **istream_type**
- typedef input_iterator_tag iterator_category
- typedef const _Tp * pointer
- typedef const _Tp & reference
- typedef _Traits **traits_type**
- typedef _Tp value_type

Public Member Functions

- **istream_iterator** (const istream_iterator &__obj)
- istream_iterator (istream_type &__s)
- istream_iterator ()
- bool **_M_equal** (const istream_iterator &__x) const
- const _Tp & **operator*** () const
- istream_iterator **operator++** (int)
- istream_iterator & **operator++** ()
- const _Tp * **operator->** () const

5.553.1 Detailed Description

template<typename _Tp, typename _CharT = char, typename _Traits = char_traits<_CharT>, typename _Dist = ptrdiff_t> class std::istream_iterator< _Tp, _CharT, _Traits, _Dist >

Provides input iterator semantics for streams.

Definition at line 47 of file stream_iterator.h.

5.553.2 Member Typedef Documentation

5.553.2.1 typedef _Dist std::iterator< input_iterator_tag , _Tp , _Dist , const _Tp *, const _Tp & >::difference_type [inherited]

Distance between iterators is represented as this type.

Definition at line 115 of file stl_iterator_base_types.h.

5.553.2.2 typedef input_iterator_tag std::iterator< input_iterator_tag , _Tp , _Dist , const _Tp *, const _Tp & >::iterator_category [inherited]

One of the tag types.

Definition at line 111 of file stl_iterator_base_types.h.

5.553.2.3 typedef const _Tp * std::iterator< input_iterator_tag , _Tp , _Dist , const _Tp *, const _Tp & >::pointer [inherited]

This type represents a pointer-to-value_type.

Definition at line 117 of file stl_iterator_base_types.h.

5.553.2.4 typedef const _Tp & std::iterator< input_iterator_tag , _Tp , _Dist , const _Tp *, const _Tp & >::reference [inherited]

This type represents a reference-to-value_type.

Definition at line 119 of file stl_iterator_base_types.h.

5.553.2.5 typedef _Tp std::iterator< input_iterator_tag , _Tp , _Dist , const _Tp *, const _Tp & >::value_type [inherited]

The type "pointed to" by the iterator.

Definition at line 113 of file stl_iterator_base_types.h.

5.553.3 Constructor & Destructor Documentation

5.553.3.1 template<typename _Tp, typename _CharT = char, typename _Traits = char_traits<_CharT>, typename _Dist = ptrdiff_t> std::istream_iterator< _Tp, _CharT, _Traits, _Dist >::istream_iterator () [inline]

Construct end of input stream iterator.

Definition at line 62 of file stream_iterator.h.

5.553.3.2 template<typename _Tp, typename _CharT = char, typename _Traits = char_traits<_CharT>, typename _Dist = ptrdiff_t> std::istream_iterator< _Tp, _CharT, _Traits, _Dist >::istream_iterator (istream_type & __s) [inline]

Construct start of input stream iterator.

Definition at line 66 of file stream_iterator.h.

The documentation for this class was generated from the following file:

- stream_iterator.h

5.554 std::istreambuf_iterator< _CharT, _Traits > Class Template Reference

Provides input iterator semantics for streambufs. Inheritance diagram for std::istreambuf_iterator< _CharT, _Traits >:

Public Types

- typedef _Traits::off_type difference_type
- typedef input_iterator_tag iterator_category
- typedef _CharT * pointer
- typedef _CharT & reference
- typedef _CharT value_type

  - typedef _CharT char_type
  - typedef _Traits::int_type int_type
  - typedef basic_istream< _CharT, _Traits > istream_type
  - typedef basic_streambuf< _CharT, _Traits > streambuf_type
  - typedef _Traits traits_type

Public Member Functions

- istreambuf_iterator (streambuf_type *__s) throw ()
- istreambuf_iterator (istream_type &__s) throw ()
- istreambuf_iterator () throw ()
- bool equal (const istreambuf_iterator &__b) const
- char_type operator* () const
- istreambuf_iterator operator++ (int)
- istreambuf_iterator & operator++ ()

Friends

- template<bool _IsMove, typename _CharT2 > __gnu_cxx::__enable_if< __is_char< _CharT2 >::__value, _CharT2 * >::__type **__copy_move_a2** (istreambuf_iterator< _CharT2 >, istreambuf_iterator< _CharT2 >, _CharT2 *)
- template<typename _CharT2 > __gnu_cxx::__enable_if< __is_char< _CharT2 >::__value, ostreambuf_iterator< _CharT2 > >::__type **copy** (istreambuf_iterator< _CharT2 >, istreambuf_iterator< _CharT2 >, ostreambuf_iterator< _CharT2 >)

- template<typename _CharT2 >
  __gnu_cxx::__enable_if< __is_char< _CharT2 >::__value, istreambuf_iterator< _CharT2 > >::__type **find** (istreambuf_iterator< _CharT2 >, istreambuf_iterator< _CharT2 >, const _CharT2 &)

5.554.1 Detailed Description

template<typename _CharT, typename _Traits> class std::istreambuf_iterator< _CharT, _Traits >

Provides input iterator semantics for streambufs.

Definition at line 50 of file streambuf_iterator.h.

5.554.2 Member Typedef Documentation

5.554.2.1 template<typename _CharT , typename _Traits > typedef _CharT std::istreambuf_iterator< _CharT, _Traits >::char_type

Public typedefs.

Definition at line 58 of file streambuf_iterator.h.

5.554.2.2 typedef _Traits::off_type std::iterator< input_iterator_tag , _CharT , _Traits::off_type , _CharT * , _CharT & >::difference_type [inherited]

Distance between iterators is represented as this type.

Definition at line 115 of file stl_iterator_base_types.h.

5.554.2.3 template<typename _CharT , typename _Traits > typedef _Traits::int_type std::istreambuf_iterator< _CharT, _Traits >::int_type

Public typedefs.

Definition at line 60 of file streambuf_iterator.h.

5.554.2.4 template<typename _CharT , typename _Traits > typedef basic_istream<_CharT, _Traits> std::istreambuf_iterator< _CharT, _Traits >::istream_type

Public typedefs.

Definition at line 62 of file streambuf_iterator.h.

5.554.2.5 typedef input_iterator_tag std::iterator< input_iterator_tag , _CharT , _Traits::off_type , _CharT * , _CharT & >::iterator_category [inherited]

One of the tag types.

Definition at line 111 of file stl_iterator_base_types.h.

5.554.2.6 typedef _CharT * std::iterator< input_iterator_tag , _CharT , _Traits::off_type , _CharT * , _CharT & >::pointer [inherited]

This type represents a pointer-to-value_type.

Definition at line 117 of file stl_iterator_base_types.h.

5.554.2.7 typedef _CharT & std::iterator< input_iterator_tag , _CharT , _Traits::off_type , _CharT * , _CharT & >::reference [inherited]

This type represents a reference-to-value_type.

Definition at line 119 of file stl_iterator_base_types.h.

5.554.2.8 template<typename _CharT , typename _Traits > typedef basic_streambuf<_CharT, _Traits> std::istreambuf_iterator< _CharT, _Traits >::streambuf_type

Public typedefs.

Definition at line 61 of file streambuf_iterator.h.

5.554.2.9 template<typename _CharT , typename _Traits > typedef _Traits std::istreambuf_iterator< _CharT, _Traits >::traits_type

Public typedefs.

Definition at line 59 of file streambuf_iterator.h.

5.554.2.10 typedef _CharT std::iterator< input_iterator_tag , _CharT , _Traits::off_type , _CharT * , _CharT & >::value_type [inherited]

The type "pointed to" by the iterator.

Definition at line 113 of file stl_iterator_base_types.h.

5.554.3 Constructor & Destructor Documentation

5.554.3.1 template<typename _CharT , typename _Traits > std::istreambuf_iterator< _CharT, _Traits >::istreambuf_iterator () throw () [inline]

Construct end of input stream iterator.

Definition at line 96 of file streambuf_iterator.h.

5.554.3.2 template<typename _CharT , typename _Traits > std::istreambuf_iterator< _CharT, _Traits >::istreambuf_iterator (istream_type & __*s*) throw () [inline]

Construct start of input stream iterator.

Definition at line 100 of file streambuf_iterator.h.

5.554.3.3 template<typename _CharT , typename _Traits > std::istreambuf_iterator< _CharT, _Traits >::istreambuf_iterator (streambuf_type * __*s*) throw () [inline]

Construct start of streambuf iterator.

Definition at line 104 of file streambuf_iterator.h.

5.554.4 Member Function Documentation

5.554.4.1 template<typename _CharT , typename _Traits > bool std::istreambuf_iterator< _CharT, _Traits >::equal (const istreambuf_iterator< _CharT, _Traits > & __*b*) const [inline]

Return true both iterators are end or both are not end.

Definition at line 160 of file streambuf_iterator.h.

5.554.4.2 template<typename _CharT , typename _Traits > char_type std::istreambuf_iterator< _CharT, _Traits >::operator* () const [inline]

Return the current character pointed to by iterator. This returns streambuf.sgetc(). It cannot be assigned. NB: The result of operator*() on an end of stream is undefined.

Definition at line 111 of file streambuf_iterator.h.

5.554.4.3 template<typename _CharT , typename _Traits > istreambuf_iterator std::istreambuf_iterator< _CharT, _Traits >::operator++ (int) [inline]

Advance the iterator. Calls streambuf.sbumpc().

Definition at line 140 of file streambuf_iterator.h.

References std::basic_streambuf< _CharT, _Traits >::sbumpc().

5.554.4.4 template<typename _CharT , typename _Traits > istreambuf_iterator& std::istreambuf_iterator< _CharT, _Traits >::operator++ () [inline]

Advance the iterator. Calls streambuf.sbumpc().

Definition at line 125 of file streambuf_iterator.h.

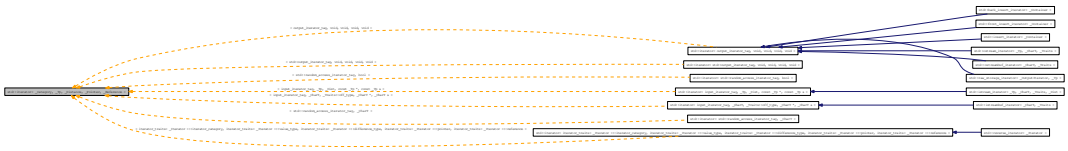
References std::basic_streambuf< _CharT, _Traits >::sbumpc().

The documentation for this class was generated from the following file:

- streambuf_iterator.h

5.555 std::iterator< _Category, _Tp, _Distance, _Pointer, _Reference > Struct Template Reference

Common iterator class. Inheritance diagram for std::iterator< _Category, _Tp, _Distance, _Pointer, _Reference >:



Public Types

- typedef _Distance difference_type
- typedef _Category iterator_category
- typedef _Pointer pointer
- typedef _Reference reference
- typedef _Tp value_type

5.555.1 Detailed Description

template<typename _Category, typename _Tp, typename _Distance = ptrdiff_t, typename _Pointer = _Tp*, typename _Reference = _Tp&> struct std::iterator< _Category, _Tp, _Distance, _Pointer, _Reference >

Common iterator class. This class does nothing but define nested typedefs. Iterator classes can inherit from this class to save some work. The typedefs are then used in specializations and overloading.

In particular, there are no default implementations of requirements such as `operator++` and the like. (How could there be?)

Definition at line 108 of file stl_iterator_base_types.h.

5.555.2 Member Typedef Documentation

5.555.2.1 template<typename _Category, typename _Tp, typename _Distance = ptrdiff_t, typename _Pointer = _Tp*, typename _Reference = _Tp&> typedef _Distance std::iterator< _Category, _Tp, _Distance, _Pointer, _Reference >::difference_type

Distance between iterators is represented as this type.

Reimplemented in std::reverse_iterator< _Iterator >.

Definition at line 115 of file stl_iterator_base_types.h.

5.555.2.2 template<typename _Category, typename _Tp, typename _Distance = ptrdiff_t, typename _Pointer = _Tp*, typename _Reference = _Tp&> typedef _Category std::iterator< _Category, _Tp, _Distance, _Pointer, _Reference >::iterator_category

One of the tag types.

Definition at line 111 of file stl_iterator_base_types.h.

5.555.2.3 template<typename _Category, typename _Tp, typename _Distance = ptrdiff_t, typename _Pointer = _Tp*, typename _Reference = _Tp&> typedef _Pointer std::iterator< _Category, _Tp, _Distance, _Pointer, _Reference >::pointer

This type represents a pointer-to-value_type.

Reimplemented in std::reverse_iterator< _Iterator >.

Definition at line 117 of file stl_iterator_base_types.h.

5.555.2.4 template<typename _Category, typename _Tp, typename _Distance = ptrdiff_t, typename _Pointer = _Tp*, typename _Reference = _Tp&> typedef _Reference std::iterator< _Category, _Tp, _Distance, _Pointer, _Reference >::reference

This type represents a reference-to-value_type.

Reimplemented in std::reverse_iterator< _Iterator >.

Definition at line 119 of file stl_iterator_base_types.h.

5.555.2.5 template<typename _Category, typename _Tp, typename _Distance = ptrdiff_t, typename _Pointer = _Tp*, typename _Reference = _Tp&> typedef _Tp std::iterator< _Category, _Tp, _Distance, _Pointer, _Reference >::value_type

The type "pointed to" by the iterator.

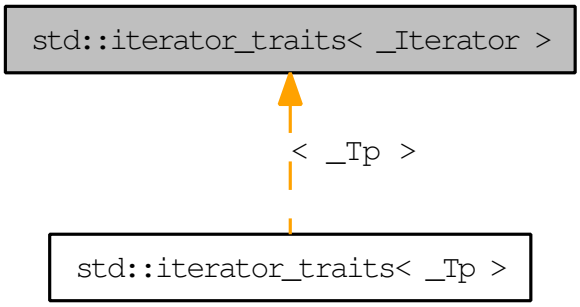
Definition at line 113 of file stl_iterator_base_types.h.

The documentation for this struct was generated from the following file:

- stl_iterator_base_types.h

5.556 std::iterator_traits< _Iterator > Struct Template Reference

Traits class for iterators. Inheritance diagram for std::iterator_traits< _Iterator >:



Public Types

- typedef _Iterator::difference_type **difference_type**
- typedef _Iterator::iterator_category **iterator_category**
- typedef _Iterator::pointer **pointer**
- typedef _Iterator::reference **reference**
- typedef _Iterator::value_type **value_type**

5.556.1 Detailed Description

template<typename _Iterator> struct std::iterator_traits< _Iterator >

Traits class for iterators. This class does nothing but define nested typedefs. The general version simply *forwards* the nested typedefs from the Iterator argument. Specialized versions for pointers and pointers-to-const provide tighter, more correct semantics.

Definition at line 131 of file stl_iterator_base_types.h.

The documentation for this struct was generated from the following file:

- stl_iterator_base_types.h

5.557 std::iterator_traits< _Tp * > Struct Template Reference

Partial specialization for pointer types.

Public Types

- typedef ptrdiff_t **difference_type**
- typedef random_access_iterator_tag **iterator_category**
- typedef _Tp * **pointer**
- typedef _Tp & **reference**
- typedef _Tp **value_type**

5.557.1 Detailed Description

template<typename _Tp> struct std::iterator_traits< _Tp * >

Partial specialization for pointer types.

Definition at line 142 of file stl_iterator_base_types.h.

The documentation for this struct was generated from the following file:

- stl_iterator_base_types.h

5.558 std::iterator_traits< const _Tp * > Struct Template Reference

Partial specialization for const pointer types.

Public Types

- typedef ptrdiff_t **difference_type**
- typedef random_access_iterator_tag **iterator_category**
- typedef const _Tp * **pointer**
- typedef const _Tp & **reference**
- typedef _Tp **value_type**

5.558.1 Detailed Description

template<typename _Tp> struct std::iterator_traits< const _Tp * >

Partial specialization for const pointer types.

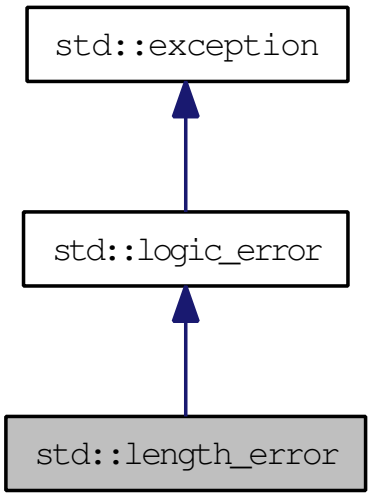
Definition at line 153 of file stl_iterator_base_types.h.

The documentation for this struct was generated from the following file:

- stl_iterator_base_types.h

5.559 std::length_error Class Reference

Inheritance diagram for std::length_error:



Public Member Functions

- **length_error** (const string &__arg)
- virtual const char * what () const throw ()

5.559.1 Detailed Description

Thrown when an object is constructed that would exceed its maximum permitted size (e.g., a basic_string instance).

Definition at line 88 of file stdexcept.

5.559.2 Member Function Documentation

5.559.2.1 virtual const char* std::logic_error::what () const throw () [virtual, inherited]

Returns a C-style character string describing the general cause of the current error (the same string passed to the ctor).

Reimplemented from std::exception.

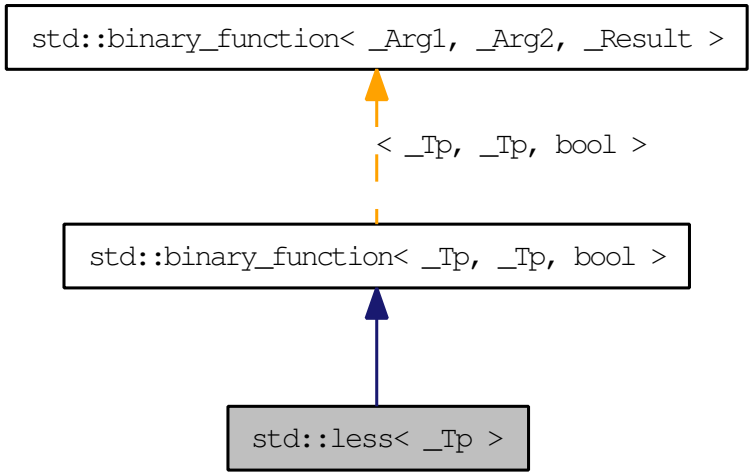
Reimplemented in std::future_error.

The documentation for this class was generated from the following file:

- stdexcept

5.560 std::less< _Tp > Struct Template Reference

One of the comparison functors. Inheritance diagram for std::less< _Tp >:



Public Types

- typedef _Tp first_argument_type
- typedef bool result_type
- typedef _Tp second_argument_type

Public Member Functions

- bool **operator()** (const _Tp &__x, const _Tp &__y) const

5.560.1 Detailed Description

template<typename _Tp> struct std::less< _Tp >

One of the comparison functors.

Definition at line 226 of file stl_function.h.

5.560.2 Member Typedef Documentation

5.560.2.1 typedef _Tp std::binary_function< _Tp , _Tp , bool >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.560.2.2 typedef bool std::binary_function< _Tp , _Tp , bool >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.560.2.3 typedef _Tp std::binary_function< _Tp , _Tp , bool >::second_argument_type [inherited]

the type of the second argument

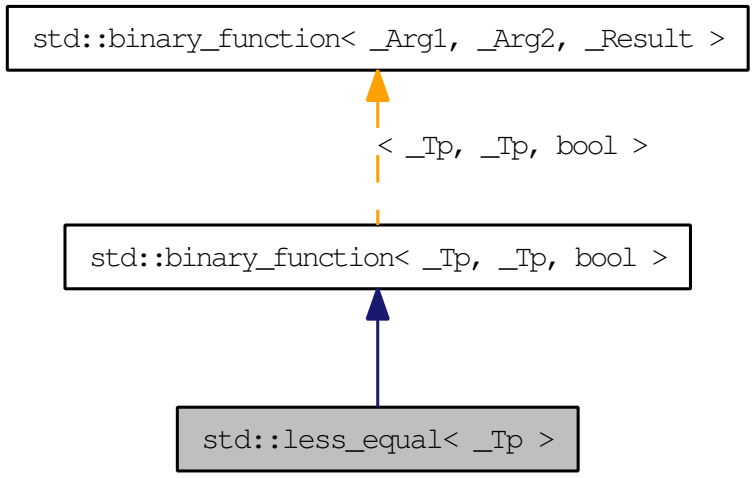
Definition at line 117 of file stl_function.h.

The documentation for this struct was generated from the following file:

- stl_function.h

5.561 std::less_equal< _Tp > Struct Template Reference

One of the comparison functors. Inheritance diagram for std::less_equal< _Tp >:



Public Types

- typedef _Tp first_argument_type
- typedef bool result_type
- typedef _Tp second_argument_type

Public Member Functions

- bool **operator()** (const _Tp &__x, const _Tp &__y) const

5.561.1 Detailed Description

template<typename _Tp> struct std::less_equal< _Tp >

One of the comparison functors.

Definition at line 244 of file stl_function.h.

5.561.2 Member Typedef Documentation

5.561.2.1 typedef _Tp std::binary_function< _Tp , _Tp , bool >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.561.2.2 typedef bool std::binary_function< _Tp , _Tp , bool >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.561.2.3 typedef _Tp std::binary_function< _Tp , _Tp , bool >::second_argument_type [inherited]

the type of the second argument

Definition at line 117 of file stl_function.h.

The documentation for this struct was generated from the following file:

- stl_function.h

5.562 std::linear_congruential_engine< _UIntType, _-_a, __c, __m > Class Template Reference

A model of a linear congruential random number generator.

Public Types

- typedef _UIntType result_type

Public Member Functions

- template<typename _Sseq , typename = typename std::enable_if<!std::is_same<_Sseq, linear_-congruential_engine>::value> ::type>
  linear_congruential_engine (_Sseq &__q)
- linear_congruential_engine (result_type __s=default_seed)
- void discard (unsigned long long __z)
- result_type max () const
- result_type min () const
- result_type operator() ()
- template<typename _Sseq >
  std::enable_if< std::is_class< _Sseq >::value >::type seed (_Sseq &__q)
- void seed (result_type __s=default_seed)

Static Public Attributes

- static const result_type **default_seed**
- static const result_type increment
- static const result_type modulus
- static const result_type multiplier

Friends

- template<typename _UIntType1 , _UIntType1 __a1, _UIntType1 __c1, _UIntType1 __m1, type-name _CharT , typename _Traits >
  std::basic_ostream< _CharT, _Traits > & operator<< (std::basic_ostream< _-CharT, _Traits > &, const std::linear_congruential_engine< _UIntType1, __a1, __c1, __m1 > &)
- bool operator== (const linear_congruential_engine &__lhs, const linear_-congruential_engine &__rhs)

- template<typename _UIntType1 , _UIntType1 __a1, _UIntType1 __c1, _UIntType1 __m1, typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & operator>> (std::basic_istream< _CharT, _Traits > &, std::linear_congruential_engine< _UIntType1, __a1, __c1, __m1 > &)

5.562.1 Detailed Description

template<typename _UIntType, _UIntType __a, _UIntType __c, _UIntType __m> class std::linear_congruential_engine< _UIntType, __a, __c, __m >

A model of a linear congruential random number generator. A random number generator that produces pseudorandom numbers via linear function:

$$x_{i+1} \leftarrow (ax_i + c) \bmod m$$

The template parameter `_UIntType` must be an unsigned integral type large enough to store values up to (__m-1). If the template parameter `__m` is 0, the modulus `__m` used is std::numeric_limits<_UIntType>::max() plus 1. Otherwise, the template parameters `__a` and `__c` must be less than `__m`.

The size of the state is 1.

Definition at line 157 of file random.h.

5.562.2 Member Typedef Documentation

5.562.2.1 template<typename _UIntType, _UIntType __a, _UIntType __c, _UIntType __m> typedef _UIntType std::linear_congruential_engine< _UIntType, __a, __c, __m >::result_type

The type of the generated random value.

Definition at line 166 of file random.h.

5.562.3 Constructor & Destructor Documentation

5.562.3.1 template<typename _UIntType, _UIntType __a, _UIntType __c, _UIntType __m> std::linear_congruential_engine< _UIntType, __a, __c, __m >::linear_congruential_engine (result_type __s = default_seed) [inline, explicit]

Constructs a linear_congruential_engine random number generator engine with seed `__s`. The default seed value is 1.

Parameters:

__s The initial seed value.

Definition at line 184 of file random.h.

References std::linear_congruential_engine< _UIntType, __a, __c, __m >::seed().

5.562.3.2 template<typename _UIntType, _UIntType __a, _UIntType __c, _UIntType __m> template<typename _Sseq , typename = typename std::enable_if<!std::is_same<_Sseq, linear_congruential_engine>::value> ::type> std::linear_congruential_engine< _UIntType, __a, __c, __m >::linear_congruential_engine (_Sseq & *__q*) [inline, explicit]

Constructs a linear_congruential_engine random number generator engine seeded from the seed sequence __q.

Parameters:

__q the seed sequence.

Definition at line 197 of file random.h.

References std::linear_congruential_engine< _UIntType, __a, __c, __m >::seed().

5.562.4 Member Function Documentation

5.562.4.1 template<typename _UIntType, _UIntType __a, _UIntType __c, _UIntType __m> void std::linear_congruential_engine< _UIntType, __a, __c, __m >::discard (unsigned long long *__z*) [inline]

Discard a sequence of random numbers.

Todo

Look for a faster way to do discard.

Definition at line 247 of file random.h.

5.562.4.2 template<typename _UIntType, _UIntType __a, _UIntType __c, _UIntType __m> result_type std::linear_congruential_engine< _UIntType, __a, __c, __m >::max () const [inline]

Gets the largest possible value in the output range.

Todo

This should be constexpr.

Definition at line 238 of file random.h.

5.562.4.3 template<typename _UIntType, _UIntType __a, _UIntType __c, _UIntType __m> result_type std::linear_congruential_engine< _UIntType, __a, __c, __m >::min () const [inline]

Gets the smallest possible value in the output range. The minimum depends on the __c parameter: if it is zero, the minimum generated must be > 0, otherwise 0 is allowed.

Todo

This should be constexpr.

Definition at line 229 of file random.h.

5.562.4.4 template<typename _UIntType, _UIntType __a, _UIntType __c, _UIntType __m> result_type std::linear_congruential_engine< _UIntType, __a, __c, __m >::operator() () [inline]

Gets the next random number in the sequence.

Definition at line 257 of file random.h.

5.562.4.5 template<typename _UIntType , _UIntType __a, _UIntType __c, _UIntType __m> template<typename _Sseq > std::enable_if< std::is_class< _Sseq >::value >::type std::linear_congruential_engine< _UIntType, __a, __c, __m >::seed (_Sseq & *__q*) [inline]

Reseeds the linear_congruential_engine random number generator engine sequence using values from the seed sequence __q.

Parameters:

__q the seed sequence.

Seeds the LCR engine with a value generated by __q.

Definition at line 132 of file random.tcc.

References std::__lg(), and std::linear_congruential_engine< _UIntType, __a, __c, _-_m >::seed().

5.562.4.6 template<typename _UIntType , _UIntType __a, _UIntType __c, _UIntType __m> void std::linear_congruential_engine< _UIntType, __a, __c, __m >::seed (result_type __s = default_seed) [inline]

Reseeds the linear_congruential_engine random number generator engine sequence to the seed __s.

Parameters:

__s The new seed.

Seeds the LCR with integral value __s, adjusted so that the ring identity is never a member of the convergence set.

Definition at line 116 of file random.tcc.

Referenced by std::linear_congruential_engine< _UIntType, __a, __c, __m >::linear_congruential_engine(), and std::linear_congruential_engine< _UIntType, __a, __c, __m >::seed().

5.562.5 Friends And Related Function Documentation

5.562.5.1 template<typename _UIntType, _UIntType __a, _UIntType __c, _UIntType __m> template<typename _UIntType1 , _UIntType1 __a1, _UIntType1 __c1, _UIntType1 __m1, typename _CharT , typename _Traits > std::basic_ostream<_CharT, _Traits>& operator<< (std::basic_ostream< _CharT, _Traits > &, const std::linear_congruential_engine< _UIntType1, __a1, __c1, __m1 > &) [friend]

Writes the textual representation of the state x(i) of x to __os.

Parameters:

__os The output stream.

__lcr A % linear_congruential_engine random number generator.

Returns:

__os.

5.562.5.2 template<typename _UIntType, _UIntType __a, _UIntType __c, _UIntType __m> bool operator== (const linear_congruential_engine< _UIntType, __a, __c, __m > & *__lhs*, const linear_congruential_engine< _UIntType, __a, __c, __m > & *__rhs*) [friend]

Compares two linear congruential random number generator objects of the same type for equality.

Parameters:

__lhs A linear congruential random number generator object.

__rhs Another linear congruential random number generator object.

Returns:

true if the two objects are equal, false otherwise.

Definition at line 274 of file random.h.

5.562.5.3 template<typename _UIntType, _UIntType __a, _UIntType __c, _UIntType __m> template<typename _UIntType1 , _UIntType1 __a1, _UIntType1 __c1, _UIntType1 __m1, typename _CharT , typename _Traits > std::basic_istream<_CharT, _Traits>& operator>> (std::basic_istream< _CharT, _Traits > &, std::linear_congruential_engine< _UIntType1, __a1, __c1, __m1 > &) [friend]

Sets the state of the engine by reading its textual representation from __is. The textual representation must have been previously written using an output stream whose imbued locale and whose type's template specialization arguments _CharT and _Traits were the same as those of __is.

Parameters:

__is The input stream.

__lcr A % linear_congruential_engine random number generator.

Returns:

__is.

5.562.6 Member Data Documentation

5.562.6.1 template<typename _UIntType, _UIntType __a, _UIntType __c, _UIntType __m> const _UIntType std::linear_congruential_engine< _UIntType, __a, __c, __m >::increment [inline, static]

An increment.

Definition at line 171 of file random.h.

5.562.6.2 template<typename _UIntType, _UIntType __a, _UIntType __c, _UIntType __m> const _UIntType std::linear_congruential_engine< _UIntType, __a, __c, __m >::modulus [inline, static]

The modulus.

Definition at line 173 of file random.h.

5.562.6.3 template<typename _UIntType, _UIntType __a, _UIntType __c, _UIntType __m> const _UIntType std::linear_congruential_engine< _UIntType, __a, __c, __m >::multiplier [inline, static]

The multiplier.

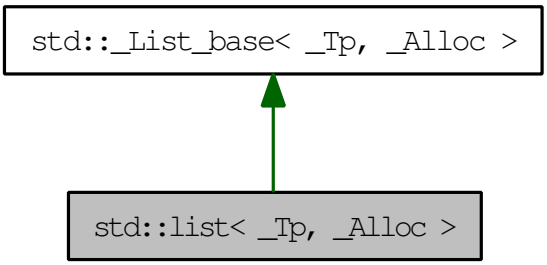
Definition at line 169 of file random.h.

The documentation for this class was generated from the following files:

- random.h
- random.tcc

5.563 std::list< _Tp, _Alloc > Class Template Reference

A standard container with linear time access to elements, and fixed time insertion/deletion at any point in the sequence. Inheritance diagram for std::list< _Tp, _Alloc >:



Public Types

- typedef _Alloc **allocator_type**
- typedef _List_const_iterator< _Tp > **const_iterator**
- typedef _Tp_alloc_type::const_pointer **const_pointer**
- typedef _Tp_alloc_type::const_reference **const_reference**
- typedef std::reverse_iterator< const_iterator > **const_reverse_iterator**
- typedef ptrdiff_t **difference_type**
- typedef _List_iterator< _Tp > **iterator**
- typedef _Tp_alloc_type::pointer **pointer**
- typedef _Tp_alloc_type::reference **reference**
- typedef std::reverse_iterator< iterator > **reverse_iterator**
- typedef size_t **size_type**
- typedef _Tp **value_type**

Public Member Functions

- template<typename _InputIterator >
  list (_InputIterator __first, _InputIterator __last, const allocator_type &__a=allocator_type())
- list (initializer_list< value_type > __l, const allocator_type &__a=allocator_type())
- list (list &&__x)
- list (const list &__x)
- list (size_type __n, const value_type &__value=value_type(), const allocator_type &__a=allocator_type())

- list (const allocator_type &__a)
- list ()
- void assign (initializer_list< value_type > __l)
- template<typename _InputIterator >
  void assign (_InputIterator __first, _InputIterator __last)
- void assign (size_type __n, const value_type &__val)
- const_reference back () const
- reference back ()
- const_iterator begin () const
- iterator begin ()
- const_iterator cbegin () const
- const_iterator cend () const
- void clear ()
- const_reverse_iterator crbegin () const
- const_reverse_iterator crend () const
- template<typename... _Args>
  iterator emplace (iterator __position, _Args &&...__args)
- template<typename... _Args>
  void **emplace_back** (_Args &&...__args)
- template<typename... _Args>
  void **emplace_front** (_Args &&...__args)
- bool empty () const
- const_iterator end () const
- iterator end ()
- iterator erase (iterator __first, iterator __last)
- iterator erase (iterator __position)
- const_reference front () const
- reference front ()
- allocator_type get_allocator () const
- template<typename _InputIterator >
  void insert (iterator __position, _InputIterator __first, _InputIterator __last)
- void insert (iterator __position, size_type __n, const value_type &__x)
- void insert (iterator __p, initializer_list< value_type > __l)
- iterator insert (iterator __position, value_type &&__x)
- iterator insert (iterator __position, const value_type &__x)
- size_type max_size () const
- template<typename _StrictWeakOrdering >
  void **merge** (list &__x, _StrictWeakOrdering __comp)
- template<typename _StrictWeakOrdering >
  void merge (list &&, _StrictWeakOrdering)
- void **merge** (list &__x)
- void merge (list &&__x)
- list & operator= (initializer_list< value_type > __l)

- list & operator= (list &&__x)
- list & operator= (const list &__x)
- void pop_back ()
- void pop_front ()
- void **push_back** (value_type &&__x)
- void push_back (const value_type &__x)
- void **push_front** (value_type &&__x)
- void push_front (const value_type &__x)
- const_reverse_iterator rbegin () const
- reverse_iterator rbegin ()
- void remove (const _Tp &__value)
- template<typename _Predicate >
  void remove_if (_Predicate)
- const_reverse_iterator rend () const
- reverse_iterator rend ()
- void resize (size_type __new_size, value_type __x=value_type())
- void reverse ()
- size_type size () const
- template<typename _StrictWeakOrdering >
  void sort (_StrictWeakOrdering)
- void sort ()
- void **splice** (iterator __position, list &__x, iterator __first, iterator __last)
- void splice (iterator __position, list &&__x, iterator __first, iterator __last)
- void **splice** (iterator __position, list &__x, iterator __i)
- void splice (iterator __position, list &&__x, iterator __i)
- void **splice** (iterator __position, list &__x)
- void splice (iterator __position, list &&__x)
- void swap (list &__x)
- template<typename _BinaryPredicate >
  void unique (_BinaryPredicate)
- void unique ()

Protected Types

- typedef _List_node< _Tp > **_Node**
- typedef _Alloc::template rebind< _List_node< _Tp > >::other **_Node_alloc_type**

Protected Member Functions

- template<typename _InputIterator >
  void **_M_assign_dispatch** (_InputIterator __first, _InputIterator __last, __-false_type)
- template<typename _Integer >
  void **_M_assign_dispatch** (_Integer __n, _Integer __val, __true_type)
- void **_M_check_equal_allocators** (list &__x)
- void **_M_clear** ()
- template<typename... _Args>
  _Node * _M_create_node (_Args &&...__args)
- void **_M_erase** (iterator __position)
- void **_M_fill_assign** (size_type __n, const value_type &__val)
- void **_M_fill_initialize** (size_type __n, const value_type &__x)
- _List_node< _Tp > * **_M_get_node** ()
- const _Node_alloc_type & **_M_get_Node_allocator** () const
- _Node_alloc_type & **_M_get_Node_allocator** ()
- _Tp_alloc_type **_M_get_Tp_allocator** () const
- void **_M_init** ()
- template<typename _InputIterator >
  void **_M_initialize_dispatch** (_InputIterator __first, _InputIterator __last, __-false_type)
- template<typename _Integer >
  void **_M_initialize_dispatch** (_Integer __n, _Integer __x, __true_type)
- template<typename... _Args>
  void **_M_insert** (iterator __position, _Args &&...__args)
- void **_M_put_node** (_List_node< _Tp > *__p)
- void **_M_transfer** (iterator __position, iterator __first, iterator __last)

Protected Attributes

- _List_impl **_M_impl**

5.563.1 Detailed Description

template<typename _Tp, typename _Alloc = std::allocator<_Tp>> class std::list< _Tp, _Alloc >

A standard container with linear time access to elements, and fixed time insertion/deletion at any point in the sequence. Meets the requirements of a `container`, a `reversible container`, and a `sequence`, including the `optional sequence requirements` with the exception of `at` and `operator[]`.

This is a *doubly linked* list. Traversal up and down the list requires linear time, but adding and removing elements (or *nodes*) is done in constant time, regardless of where the change takes place. Unlike std::vector and std::deque, random-access iterators are not provided, so subscripting ([]) access is not allowed. For algorithms which only need sequential access, this lack makes no difference.

Also unlike the other standard containers, std::list provides specialized algorithms unique to linked lists, such as splicing, sorting, and in-place reversal.

A couple points on memory allocation for list<Tp>:

First, we never actually allocate a Tp, we allocate List_node<Tp>'s and trust [20.1.5]/4 to DTRT. This is to ensure that after elements from list<X,Alloc1> are spliced into list<X,Alloc2>, destroying the memory of the second list is a valid operation, i.e., Alloc1 giveth and Alloc2 taketh away.

Second, a list conceptually represented as

```
A <---> B <---> C <---> D
```

is actually circular; a link exists between A and D. The list class holds (as its only data member) a private list::iterator pointing to *D*, not to *A!* To get to the head of the list, we start at the tail and move forward by one. When this member iterator's next/previous pointers refer to itself, the list is empty.

Definition at line 417 of file stl_list.h.

5.563.2 Constructor & Destructor Documentation

5.563.2.1 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> std::list< _Tp, _Alloc >::list () [inline]

Default constructor creates no elements.

Definition at line 499 of file stl_list.h.

5.563.2.2 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> std::list< _Tp, _Alloc >::list (const allocator_type & __a) [inline, explicit]

Creates a list with no elements.

Parameters:

a An allocator object.

Definition at line 507 of file stl_list.h.

5.563.2.3 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> std::list< _Tp, _Alloc >::list (size_type __n, const value_type & __value = value_type(), const allocator_type & __a = allocator_type()) [inline, explicit]

Creates a list with copies of an exemplar element.

Parameters:

n The number of elements to initially create.

value An element to copy.

a An allocator object.

This constructor fills the list with *n* copies of *value*.

Definition at line 519 of file stl_list.h.

5.563.2.4 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> std::list< _Tp, _Alloc >::list (const list< _Tp, _Alloc > & __x) [inline]

List copy constructor.

Parameters:

x A list of identical element and allocator types.

The newly-created list uses a copy of the allocation object used by *x*.

Definition at line 531 of file stl_list.h.

References std::list< _Tp, _Alloc >::begin(), and std::list< _Tp, _Alloc >::end().

5.563.2.5 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> std::list< _Tp, _Alloc >::list (list< _Tp, _Alloc > && __x) [inline]

List move constructor.

Parameters:

x A list of identical element and allocator types.

The newly-created list contains the exact contents of *x*. The contents of *x* are a valid, but unspecified list.

Definition at line 543 of file stl_list.h.

5.563.2.6 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> std::list< _Tp, _Alloc >::list (initializer_list< value_type > __l, const allocator_type & __a = allocator_type()) [inline]

Builds a list from an initializer_list.

Parameters:

l An initializer_list of value_type.

a An allocator object.

Create a list consisting of copies of the elements in the initializer_list *l*. This is linear in l.size().

Definition at line 554 of file stl_list.h.

5.563.2.7 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> template<typename _InputIterator > std::list< _Tp, _Alloc >::list (_InputIterator __*first*, _InputIterator __*last*, const allocator_type & __a = allocator_type()) [inline]

Builds a list from a range.

Parameters:

first An input iterator.

last An input iterator.

a An allocator object.

Create a list consisting of copies of the elements from [*first*,*last*). This is linear in N (where N is distance(*first*,*last*)).

Definition at line 571 of file stl_list.h.

5.563.3 Member Function Documentation

5.563.3.1 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> template<typename... _Args> _Node* std::list< _Tp, _Alloc >::_M_create_node (_Args &&... __*args*) [inline, protected]

Parameters:

x An instance of user data.

Allocates space for a new node and constructs a copy of *x* in it.

Definition at line 476 of file stl_list.h.

Referenced by std::list< _Tp, _Alloc >::emplace(), and std::list< _Tp, _Alloc >::insert().

5.563.3.2 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::list< _Tp, _Alloc >::assign (initializer_list< value_type > __l) [inline]

Assigns an initializer_list to a list.

Parameters:

l An initializer_list of value_type.

Replace the contents of the list with copies of the elements in the initializer_list *l*. This is linear in l.size().

Definition at line 675 of file stl_list.h.

References std::list< _Tp, _Alloc >::assign().

Referenced by std::list< _Tp, _Alloc >::assign().

5.563.3.3 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> template<typename _InputIterator > void std::list< _Tp, _Alloc >::assign (_InputIterator __*first*, _InputIterator __*last*) [inline]

Assigns a range to a list.

Parameters:

first An input iterator.

last An input iterator.

This function fills a list with copies of the elements in the range [*first*,*last*).

Note that the assignment completely changes the list and that the resulting list's size is the same as the number of elements assigned. Old data may be lost.

Definition at line 659 of file stl_list.h.

5.563.3.4 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::list< _Tp, _Alloc >::assign (size_type __*n*, const value_type & __*val*) [inline]

Assigns a given value to a list.

Parameters:

n Number of elements to be assigned.

val Value to be assigned.

This function fills a list with *n* copies of the given value. Note that the assignment completely changes the list and that the resulting list's size is the same as the number of elements assigned. Old data may be lost.

Definition at line 642 of file stl_list.h.

5.563.3.5 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_reference std::list< _Tp, _Alloc >::back () const [inline]

Returns a read-only (constant) reference to the data at the last element of the list.

Definition at line 860 of file stl_list.h.

5.563.3.6 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> reference std::list< _Tp, _Alloc >::back () [inline]

Returns a read/write reference to the data at the last element of the list.

Definition at line 848 of file stl_list.h.

5.563.3.7 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_iterator std::list< _Tp, _Alloc >::begin () const [inline]

Returns a read-only (constant) iterator that points to the first element in the list. Iteration is done in ordinary element order.

Definition at line 699 of file stl_list.h.

5.563.3.8 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> iterator std::list< _Tp, _Alloc >::begin () [inline]

Returns a read/write iterator that points to the first element in the list. Iteration is done in ordinary element order.

Definition at line 690 of file stl_list.h.

Referenced by std::list< _Tp, _Alloc >::list(), std::list< _Tp, _Alloc >::merge(), std::list< _Tp, _Alloc >::operator=(), std::operator==(), std::list< _Tp, _Alloc >::remove(), std::list< _Tp, _Alloc >::remove_if(), std::list< _Tp, _Alloc >::resize(), std::list< _Tp, _Alloc >::sort(), std::list< _Tp, _Alloc >::splice(), and std::list< _Tp, _Alloc >::unique().

5.563.3.9 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_iterator std::list< _Tp, _Alloc >::cbegin () const [inline]

Returns a read-only (constant) iterator that points to the first element in the list. Iteration is done in ordinary element order.

Definition at line 763 of file stl_list.h.

5.563.3.10 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_iterator std::list< _Tp, _Alloc >::cend () const [inline]

Returns a read-only (constant) iterator that points one past the last element in the list. Iteration is done in ordinary element order.

Definition at line 772 of file stl_list.h.

5.563.3.11 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::list< _Tp, _Alloc >::clear () [inline]

Erases all the elements. Note that this function only erases the elements, and that if the elements themselves are pointers, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 1127 of file stl_list.h.

5.563.3.12 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_reverse_iterator std::list< _Tp, _Alloc >::crbegin () const [inline]

Returns a read-only (constant) reverse iterator that points to the last element in the list. Iteration is done in reverse element order.

Definition at line 781 of file stl_list.h.

5.563.3.13 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_reverse_iterator std::list< _Tp, _Alloc >::crend () const [inline]

Returns a read-only (constant) reverse iterator that points to one before the first element in the list. Iteration is done in reverse element order.

Definition at line 790 of file stl_list.h.

5.563.3.14 template<typename _Tp , typename _Alloc > template<typename... _Args> list< _Tp, _Alloc >::iterator list::emplace (iterator *__position*, _Args &&... *__args*) [inline]

Constructs object in list before specified iterator.

Parameters:

position A const_iterator into the list.

args Arguments.

Returns:

An iterator that points to the inserted data.

This function will insert an object of type T constructed with T(std::forward<Args>(args)...) before the specified location. Due to the nature of a list this operation can be done in constant time, and does not invalidate iterators and references.

Definition at line 87 of file list.tcc.

References std::list< _Tp, _Alloc >::_M_create_node().

5.563.3.15 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> bool std::list< _Tp, _Alloc >::empty () const [inline]

Returns true if the list is empty. (Thus begin() would equal end().)

Definition at line 800 of file stl_list.h.

Referenced by std::list< _Tp, _Alloc >::sort(), and std::list< _Tp, _Alloc >::splice().

5.563.3.16 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_iterator std::list< _Tp, _Alloc >::end () const [inline]

Returns a read-only (constant) iterator that points one past the last element in the list. Iteration is done in ordinary element order.

Definition at line 717 of file stl_list.h.

5.563.3.17 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> iterator std::list< _Tp, _Alloc >::end () [inline]

Returns a read/write iterator that points one past the last element in the list. Iteration is done in ordinary element order.

Definition at line 708 of file stl_list.h.

Referenced by std::list< _Tp, _Alloc >::list(), std::list< _Tp, _Alloc >::merge(), std::list< _Tp, _Alloc >::operator=(), std::operator==(), std::list< _Tp, _Alloc >::remove(), std::list< _Tp, _Alloc >::remove_if(), std::list< _Tp, _Alloc >::resize(), std::list< _Tp, _Alloc >::splice(), and std::list< _Tp, _Alloc >::unique().

5.563.3.18 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> iterator std::list< _Tp, _Alloc >::erase (iterator *__first*, iterator *__last*) [inline]

Remove a range of elements.

Parameters:

first Iterator pointing to the first element to be erased.

last Iterator pointing to one past the last element to be erased.

Returns:

An iterator pointing to the element pointed to by *last* prior to erasing (or end()).

This function will erase the elements in the range [first,last) and shorten the list accordingly.

This operation is linear time in the size of the range and only invalidates iterators/references to the element being removed. The user is also cautioned that this function only erases the elements, and that if the elements themselves are pointers, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 1093 of file stl_list.h.

5.563.3.19 template<typename _Tp , typename _Alloc > list< _Tp, _Alloc >::iterator list::erase (iterator *__position*) [inline]

Remove element at given position.

Parameters:

position Iterator pointing to element to be erased.

Returns:

An iterator pointing to the next element (or end()).

This function will erase the element at the given position and thus shorten the list by one.

Due to the nature of a list this operation can be done in constant time, and only invalidates iterators/references to the element being removed. The user is also cautioned that this function only erases the element, and that if the element is itself a pointer, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 108 of file list.tcc.

Referenced by std::list< _Tp, _Alloc >::operator=(), and std::list< _Tp, _Alloc >::resize().

5.563.3.20 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_reference std::list< _Tp, _Alloc >::front () const [inline]

Returns a read-only (constant) reference to the data at the first element of the list.

Definition at line 840 of file stl_list.h.

5.563.3.21 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> reference std::list< _Tp, _Alloc >::front () [inline]

Returns a read/write reference to the data at the first element of the list.

Definition at line 832 of file stl_list.h.

5.563.3.22 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> allocator_type std::list< _Tp, _Alloc >::get_allocator () const [inline]

Get a copy of the memory allocation object.

Reimplemented from std::_List_base< _Tp, _Alloc >.

Definition at line 681 of file stl_list.h.

5.563.3.23 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> template<typename _InputIterator > void std::list< _Tp, _Alloc >::insert (iterator *__position*, _InputIterator *__first*, _InputIterator *__last*) [inline]

Inserts a range into the list.

Parameters:

position An iterator into the list.

first An input iterator.

last An input iterator.

This function will insert copies of the data in the range [*first*,*last*) into the list before the location specified by *position*.

This operation is linear in the number of elements inserted and does not invalidate iterators and references.

Definition at line 1049 of file stl_list.h.

5.563.3.24 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::list< _Tp, _Alloc >::insert (iterator *__position*, size_type *__n*, const value_type & *__x*) [inline]

Inserts a number of copies of given data into the list.

Parameters:

position An iterator into the list.

n Number of elements to be inserted.

x Data to be inserted.

This function will insert a specified number of copies of the given data before the location specified by *position*.

This operation is linear in the number of elements inserted and does not invalidate iterators and references.

Definition at line 1028 of file stl_list.h.

5.563.3.25 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::list< _Tp, _Alloc >::insert (iterator *__p*, initializer_list< value_type > *__l*) [inline]

Inserts the contents of an initializer_list into list before specified iterator.

Parameters:

p An iterator into the list.

l An initializer_list of value_type.

This function will insert copies of the data in the initializer_list *l* into the list before the location specified by *p*.

This operation is linear in the number of elements inserted and does not invalidate iterators and references.

Definition at line 1011 of file stl_list.h.

References std::list< _Tp, _Alloc >::insert().

Referenced by std::list< _Tp, _Alloc >::insert().

5.563.3.26 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> iterator std::list< _Tp, _Alloc >::insert (iterator *__position*, value_type && *__x*) [inline]

Inserts given rvalue into list before specified iterator.

Parameters:

position An iterator into the list.

x Data to be inserted.

Returns:

An iterator that points to the inserted data.

This function will insert a copy of the given rvalue before the specified location. Due to the nature of a list this operation can be done in constant time, and does not invalidate iterators and references.

Definition at line 994 of file stl_list.h.

5.563.3.27 template<typename _Tp , typename _Alloc > list< _Tp, _Alloc >::iterator list::insert (iterator *__position*, const value_type & *__x*) [inline]

Inserts given value into list before specified iterator.

Parameters:

position An iterator into the list.

x Data to be inserted.

Returns:

An iterator that points to the inserted data.

This function will insert a copy of the given value before the specified location. Due to the nature of a list this operation can be done in constant time, and does not invalidate iterators and references.

Definition at line 98 of file list.tcc.

References std::list< _Tp, _Alloc >::_M_create_node().

Referenced by std::list< _Tp, _Alloc >::operator=(), and std::list< _Tp, _Alloc >::resize().

5.563.3.28 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> size_type std::list< _Tp, _Alloc >::max_size () const [inline]

Returns the size() of the largest possible list.

Definition at line 810 of file stl_list.h.

5.563.3.29 template<typename _Tp , typename _Alloc > template<typename _StrictWeakOrdering > void list::merge (list< _Tp, _Alloc > && __x, _StrictWeakOrdering __comp) [inline]

Merge sorted lists according to comparison function.

Parameters:

x Sorted list to merge.

StrictWeakOrdering Comparison function defining sort order.

Assumes that both *x* and this list are sorted according to StrictWeakOrdering. Merges elements of *x* into this list in sorted order, leaving *x* empty when complete. Elements in this list precede elements in *x* that are equivalent according to StrictWeakOrdering().

Definition at line 270 of file list.tcc.

References std::list< _Tp, _Alloc >::begin(), and std::list< _Tp, _Alloc >::end().

5.563.3.30 template<typename _Tp , typename _Alloc > void list::merge (list< _Tp, _Alloc > && __x) [inline]

Merge sorted lists.

Parameters:

x Sorted list to merge.

Assumes that both *x* and this list are sorted according to operator<(). Merges elements of *x* into this list in sorted order, leaving *x* empty when complete. Elements in this list precede elements in *x* that are equal.

Definition at line 236 of file list.tcc.

References std::list< _Tp, _Alloc >::begin(), and std::list< _Tp, _Alloc >::end().

Referenced by std::list< _Tp, _Alloc >::sort().

5.563.3.31 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> list& std::list< _Tp, _Alloc >::operator= (initializer_list< value_type > __l) [inline]

List initializer list assignment operator.

Parameters:

l An initializer_list of value_type.

Replace the contents of the list with copies of the elements in the initializer_list *l*. This is linear in l.size().

Definition at line 624 of file stl_list.h.

5.563.3.32 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> list& std::list< _Tp, _Alloc >::operator= (list< _Tp, _Alloc > && __x) [inline]

List move assignment operator.

Parameters:

x A list of identical element and allocator types.

The contents of *x* are moved into this list (without copying). *x* is a valid, but unspecified list

Definition at line 607 of file stl_list.h.

References std::swap().

5.563.3.33 template<typename _Tp , typename _Alloc > list< _Tp, _Alloc > & list::operator= (const list< _Tp, _Alloc > & __x) [inline]

List assignment operator. No explicit dtor needed as the _Base dtor takes care of things. The _Base dtor only erases the elements, and note that if the elements themselves are pointers, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Parameters:

x A list of identical element and allocator types.

All the elements of *x* are copied, but unlike the copy constructor, the allocator object is not copied.

Definition at line 133 of file list.tcc.

References std::list< _Tp, _Alloc >::begin(), std::list< _Tp, _Alloc >::end(), std::list< _Tp, _Alloc >::erase(), and std::list< _Tp, _Alloc >::insert().

5.563.3.34 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::list< _Tp, _Alloc >::pop_back () [inline]

Removes last element. This is a typical stack operation. It shrinks the list by one. Due to the nature of a list this operation can be done in constant time, and only invalidates iterators/references to the element being removed.

Note that no data is returned, and if the last element's data is needed, it should be retrieved before pop_back() is called.

Definition at line 946 of file stl_list.h.

5.563.3.35 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::list< _Tp, _Alloc >::pop_front () [inline]

Removes first element. This is a typical stack operation. It shrinks the list by one. Due to the nature of a list this operation can be done in constant time, and only invalidates iterators/references to the element being removed.

Note that no data is returned, and if the first element's data is needed, it should be retrieved before pop_front() is called.

Definition at line 906 of file stl_list.h.

5.563.3.36 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::list< _Tp, _Alloc >::push_back (const value_type & __x) [inline]

Add data to the end of the list.

Parameters:

x Data to be added.

This is a typical stack operation. The function creates an element at the end of the list and assigns the given data to it. Due to the nature of a list this operation can be done in constant time, and does not invalidate iterators and references.

Definition at line 920 of file stl_list.h.

5.563.3.37 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::list< _Tp, _Alloc >::push_front (const value_type & __x) [inline]

Add data to the front of the list.

Parameters:

x Data to be added.

This is a typical stack operation. The function creates an element at the front of the list and assigns the given data to it. Due to the nature of a list this operation can be done in constant time, and does not invalidate iterators and references.

Definition at line 879 of file stl_list.h.

5.563.3.38 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_reverse_iterator std::list< _Tp, _Alloc >::rbegin () const [inline]

Returns a read-only (constant) reverse iterator that points to the last element in the list. Iteration is done in reverse element order.

Definition at line 735 of file stl_list.h.

5.563.3.39 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> reverse_iterator std::list< _Tp, _Alloc >::rbegin () [inline]

Returns a read/write reverse iterator that points to the last element in the list. Iteration is done in reverse element order.

Definition at line 726 of file stl_list.h.

5.563.3.40 template<typename _Tp, typename _Alloc > void list::remove (const _Tp & __value) [inline]

Remove all elements equal to value.

Parameters:

value The value to remove.

Removes every element in the list equal to *value*. Remaining elements stay in list order. Note that this function only erases the elements, and that if the elements themselves are pointers, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 187 of file list.tcc.

References std::list< _Tp, _Alloc >::begin(), and std::list< _Tp, _Alloc >::end().

5.563.3.41 template<typename _Tp , typename _Alloc > template<typename _Predicate > void list::remove_if (_Predicate *__pred*) [inline]

Remove all elements satisfying a predicate.

Parameters:

Predicate Unary predicate function or object.

Removes every element in the list for which the predicate returns true. Remaining elements stay in list order. Note that this function only erases the elements, and that if the elements themselves are pointers, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 340 of file list.tcc.

References std::list< _Tp, _Alloc >::begin(), and std::list< _Tp, _Alloc >::end().

5.563.3.42 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_reverse_iterator std::list< _Tp, _Alloc >::rend () const [inline]

Returns a read-only (constant) reverse iterator that points to one before the first element in the list. Iteration is done in reverse element order.

Definition at line 753 of file stl_list.h.

5.563.3.43 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> reverse_iterator std::list< _Tp, _Alloc >::rend () [inline]

Returns a read/write reverse iterator that points to one before the first element in the list. Iteration is done in reverse element order.

Definition at line 744 of file stl_list.h.

5.563.3.44 template<typename _Tp , typename _Alloc > void list::resize (size_type *__new_size*, value_type *__x* = value_type()) [inline]

Resizes the list to the specified number of elements.

Parameters:

new_size Number of elements the list should contain.

x Data with which new elements should be populated.

This function will resize the list to the specified number of elements. If the number is smaller than the list's current size the list is truncated, otherwise the list is extended and new elements are populated with given data.

Definition at line 118 of file list.tcc.

References std::list< _Tp, _Alloc >::begin(), std::list< _Tp, _Alloc >::end(), std::list< _Tp, _Alloc >::erase(), and std::list< _Tp, _Alloc >::insert().

5.563.3.45 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::list< _Tp, _Alloc >::reverse () [inline]

Reverse the elements in list. Reverse the order of elements in the list in linear time.

Definition at line 1347 of file stl_list.h.

5.563.3.46 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> size_type std::list< _Tp, _Alloc >::size () const [inline]

Returns the number of elements in the list.

Definition at line 805 of file stl_list.h.

References __gnu_cxx::distance().

5.563.3.47 template<typename _Tp , typename _Alloc > template<typename _StrictWeakOrdering > void list::sort (_StrictWeakOrdering *__comp*) [inline]

Sort the elements according to comparison function. Sorts the elements of this list in NlogN time. Equivalent elements remain in list order.

Definition at line 379 of file list.tcc.

References std::list< _Tp, _Alloc >::begin(), std::list< _Tp, _Alloc >::empty(), std::list< _Tp, _Alloc >::merge(), std::list< _Tp, _Alloc >::splice(), and std::list< _Tp, _Alloc >::swap().

5.563.3.48 template<typename _Tp , typename _Alloc > void list::sort () [inline]

Sort the elements. Sorts the elements of this list in NlogN time. Equivalent elements remain in list order.

Definition at line 302 of file list.tcc.

References std::list< _Tp, _Alloc >::begin(), std::list< _Tp, _Alloc >::empty(), std::list< _Tp, _Alloc >::merge(), std::list< _Tp, _Alloc >::splice(), and std::list< _Tp, _Alloc >::swap().

5.563.3.49 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::list< _Tp, _Alloc >::splice (iterator *__position*, list< _Tp, _Alloc > && *__x*, iterator *__first*, iterator *__last*) [inline]

Insert range from another list.

Parameters:

position Iterator referencing the element to insert before.

x Source list.

first Iterator referencing the start of range in x.

last Iterator referencing the end of range in x.

Removes elements in the range [first,last) and inserts them before *position* in constant time.

Undefined if *position* is in [first,last).

Definition at line 1213 of file stl_list.h.

5.563.3.50 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::list< _Tp, _Alloc >::splice (iterator *__position*, list< _Tp, _Alloc > && *__x*, iterator *__i*) [inline]

Insert element from another list.

Parameters:

position Iterator referencing the element to insert before.

x Source list.

i Iterator referencing the element to move.

Removes the element in list *x* referenced by *i* and inserts it into the current list before *position*.

Definition at line 1177 of file stl_list.h.

5.563.3.51 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::list< _Tp, _Alloc >::splice (iterator *__position*, list< _Tp, _Alloc > && *__x*) [inline]

Insert contents of another list.

Parameters:

position Iterator referencing the element to insert before.

x Source list.

The elements of *x* are inserted in constant time in front of the element referenced by *position*. *x* becomes an empty list.

Requires this != *x*.

Definition at line 1147 of file stl_list.h.

References std::list< _Tp, _Alloc >::begin(), std::list< _Tp, _Alloc >::empty(), and std::list< _Tp, _Alloc >::end().

Referenced by std::list< _Tp, _Alloc >::sort().

5.563.3.52 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::list< _Tp, _Alloc >::swap (list< _Tp, _Alloc > & *__x*) [inline]

Swaps data with another list.

Parameters:

x A list of the same element and allocator types.

This exchanges the elements between two lists in constant time. Note that the global std::swap() function is specialized such that std::swap(l1,l2) will feed to this function.

Definition at line 1110 of file stl_list.h.

References std::swap().

Referenced by std::list< _Tp, _Alloc >::sort(), and std::swap().

5.563.3.53 template<typename _Tp , typename _Alloc > template<typename _BinaryPredicate > void list::unique (_BinaryPredicate *__binary_pred*) [inline]

Remove consecutive elements satisfying a predicate.

Parameters:

BinaryPredicate Binary predicate function or object.

For each consecutive set of elements [first,last) that satisfy predicate(first,i) where i is an iterator in [first,last), remove all but the first one. Remaining elements stay in list order. Note that this function only erases the elements, and that if the elements themselves are pointers, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 358 of file list.tcc.

References std::list< _Tp, _Alloc >::begin(), and std::list< _Tp, _Alloc >::end().

5.563.3.54 template<typename _Tp , typename _Alloc > void list::unique () [inline]

Remove consecutive duplicate elements. For each consecutive set of elements with the same value, remove all but the first one. Remaining elements stay in list order. Note that this function only erases the elements, and that if the elements themselves are pointers, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 215 of file list.tcc.

References std::list< _Tp, _Alloc >::begin(), and std::list< _Tp, _Alloc >::end().

The documentation for this class was generated from the following files:

- stl_list.h
- list.tcc

5.564 std::locale Class Reference

Container class for localization functionality.

The locale class is first a class wrapper for C library locales. It is also an extensible container for user-defined localization. A locale is a collection of facets that implement various localization features such as money, time, and number printing.

Classes

- class facet

  Localization functionality base class.
  The facet class is the base class for a localization feature, such as money, time, and number printing. It provides common support for facets and reference management.

- class id

  Facet ID class.
  The ID class provides facets with an index used to identify them. Every facet class must define a public static member locale::id, or be derived from a facet that provides this member, otherwise the facet cannot be used in a locale. The locale::id ensures that each class type gets a unique identifier.

Public Types

- typedef int category

Public Member Functions

- template<typename _Facet >
  locale (const locale &__other, _Facet *__f)
- locale (const locale &__base, const locale &__add, category __cat)
- locale (const locale &__base, const char *__s, category __cat)
- locale (const char *__s)
- locale (const locale &__other) throw ()
- locale () throw ()
- ~locale () throw ()
- template<typename _Facet >
  locale combine (const locale &__other) const
- string name () const
- bool operator!= (const locale &__other) const throw ()
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool **operator()** (const basic_string< _CharT, _Traits, _Alloc > &__s1, const basic_string< _CharT, _Traits, _Alloc > &__s2) const

- template<typename _Char , typename _Traits , typename _Alloc >
  bool operator() (const basic_string< _Char, _Traits, _Alloc > &__s1, const basic_string< _Char, _Traits, _Alloc > &__s2) const
- const locale & operator= (const locale &__other) throw ()
- bool operator== (const locale &__other) const throw ()

Static Public Member Functions

- static const locale & classic ()
- static locale global (const locale &)

Static Public Attributes

- static const category all
- static const category collate
- static const category ctype
- static const category messages
- static const category monetary
- static const category none
- static const category numeric
- static const category time

Friends

- struct **__use_cache**
- class **_Impl**
- class **facet**
- template<typename _Facet >
  bool **has_facet** (const locale &) throw ()
- template<typename _Facet >
  const _Facet & **use_facet** (const locale &)

5.564.1 Detailed Description

Container class for localization functionality.

The locale class is first a class wrapper for C library locales. It is also an extensible container for user-defined localization. A locale is a collection of facets that implement various localization features such as money, time, and number printing. Constructing C++ locales does not change the C library locale.

This library supports efficient construction and copying of locales through a reference counting implementation of the locale class.

Definition at line 62 of file locale_classes.h.

5.564.2 Member Typedef Documentation

5.564.2.1 typedef int std::locale::category

Definition of locale::category.

Definition at line 67 of file locale_classes.h.

5.564.3 Constructor & Destructor Documentation

5.564.3.1 std::locale::locale () throw ()

Default constructor. Constructs a copy of the global locale. If no locale has been explicitly set, this is the C locale.

Referenced by combine().

5.564.3.2 std::locale::locale (const locale & *__other*) throw ()

Copy constructor. Constructs a copy of *other*.

Parameters:

other The locale to copy.

5.564.3.3 std::locale::locale (const char * *__s*) [explicit]

Named locale constructor. Constructs a copy of the named C library locale.

Parameters:

s Name of the locale to construct.

Exceptions:

std::runtime_error if s is null or an undefined locale.

5.564.3.4 std::locale::locale (const locale & *__base*, const char * *__s*, category *__cat*)

Construct locale with facets from another locale. Constructs a copy of the locale *base*. The facets specified by *cat* are replaced with those from the locale named by *s*. If base is named, this locale instance will also be named.

Parameters:

base The locale to copy.

s Name of the locale to use facets from.

cat Set of categories defining the facets to use from s.

Exceptions:

std::runtime_error if s is null or an undefined locale.

5.564.3.5 std::locale::locale (const locale & *__base*, const locale & *__add*, category *__cat*)

Construct locale with facets from another locale. Constructs a copy of the locale *base*. The facets specified by *cat* are replaced with those from the locale *add*. If *base* and *add* are named, this locale instance will also be named.

Parameters:

base The locale to copy.

add The locale to use facets from.

cat Set of categories defining the facets to use from add.

5.564.3.6 template<typename _Facet > std::locale::locale (const locale & *__other*, _Facet * *__f*) [inline]

Construct locale with another facet. Constructs a copy of the locale *other*. The facet is added to , replacing an existing facet of type Facet if there is one. If is null, this locale is a copy of *other*.

Parameters:

other The locale to copy.

f The facet to add in.

Definition at line 43 of file locale_classes.tcc.

5.564.3.7 std::locale::~locale () throw ()

Locale destructor.

5.564.4 Member Function Documentation

5.564.4.1 static const locale& std::locale::classic () [static]

Return reference to the C locale.

5.564.4.2 template<typename _Facet > locale std::locale::combine (const locale & *__other*) const [inline]

Construct locale with another facet. Constructs and returns a new copy of this locale. Adds or replaces an existing facet of type Facet from the locale *other* into the new locale.

Parameters:

Facet The facet type to copy from other

other The locale to copy from.

Returns:

Newly constructed locale.

Exceptions:

std::runtime_error if other has no facet of type Facet.

Definition at line 61 of file locale_classes.tcc.

References locale().

5.564.4.3 static locale std::locale::global (const locale &) [static]

Set global locale. This function sets the global locale to the argument and returns a copy of the previous global locale. If the argument has a name, it will also call std::setlocale(LC_ALL, loc.name()).

Parameters:

locale The new locale to make global.

Returns:

Copy of the old global locale.

5.564.4.4 string std::locale::name () const

Return locale name.

Returns:

Locale name or "*" if unnamed.

5.564.4.5 bool std::locale::operator!= (const locale & *__other*) const throw () [inline]

Locale inequality.

Parameters:

other The locale to compare against.

Returns:

! (*this == other)

Definition at line 234 of file locale_classes.h.

5.564.4.6 template<typename _Char , typename _Traits , typename _Alloc > bool std::locale::operator() (const basic_string< _Char, _Traits, _Alloc > & *__s1*, const basic_string< _Char, _Traits, _Alloc > & *__s2*) const [inline]

Compare two strings according to collate. Template operator to compare two strings using the compare function of the collate facet in this locale. One use is to provide the locale to the sort function. For example, a vector v of strings could be sorted according to locale loc by doing:

```
std::sort(v.begin(), v.end(), loc);
```

Parameters:

s1 First string to compare.

s2 Second string to compare.

Returns:

True if collate<Char> facet compares s1 < s2, else false.

5.564.4.7 const locale& std::locale::operator= (const locale & *__other*) throw ()

Assignment operator. Set this locale to be a copy of *other*.

Parameters:

other The locale to copy.

Returns:

A reference to this locale.

5.564.4.8 bool std::locale::operator== (const locale & *__other*) const throw ()

Locale equality.

Parameters:

other The locale to compare against.

Returns:

True if other and this refer to the same locale instance, are copies, or have the same name. False otherwise.

5.564.5 Member Data Documentation

5.564.5.1 const category std::locale::all [static]

Category values. The standard category values are none, ctype, numeric, collate, time, monetary, and messages. They form a bitmask that supports union and intersection. The category all is the union of these values.

NB: Order must match _S_facet_categories definition in locale.cc

Definition at line 105 of file locale_classes.h.

5.564.5.2 const category std::locale::collate [static]

Category values. The standard category values are none, ctype, numeric, collate, time, monetary, and messages. They form a bitmask that supports union and intersection. The category all is the union of these values.

NB: Order must match _S_facet_categories definition in locale.cc

Definition at line 101 of file locale_classes.h.

5.564.5.3 const category std::locale::ctype [static]

Category values. The standard category values are none, ctype, numeric, collate, time, monetary, and messages. They form a bitmask that supports union and intersection. The category all is the union of these values.

NB: Order must match _S_facet_categories definition in locale.cc

Definition at line 99 of file locale_classes.h.

5.564.5.4 const category std::locale::messages [static]

Category values. The standard category values are none, ctype, numeric, collate, time, monetary, and messages. They form a bitmask that supports union and intersection. The category all is the union of these values.

NB: Order must match _S_facet_categories definition in locale.cc

Definition at line 104 of file locale_classes.h.

5.564.5.5 const category std::locale::monetary [static]

Category values. The standard category values are none, ctype, numeric, collate, time, monetary, and messages. They form a bitmask that supports union and intersection. The category all is the union of these values.

NB: Order must match _S_facet_categories definition in locale.cc

Definition at line 103 of file locale_classes.h.

5.564.5.6 const category std::locale::none [static]

Category values. The standard category values are none, ctype, numeric, collate, time, monetary, and messages. They form a bitmask that supports union and intersection. The category all is the union of these values.

NB: Order must match _S_facet_categories definition in locale.cc

Definition at line 98 of file locale_classes.h.

5.564.5.7 const category std::locale::numeric [static]

Category values. The standard category values are none, ctype, numeric, collate, time, monetary, and messages. They form a bitmask that supports union and intersection. The category all is the union of these values.

NB: Order must match _S_facet_categories definition in locale.cc

Definition at line 100 of file locale_classes.h.

5.564.5.8 const category std::locale::time [static]

Category values. The standard category values are none, ctype, numeric, collate, time, monetary, and messages. They form a bitmask that supports union and intersection. The category all is the union of these values.

NB: Order must match _S_facet_categories definition in locale.cc

Definition at line 102 of file locale_classes.h.

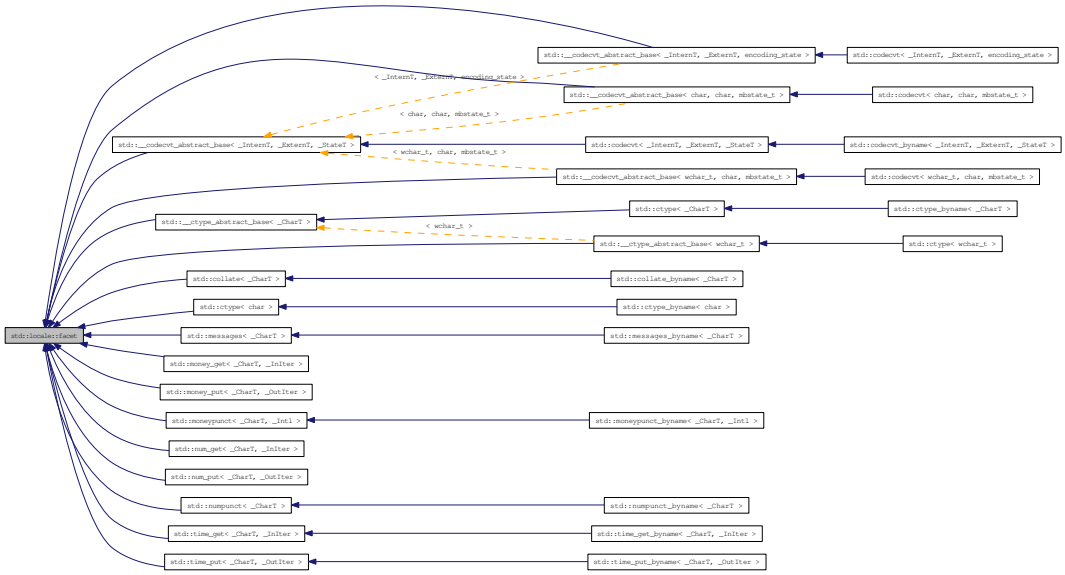
The documentation for this class was generated from the following files:

- locale_classes.h
- locale_classes.tcc

5.565 std::locale::facet Class Reference

Localization functionality base class.

The facet class is the base class for a localization feature, such as money, time, and number printing. It provides common support for facets and reference management. Inheritance diagram for std::locale::facet:



Protected Member Functions

- facet (size_t __refs=0) throw ()
- virtual ~facet ()
- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_-locale __old=0)
- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Friends

- class **locale**
- class **locale::_Impl**

5.565.1 Detailed Description

Localization functionality base class.

The facet class is the base class for a localization feature, such as money, time, and number printing. It provides common support for facets and reference management. Facets may not be copied or assigned.

Definition at line 337 of file locale_classes.h.

5.565.2 Constructor & Destructor Documentation

5.565.2.1 std::locale::facet::facet (size_t *__refs* = 0) throw () [inline, explicit, protected]

Facet constructor. This is the constructor provided by the standard. If refs is 0, the facet is destroyed when the last referencing locale is destroyed. Otherwise the facet will never be destroyed.

Parameters:

refs The initial value for reference count.

Definition at line 369 of file locale_classes.h.

5.565.2.2 virtual std::locale::facet::~facet () [protected, virtual]

Facet destructor.

The documentation for this class was generated from the following file:

- locale_classes.h

5.566 std::locale::id Class Reference

Facet ID class.

The ID class provides facets with an index used to identify them. Every facet class must define a public static member locale::id, or be derived from a facet that provides this member, otherwise the facet cannot be used in a locale. The locale::id ensures that each class type gets a unique identifier.

Public Member Functions

- id ()
- size_t **_M_id** () const throw ()

Friends

- template<typename _Facet >
  bool has_facet (const locale &) throw ()
- class **locale**
- class **locale::_Impl**
- template<typename _Facet >
  const _Facet & use_facet (const locale &)

5.566.1 Detailed Description

Facet ID class.

The ID class provides facets with an index used to identify them. Every facet class must define a public static member locale::id, or be derived from a facet that provides this member, otherwise the facet cannot be used in a locale. The locale::id ensures that each class type gets a unique identifier.

Definition at line 432 of file locale_classes.h.

5.566.2 Constructor & Destructor Documentation

5.566.2.1 std::locale::id::id () [inline]

Constructor.

Definition at line 463 of file locale_classes.h.

5.566.3 Friends And Related Function Documentation

5.566.3.1 template<typename _Facet > bool has_facet (const locale &) throw () [friend]

Test for the presence of a facet. has_facet tests the locale argument for the presence of the facet type provided as the template parameter. Facets derived from the facet parameter will also return true.

Parameters:

Facet The facet type to test the presence of.

locale The locale to test.

Returns:

true if locale contains a facet of type Facet, else false.

5.566.3.2 template<typename _Facet > const _Facet& use_facet (const locale &) [friend]

Return a facet. use_facet looks for and returns a reference to a facet of type Facet where Facet is the template parameter. If has_facet(locale) is true, there is a suitable facet to return. It throws std::bad_cast if the locale doesn't contain a facet of type Facet.

Parameters:

Facet The facet type to access.

locale The locale to use.

Returns:

Reference to facet of type Facet.

Exceptions:

std::bad_cast if locale doesn't contain a facet of type Facet.

The documentation for this class was generated from the following file:

- locale_classes.h

5.567 std::lock_guard< _Mutex > Class Template Reference

Scoped lock idiom.

Public Types

- typedef _Mutex **mutex_type**

Public Member Functions

- **lock_guard** (const lock_guard &)
- **lock_guard** (mutex_type &__m, adopt_lock_t)
- **lock_guard** (mutex_type &__m)
- lock_guard & **operator=** (const lock_guard &)

5.567.1 Detailed Description

template<typename _Mutex> class std::lock_guard< _Mutex >

Scoped lock idiom.

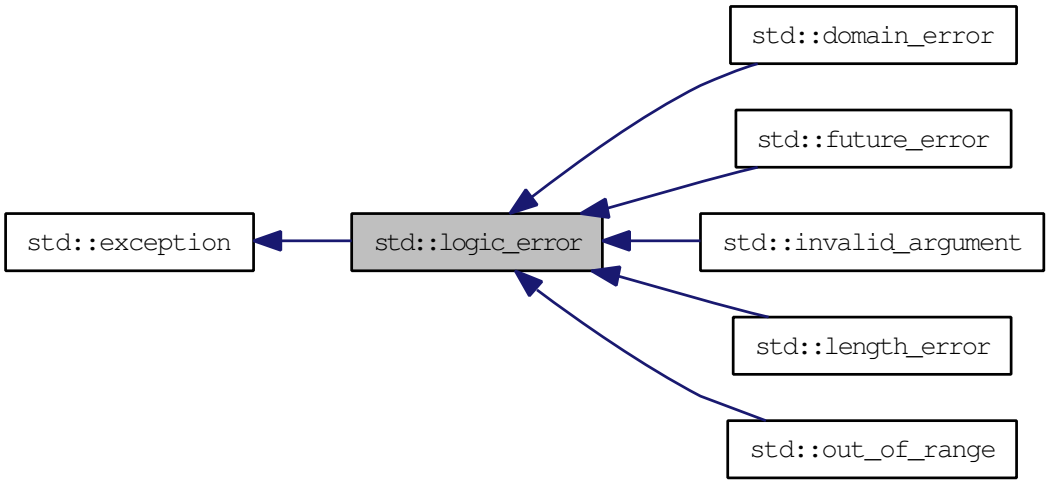
Definition at line 393 of file mutex.

The documentation for this class was generated from the following file:

- mutex

5.568 std::logic_error Class Reference

One of two subclasses of exception. Inheritance diagram for std::logic_error:



Public Member Functions

- logic_error (const string &__arg)
- virtual const char * what () const throw ()

5.568.1 Detailed Description

One of two subclasses of exception. Logic errors represent problems in the internal logic of a program; in theory, these are preventable, and even detectable before the program runs (e.g., violations of class invariants).

Definition at line 53 of file stdexcept.

5.568.2 Constructor & Destructor Documentation

5.568.2.1 std::logic_error::logic_error (const string & *__arg*) [explicit]

Takes a character string describing the error.

5.568.3 Member Function Documentation

5.568.3.1 virtual const char* std::logic_error::what () const throw () [virtual]

Returns a C-style character string describing the general cause of the current error (the same string passed to the ctor).

Reimplemented from std::exception.

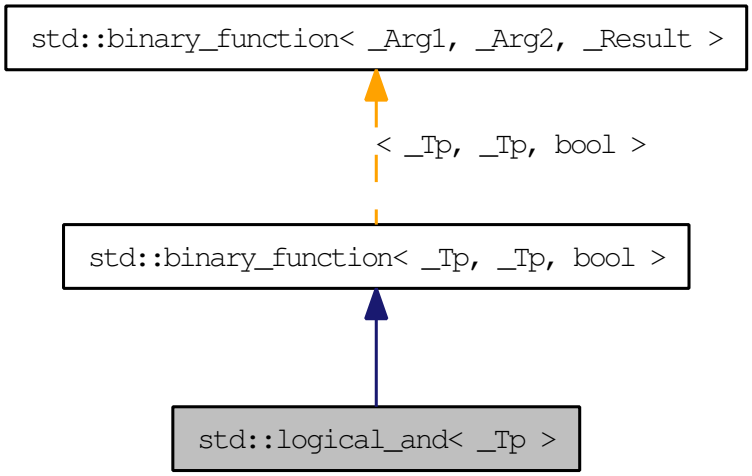
Reimplemented in std::future_error.

The documentation for this class was generated from the following file:

- stdexcept

5.569 std::logical_and< _Tp > Struct Template Reference

One of the Boolean operations functors. Inheritance diagram for std::logical_and< _Tp >:



Public Types

- typedef _Tp first_argument_type
- typedef bool result_type
- typedef _Tp second_argument_type

Public Member Functions

- bool **operator()** (const _Tp &__x, const _Tp &__y) const

5.569.1 Detailed Description

template<typename _Tp> struct std::logical_and< _Tp >

One of the Boolean operations functors.

Definition at line 263 of file stl_function.h.

5.569.2 Member Typedef Documentation

5.569.2.1 typedef _Tp std::binary_function< _Tp , _Tp , bool >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.569.2.2 typedef bool std::binary_function< _Tp , _Tp , bool >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.569.2.3 typedef _Tp std::binary_function< _Tp , _Tp , bool >::second_argument_type [inherited]

the type of the second argument

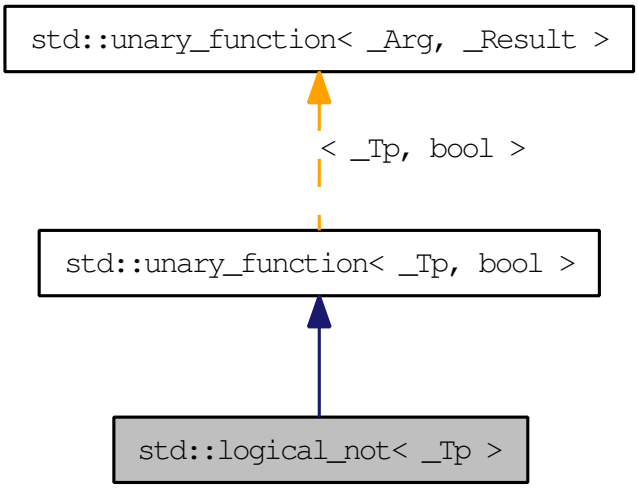
Definition at line 117 of file stl_function.h.

The documentation for this struct was generated from the following file:

- stl_function.h

5.570 std::logical_not< _Tp > Struct Template Reference

One of the Boolean operations functors. Inheritance diagram for std::logical_not< _Tp >:



Public Types

- typedef _Tp argument_type
- typedef bool result_type

Public Member Functions

- bool **operator()** (const _Tp &__x) const

5.570.1 Detailed Description

template<typename _Tp> struct std::logical_not< _Tp >

One of the Boolean operations functors.

Definition at line 281 of file stl_function.h.

5.570.2 Member Typedef Documentation

5.570.2.1 typedef _Tp std::unary_function< _Tp , bool >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.570.2.2 typedef bool std::unary_function< _Tp , bool >::result_type [inherited]

`result_type` is the return type

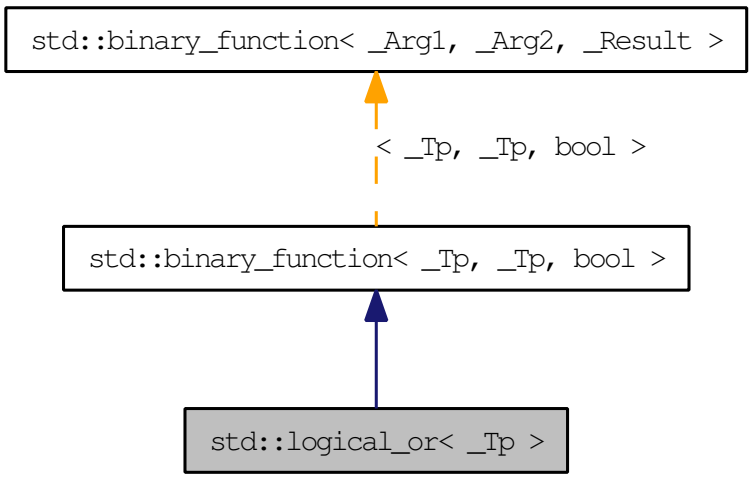
Definition at line 105 of file stl_function.h.

The documentation for this struct was generated from the following file:

- stl_function.h

5.571 std::logical_or< _Tp > Struct Template Reference

One of the Boolean operations functors. Inheritance diagram for std::logical_or< _Tp >:



Public Types

- typedef _Tp first_argument_type
- typedef bool result_type
- typedef _Tp second_argument_type

Public Member Functions

- bool **operator**() (const _Tp &__x, const _Tp &__y) const

5.571.1 Detailed Description

template<typename _Tp> struct std::logical_or< _Tp >

One of the Boolean operations functors.

Definition at line 272 of file stl_function.h.

5.571.2 Member Typedef Documentation

5.571.2.1 typedef _Tp std::binary_function< _Tp , _Tp , bool >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.571.2.2 typedef bool std::binary_function< _Tp , _Tp , bool >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.571.2.3 typedef _Tp std::binary_function< _Tp , _Tp , bool >::second_argument_type [inherited]

the type of the second argument

Definition at line 117 of file stl_function.h.

The documentation for this struct was generated from the following file:

- stl_function.h

5.572 std::lognormal_distribution< _RealType > Class Template Reference

A lognormal_distribution random number distribution.

Classes

- struct param_type

Public Types

- typedef _RealType result_type

Public Member Functions

- **lognormal_distribution** (const param_type &__p)
- **lognormal_distribution** (_RealType __m=_RealType(0), _RealType __s=_RealType(1))
- _RealType **m** () const
- result_type max () const
- result_type min () const
- template<typename _UniformRandomNumberGenerator > result_type **operator()** (_UniformRandomNumberGenerator &__urng, const param_type &__p)
- template<typename _UniformRandomNumberGenerator > result_type **operator()** (_UniformRandomNumberGenerator &__urng)
- void param (const param_type &__param)
- param_type param () const
- void reset ()
- _RealType **s** () const

Friends

- template<typename _RealType1 , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & operator<< (std::basic_ostream< _CharT, _Traits > &, const std::lognormal_distribution< _RealType1 > &)
- template<typename _RealType1 , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & operator>> (std::basic_istream< _CharT, _Traits > &, std::lognormal_distribution< _RealType1 > &)

5.572.1 Detailed Description

template<typename _RealType = double> class std::lognormal_distribution< _RealType >

A lognormal_distribution random number distribution. The formula for the normal probability mass function is

$$p(x|m,s) = \frac{1}{sx\sqrt{2\pi}} \exp -\frac{(\ln x - m)^2}{2s^2}$$

Definition at line 1970 of file random.h.

5.572.2 Member Typedef Documentation

5.572.2.1 template<typename _RealType = double> typedef _RealType std::lognormal_distribution< _RealType >::result_type

The type of the range of the distribution.

Definition at line 1977 of file random.h.

5.572.3 Member Function Documentation

5.572.3.1 template<typename _RealType = double> result_type std::lognormal_distribution< _RealType >::max () const [inline]

Returns the least upper bound value of the distribution.

Definition at line 2057 of file random.h.

5.572.3.2 template<typename _RealType = double> result_type std::lognormal_distribution< _RealType >::min () const [inline]

Returns the greatest lower bound value of the distribution.

Definition at line 2050 of file random.h.

5.572.3.3 template<typename _RealType = double> void std::lognormal_distribution< _RealType >::param (const param_type & *__param*) [inline]

Sets the parameter set of the distribution.

Parameters:

__param The new parameter set of the distribution.

Definition at line 2043 of file random.h.

5.572.3.4 template<typename _RealType = double> param_type std::lognormal_distribution< _RealType >::param () const [inline]

Returns the parameter set of the distribution.

Definition at line 2035 of file random.h.

5.572.3.5 template<typename _RealType = double> void std::lognormal_distribution< _RealType >::reset () [inline]

Resets the distribution state.

Definition at line 2017 of file random.h.

References std::normal_distribution< _RealType >::reset().

5.572.4 Friends And Related Function Documentation

5.572.4.1 template<typename _RealType = double> template<typename _RealType1 , typename _CharT , typename _Traits > std::basic_ostream<_CharT, _Traits>& operator<< (std::basic_ostream< _CharT, _Traits > &, const std::lognormal_distribution< _RealType1 > &) [friend]

Inserts a lognormal_distribution random number distribution __x into the output stream __os.

Parameters:

__os An output stream.

__x A lognormal_distribution random number distribution.

Returns:

The output stream with the state of __x inserted or in an error state.

5.572.4.2 template<typename _RealType = double> template<typename _RealType1 , typename _CharT , typename _Traits > std::basic_istream<_CharT, _Traits>& operator>> (std::basic_istream< _CharT, _Traits > &, std::lognormal_distribution< _RealType1 > &) [friend]

Extracts a lognormal_distribution random number distribution __x from the input stream __is.

Parameters:

__is An input stream.

__x A lognormal_distribution random number generator engine.

Returns:

The input stream with __x extracted or in an error state.

The documentation for this class was generated from the following file:

- random.h

5.573 std::lognormal_distribution< _RealType >::param_type Struct Reference

Public Types

- typedef lognormal_distribution< _RealType > **distribution_type**

Public Member Functions

- **param_type** (_RealType __m=_RealType(0), _RealType __s=_RealType(1))
- _RealType **m** () const
- _RealType **s** () const

5.573.1 Detailed Description

template<typename _RealType = double> struct std::lognormal_distribution< _RealType >::param_type

Parameter type.

Definition at line 1979 of file random.h.

The documentation for this struct was generated from the following file:

- random.h

5.574 std::make_signed< _Tp > Struct Template Reference

make_signed

Public Types

- typedef __make_signed_selector< _Tp >::__type **type**

5.574.1 Detailed Description

template<typename _Tp> struct std::make_signed< _Tp >

make_signed

Definition at line 587 of file type_traits.

The documentation for this struct was generated from the following file:

- type_traits

5.575 std::make_unsigned< _Tp > Struct Template Reference

make_unsigned

Public Types

- typedef __make_unsigned_selector< _Tp >::__type **type**

5.575.1 Detailed Description

template<typename _Tp> struct std::make_unsigned< _Tp >

make_unsigned

Definition at line 510 of file type_traits.

The documentation for this struct was generated from the following file:

- type_traits

5.576 std::map< _Key, _Tp, _Compare, _Alloc > Class Template Reference

A standard container made up of (key,value) pairs, which can be retrieved based on a key, in logarithmic time.

Public Types

- typedef _Alloc **allocator_type**
- typedef _Rep_type::const_iterator **const_iterator**
- typedef _Pair_alloc_type::const_pointer **const_pointer**
- typedef _Pair_alloc_type::const_reference **const_reference**
- typedef _Rep_type::const_reverse_iterator **const_reverse_iterator**
- typedef _Rep_type::difference_type **difference_type**
- typedef _Rep_type::iterator **iterator**
- typedef _Compare **key_compare**
- typedef _Key **key_type**
- typedef _Tp **mapped_type**
- typedef _Pair_alloc_type::pointer **pointer**
- typedef _Pair_alloc_type::reference **reference**
- typedef _Rep_type::reverse_iterator **reverse_iterator**
- typedef _Rep_type::size_type **size_type**
- typedef std::pair< const _Key, _Tp > **value_type**

Public Member Functions

- template<typename _InputIterator >
  map (_InputIterator __first, _InputIterator __last, const _Compare &__comp, const allocator_type &__a=allocator_type())
- template<typename _InputIterator >
  map (_InputIterator __first, _InputIterator __last)
- map (initializer_list< value_type > __l, const _Compare &__c=_Compare(), const allocator_type &__a=allocator_type())
- map (map &&__x)
- map (const map &__x)
- map (const _Compare &__comp, const allocator_type &__a=allocator_type())
- map ()
- const mapped_type & **at** (const key_type &__k) const
- mapped_type & at (const key_type &__k)
- const_iterator begin () const
- iterator begin ()

- const_iterator cbegin () const
- const_iterator cend () const
- void clear ()
- size_type count (const key_type &__x) const
- const_reverse_iterator crbegin () const
- const_reverse_iterator crend () const
- bool empty () const
- const_iterator end () const
- iterator end ()
- std::pair< const_iterator, const_iterator > equal_range (const key_type &__x) const
- std::pair< iterator, iterator > equal_range (const key_type &__x)
- iterator erase (iterator __first, iterator __last)
- size_type erase (const key_type &__x)
- iterator erase (iterator __position)
- const_iterator find (const key_type &__x) const
- iterator find (const key_type &__x)
- allocator_type get_allocator () const
- template<typename _InputIterator >
  void insert (_InputIterator __first, _InputIterator __last)
- iterator insert (iterator __position, const value_type &__x)
- void insert (std::initializer_list< value_type > __list)
- std::pair< iterator, bool > insert (const value_type &__x)
- key_compare key_comp () const
- const_iterator lower_bound (const key_type &__x) const
- iterator lower_bound (const key_type &__x)
- size_type max_size () const
- map & operator= (initializer_list< value_type > __l)
- map & operator= (map &&__x)
- map & operator= (const map &__x)
- mapped_type & operator[ ] (const key_type &__k)
- const_reverse_iterator rbegin () const
- reverse_iterator rbegin ()
- const_reverse_iterator rend () const
- reverse_iterator rend ()
- size_type size () const
- void swap (map &__x)
- const_iterator upper_bound (const key_type &__x) const
- iterator upper_bound (const key_type &__x)
- value_compare value_comp () const

Friends

- template<typename _K1 , typename _T1 , typename _C1 , typename _A1 >
  bool **operator<** (const map< _K1, _T1, _C1, _A1 > &, const map< _K1, _T1, _C1, _A1 > &)
- template<typename _K1 , typename _T1 , typename _C1 , typename _A1 >
  bool **operator==** (const map< _K1, _T1, _C1, _A1 > &, const map< _K1, _T1, _C1, _A1 > &)

5.576.1 Detailed Description

template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> class std::map< _Key, _Tp, _Compare, _Alloc >

A standard container made up of (key,value) pairs, which can be retrieved based on a key, in logarithmic time. Meets the requirements of a `container`, a `reversible container`, and an `associative container` (using unique keys). For a `map<Key,T>` the key_type is Key, the mapped_type is T, and the value_type is std::pair<const Key,T>.

Maps support bidirectional iterators.

The private tree data is declared exactly the same way for map and multimap; the distinction is made entirely in how the tree functions are called (*_unique versus *_-equal, same as the standard).

Definition at line 86 of file stl_map.h.

5.576.2 Constructor & Destructor Documentation

5.576.2.1 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> std::map< _Key, _Tp, _Compare, _Alloc >::map () [inline]

Default constructor creates no elements.

Definition at line 150 of file stl_map.h.

5.576.2.2 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> std::map< _Key, _Tp, _Compare, _Alloc >::map (const _Compare & __*comp*, const allocator_type & __*a* = allocator_type()) [inline, explicit]

Creates a map with no elements.

Parameters:

comp A comparison object.

a An allocator object.

Definition at line 159 of file stl_map.h.

5.576.2.3 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> std::map< _Key, _Tp, _Compare, _Alloc >::map (const map< _Key, _Tp, _Compare, _Alloc > & __*x*) [inline]

Map copy constructor.

Parameters:

x A map of identical element and allocator types.

The newly-created map uses a copy of the allocation object used by *x*.

Definition at line 170 of file stl_map.h.

5.576.2.4 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> std::map< _Key, _Tp, _Compare, _Alloc >::map (map< _Key, _Tp, _Compare, _Alloc > && __*x*) [inline]

Map move constructor.

Parameters:

x A map of identical element and allocator types.

The newly-created map contains the exact contents of *x*. The contents of *x* are a valid, but unspecified map.

Definition at line 181 of file stl_map.h.

5.576.2.5 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> std::map< _Key, _Tp, _Compare, _Alloc >::map (initializer_list< value_type > __l, const _Compare & __c = _Compare(), const allocator_type & __a = allocator_type()) [inline]

Builds a map from an initializer_list.

Parameters:

l An initializer_list.

comp A comparison object.

a An allocator object.

Create a map consisting of copies of the elements in the initializer_list *l*. This is linear in N if the range is already sorted, and NlogN otherwise (where N is *l.size()*).

Definition at line 195 of file stl_map.h.

5.576.2.6 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> template<typename _InputIterator > std::map< _Key, _Tp, _Compare, _Alloc >::map (_InputIterator *__first*, _InputIterator *__last*) [inline]

Builds a map from a range.

Parameters:

first An input iterator.

last An input iterator.

Create a map consisting of copies of the elements from [first,last). This is linear in N if the range is already sorted, and NlogN otherwise (where N is distance(first,last)).

Definition at line 212 of file stl_map.h.

5.576.2.7 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> template<typename _InputIterator > std::map< _Key, _Tp, _Compare, _Alloc >::map (_InputIterator *__first*, _InputIterator *__last*, const _Compare & *__comp*, const allocator_type & __a = allocator_type()) [inline]

Builds a map from a range.

Parameters:

first An input iterator.

last An input iterator.

comp A comparison functor.

a An allocator object.

Create a map consisting of copies of the elements from [first,last). This is linear in N if the range is already sorted, and NlogN otherwise (where N is distance(first,last)).

Definition at line 228 of file stl_map.h.

5.576.3 Member Function Documentation

5.576.3.1 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> mapped_type& std::map< _Key, _Tp, _Compare, _Alloc >::at (const key_type & __k) [inline]

Access to map data.

Parameters:

k The key for which data should be retrieved.

Returns:

A reference to the data whose key is equivalent to *k*, if such a data is present in the map.

Exceptions:

std::out_of_range If no such data is present.

Definition at line 465 of file stl_map.h.

5.576.3.2 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> const_iterator std::map< _Key, _Tp, _Compare, _Alloc >::begin () const [inline]

Returns a read-only (constant) iterator that points to the first pair in the map. Iteration is done in ascending order according to the keys.

Definition at line 316 of file stl_map.h.

5.576.3.3 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> iterator std::map< _Key, _Tp, _Compare, _Alloc >::begin () [inline]

Returns a read/write iterator that points to the first pair in the map. Iteration is done in ascending order according to the keys.

Definition at line 307 of file stl_map.h.

5.576.3.4 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> const_iterator std::map< _Key, _Tp, _Compare, _Alloc >::cbegin () const [inline]

Returns a read-only (constant) iterator that points to the first pair in the map. Iteration is done in ascending order according to the keys.

Definition at line 380 of file stl_map.h.

5.576.3.5 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> const_iterator std::map< _Key, _Tp, _Compare, _Alloc >::cend () const [inline]

Returns a read-only (constant) iterator that points one past the last pair in the map. Iteration is done in ascending order according to the keys.

Definition at line 389 of file stl_map.h.

5.576.3.6 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> void std::map< _Key, _Tp, _Compare, _Alloc >::clear () [inline]

Erases all elements in a map. Note that this function only erases the elements, and that if the elements themselves are pointers, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 663 of file stl_map.h.

5.576.3.7 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> size_type std::map< _Key, _Tp, _Compare, _Alloc >::count (const key_type & __x) const [inline]

Finds the number of elements with given key.

Parameters:

x Key of (key, value) pairs to be located.

Returns:

Number of elements with specified key.

This function only makes sense for multimaps; for map the result will either be 0 (not present) or 1 (present).

Definition at line 723 of file stl_map.h.

5.576.3.8 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> const_reverse_iterator std::map< _Key, _Tp, _Compare, _Alloc >::crbegin () const [inline]

Returns a read-only (constant) reverse iterator that points to the last pair in the map. Iteration is done in descending order according to the keys.

Definition at line 398 of file stl_map.h.

5.576.3.9 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> const_reverse_iterator std::map< _Key, _Tp, _Compare, _Alloc >::crend () const [inline]

Returns a read-only (constant) reverse iterator that points to one before the first pair in the map. Iteration is done in descending order according to the keys.

Definition at line 407 of file stl_map.h.

5.576.3.10 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> bool std::map< _Key, _Tp, _Compare, _Alloc >::empty () const [inline]

Returns true if the map is empty. (Thus begin() would equal end().)

Definition at line 416 of file stl_map.h.

5.576.3.11 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> const_iterator std::map< _Key, _Tp, _Compare, _Alloc >::end () const [inline]

Returns a read-only (constant) iterator that points one past the last pair in the map. Iteration is done in ascending order according to the keys.

Definition at line 334 of file stl_map.h.

5.576.3.12 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> iterator std::map< _Key, _Tp, _Compare, _Alloc >::end () [inline]

Returns a read/write iterator that points one past the last pair in the map. Iteration is done in ascending order according to the keys.

Definition at line 325 of file stl_map.h.

5.576.3.13 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> std::pair<const_iterator, const_iterator> std::map< _Key, _Tp, _Compare, _Alloc >::equal_range (const key_type & __x) const [inline]

Finds a subsequence matching given key.

Parameters:

x Key of (key, value) pairs to be located.

Returns:

Pair of read-only (constant) iterators that possibly points to the subsequence matching given key.

This function is equivalent to

```
std::make_pair(c.lower_bound(val),
               c.upper_bound(val))
```

(but is faster than making the calls separately).

This function probably only makes sense for multimaps.

Definition at line 811 of file stl_map.h.

5.576.3.14 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> > > std::pair<iterator, iterator> std::map< _Key, _Tp, _Compare, _Alloc >::equal_range (const key_type & __x) [inline]

Finds a subsequence matching given key.

Parameters:

x Key of (key, value) pairs to be located.

Returns:

Pair of iterators that possibly points to the subsequence matching given key.

This function is equivalent to

```
std::make_pair(c.lower_bound(val),
               c.upper_bound(val))
```

(but is faster than making the calls separately).

This function probably only makes sense for multimaps.

Definition at line 792 of file stl_map.h.

5.576.3.15 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> > > iterator std::map< _Key, _Tp, _Compare, _Alloc >::erase (iterator __*first*, iterator __*last*) [inline]

Erases a [first,last) range of elements from a map.

Parameters:

first Iterator pointing to the start of the range to be erased.

last Iterator pointing to the end of the range to be erased.

Returns:

The iterator *last*.

This function erases a sequence of elements from a map. Note that this function only erases the element, and that if the element is itself a pointer, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 622 of file stl_map.h.

5.576.3.16 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> size_type std::map< _Key, _Tp, _Compare, _Alloc >::erase (const key_type & __x) [inline]

Erases elements according to the provided key.

Parameters:

x Key of element to be erased.

Returns:

The number of elements erased.

This function erases all the elements located by the given key from a map. Note that this function only erases the element, and that if the element is itself a pointer, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 603 of file stl_map.h.

5.576.3.17 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> iterator std::map< _Key, _Tp, _Compare, _Alloc >::erase (iterator __position) [inline]

Erases an element from a map.

Parameters:

position An iterator pointing to the element to be erased.

Returns:

An iterator pointing to the element immediately following *position* prior to the element being erased. If no such element exists, end() is returned.

This function erases an element, pointed to by the given iterator, from a map. Note that this function only erases the element, and that if the element is itself a pointer, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 573 of file stl_map.h.

5.576.3.18 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> const_iterator std::map< _Key, _Tp, _Compare, _Alloc >::find (const key_type & __x) const [inline]

Tries to locate an element in a map.

Parameters:

x Key of (key, value) pair to be located.

Returns:

Read-only (constant) iterator pointing to sought-after element, or end() if not found.

This function takes a key and tries to locate the element with which the key matches. If successful the function returns a constant iterator pointing to the sought after pair. If unsuccessful it returns the past-the-end (`end()`) iterator.

Definition at line 711 of file stl_map.h.

5.576.3.19 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> iterator std::map< _Key, _Tp, _Compare, _Alloc >::find (const key_type & __x) [inline]

Tries to locate an element in a map.

Parameters:

x Key of (key, value) pair to be located.

Returns:

Iterator pointing to sought-after element, or end() if not found.

This function takes a key and tries to locate the element with which the key matches. If successful the function returns an iterator pointing to the sought after pair. If unsuccessful it returns the past-the-end (`end()`) iterator.

Definition at line 696 of file stl_map.h.

5.576.3.20 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> allocator_type std::map< _Key, _Tp, _Compare, _Alloc >::get_allocator () const [inline]

Get a copy of the memory allocation object.

Definition at line 297 of file stl_map.h.

5.576.3.21 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> template<typename _InputIterator > void std::map< _Key, _Tp, _Compare, _Alloc >::insert (_InputIterator *__first*, _InputIterator *__last*) [inline]

Template function that attempts to insert a range of elements.

Parameters:

first Iterator pointing to the start of the range to be inserted.

last Iterator pointing to the end of the range.

Complexity similar to that of the range constructor.

Definition at line 553 of file stl_map.h.

5.576.3.22 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> iterator std::map< _Key, _Tp, _Compare, _Alloc >::insert (iterator *__position*, const value_type & *__x*) [inline]

Attempts to insert a std::pair into the map.

Parameters:

position An iterator that serves as a hint as to where the pair should be inserted.

x Pair to be inserted (see std::make_pair for easy creation of pairs).

Returns:

An iterator that points to the element with key of *x* (may or may not be the pair passed in).

This function is not concerned about whether the insertion took place, and thus does not return a boolean like the single-argument insert() does. Note that the first parameter is only a hint and can potentially improve the performance of the insertion process. A bad hint would cause no gains in efficiency.

See http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt07ch17.html for more on *hinting*.

Insertion requires logarithmic time (if the hint is not taken).

Definition at line 540 of file stl_map.h.

5.576.3.23 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> void std::map< _Key, _Tp, _Compare, _Alloc >::insert (std::initializer_list< value_type > *__list*) [inline]

Attempts to insert a list of std::pairs into the map.

Parameters:

list A std::initializer_list<value_type> of pairs to be inserted.

Complexity similar to that of the range constructor.

Definition at line 512 of file stl_map.h.

References std::map< _Key, _Tp, _Compare, _Alloc >::insert().

Referenced by std::map< _Key, _Tp, _Compare, _Alloc >::insert().

5.576.3.24 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> std::pair<iterator, bool> std::map< _Key, _Tp, _Compare, _Alloc >::insert (const value_type & *__x*) [inline]

Attempts to insert a std::pair into the map.

Parameters:

x Pair to be inserted (see std::make_pair for easy creation of pairs).

Returns:

A pair, of which the first element is an iterator that points to the possibly inserted pair, and the second is a bool that is true if the pair was actually inserted.

This function attempts to insert a (key, value) pair into the map. A map relies on unique keys and thus a pair is only inserted if its first element (the key) is not already present in the map.

Insertion requires logarithmic time.

Definition at line 500 of file stl_map.h.

5.576.3.25 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> key_compare std::map< _Key, _Tp, _Compare, _Alloc >::key_comp () const [inline]

Returns the key comparison object out of which the map was constructed.

Definition at line 672 of file stl_map.h.

5.576.3.26 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> const_iterator std::map< _Key, _Tp, _Compare, _Alloc >::lower_bound (const key_type & __x) const [inline]

Finds the beginning of a subsequence matching given key.

Parameters:

x Key of (key, value) pair to be located.

Returns:

Read-only (constant) iterator pointing to first element equal to or greater than key, or end().

This function returns the first element of a subsequence of elements that matches the given key. If unsuccessful it returns an iterator pointing to the first element that has a greater value than given key or end() if no such element exists.

Definition at line 753 of file stl_map.h.

5.576.3.27 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> iterator std::map< _Key, _Tp, _Compare, _Alloc >::lower_bound (const key_type & __x) [inline]

Finds the beginning of a subsequence matching given key.

Parameters:

x Key of (key, value) pair to be located.

Returns:

Iterator pointing to first element equal to or greater than key, or end().

This function returns the first element of a subsequence of elements that matches the given key. If unsuccessful it returns an iterator pointing to the first element that has a greater value than given key or end() if no such element exists.

Definition at line 738 of file stl_map.h.

5.576.3.28 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> size_type std::map< _Key, _Tp, _Compare, _Alloc >::max_size () const [inline]

Returns the maximum size of the map.

Definition at line 426 of file stl_map.h.

5.576.3.29 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> map& std::map< _Key, _Tp, _Compare, _Alloc >::operator= (initializer_list< value_type > __l) [inline]

Map list assignment operator.

Parameters:

l An initializer_list.

This function fills a map with copies of the elements in the initializer list *l*.

Note that the assignment completely changes the map and that the resulting map's size is the same as the number of elements assigned. Old data may be lost.

Definition at line 287 of file stl_map.h.

5.576.3.30 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> map& std::map< _Key, _Tp, _Compare, _Alloc >::operator= (map< _Key, _Tp, _Compare, _Alloc > && __x) [inline]

Map move assignment operator.

Parameters:

x A map of identical element and allocator types.

The contents of *x* are moved into this map (without copying). *x* is a valid, but unspecified map.

Definition at line 266 of file stl_map.h.

References std::swap().

5.576.3.31 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> map& std::map< _Key, _Tp, _Compare, _Alloc >::operator= (const map< _Key, _Tp, _Compare, _Alloc > & __x) [inline]

Map assignment operator. The dtor only erases the elements, and note that if the elements themselves are pointers, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Parameters:

x A map of identical element and allocator types.

All the elements of *x* are copied, but unlike the copy constructor, the allocator object is not copied.

Definition at line 251 of file stl_map.h.

5.576.3.32 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> mapped_type& std::map< _Key, _Tp, _Compare, _Alloc >::operator[ ] (const key_type & __k) [inline]

Subscript ([]) access to map data.

Parameters:

k The key for which data should be retrieved.

Returns:

A reference to the data of the (key,data) pair.

Allows for easy lookup with the subscript ([]) operator. Returns data associated with the key specified in subscript. If the key does not exist, a pair with that key is created using default values, which is then returned.

Lookup requires logarithmic time.

Definition at line 443 of file stl_map.h.

5.576.3.33 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> const_reverse_iterator std::map< _Key, _Tp, _Compare, _Alloc >::rbegin () const [inline]

Returns a read-only (constant) reverse iterator that points to the last pair in the map. Iteration is done in descending order according to the keys.

Definition at line 352 of file stl_map.h.

5.576.3.34 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> reverse_iterator std::map< _Key, _Tp, _Compare, _Alloc >::rbegin () [inline]

Returns a read/write reverse iterator that points to the last pair in the map. Iteration is done in descending order according to the keys.

Definition at line 343 of file stl_map.h.

5.576.3.35 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> const_reverse_iterator std::map< _Key, _Tp, _Compare, _Alloc >::rend () const [inline]

Returns a read-only (constant) reverse iterator that points to one before the first pair in the map. Iteration is done in descending order according to the keys.

Definition at line 370 of file stl_map.h.

5.576.3.36 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> reverse_iterator std::map< _Key, _Tp, _Compare, _Alloc >::rend () [inline]

Returns a read/write reverse iterator that points to one before the first pair in the map. Iteration is done in descending order according to the keys.

Definition at line 361 of file stl_map.h.

5.576.3.37 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> size_type std::map< _Key, _Tp, _Compare, _Alloc >::size () const [inline]

Returns the size of the map.

Definition at line 421 of file stl_map.h.

5.576.3.38 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> void std::map< _Key, _Tp, _Compare, _Alloc >::swap (map< _Key, _Tp, _Compare, _Alloc > & __x) [inline]

Swaps data with another map.

Parameters:

x A map of the same element and allocator types.

This exchanges the elements between two maps in constant time. (It is only swapping a pointer, an integer, and an instance of the `Compare` type (which itself is often stateless and empty), so it should be quite fast.) Note that the global std::swap() function is specialized such that std::swap(m1,m2) will feed to this function.

Definition at line 653 of file stl_map.h.

Referenced by std::swap().

5.576.3.39 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> const_iterator std::map< _Key, _Tp, _Compare, _Alloc >::upper_bound (const key_type & __x) const [inline]

Finds the end of a subsequence matching given key.

Parameters:

x Key of (key, value) pair to be located.

Returns:

Read-only (constant) iterator pointing to first iterator greater than key, or end().

Definition at line 773 of file stl_map.h.

5.576.3.40 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> iterator std::map< _Key, _Tp, _Compare, _Alloc >::upper_bound (const key_type & __x) [inline]

Finds the end of a subsequence matching given key.

Parameters:

x Key of (key, value) pair to be located.

Returns:

Iterator pointing to the first element greater than key, or end().

Definition at line 763 of file stl_map.h.

5.576.3.41 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> value_compare std::map< _Key, _Tp, _Compare, _Alloc >::value_comp () const [inline]

Returns a value comparison object, built from the key comparison object out of which the map was constructed.

Definition at line 680 of file stl_map.h.

The documentation for this class was generated from the following file:

- stl_map.h

5.577 std::mask_array< _Tp > Class Template Reference

Reference to selected subset of an array.

Public Types

- typedef _Tp **value_type**

Public Member Functions

- mask_array (const mask_array &)
- template<class _Dom >
  void **operator%=** (const _Expr< _Dom, _Tp > &) const
- void operator%= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator&=** (const _Expr< _Dom, _Tp > &) const
- void operator&= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator*=** (const _Expr< _Dom, _Tp > &) const
- void operator*= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator+=** (const _Expr< _Dom, _Tp > &) const
- void operator+= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator-=** (const _Expr< _Dom, _Tp > &) const
- void operator-= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator/=** (const _Expr< _Dom, _Tp > &) const
- void operator/= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator<<=** (const _Expr< _Dom, _Tp > &) const
- void operator<<= (const valarray< _Tp > &) const
- template<class _Ex >
  void **operator=** (const _Expr< _Ex, _Tp > &__e) const
- template<class _Dom >
  void **operator=** (const _Expr< _Dom, _Tp > &) const
- void operator= (const _Tp &) const
- void **operator=** (const valarray< _Tp > &) const
- mask_array & operator= (const mask_array &)
- template<class _Dom >
  void **operator>>=** (const _Expr< _Dom, _Tp > &) const

- void operator>>= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator^=** (const _Expr< _Dom, _Tp > &) const
- void operator^= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator|=** (const _Expr< _Dom, _Tp > &) const
- void operator|= (const valarray< _Tp > &) const

Friends

- class **valarray< _Tp >**

5.577.1 Detailed Description

template<class _Tp> class std::mask_array< _Tp >

Reference to selected subset of an array. A mask_array is a reference to the actual elements of an array specified by a bitmask in the form of an array of bool. The way to get a mask_array is to call operator[ ](valarray<bool>) on a valarray. The returned mask_array then permits carrying operations out on the referenced subset of elements in the original valarray.

For example, if a mask_array is obtained using the array (false, true, false, true) as an argument, the mask array has two elements referring to array[1] and array[3] in the underlying array.

Parameters:

Tp Element type.

Definition at line 61 of file mask_array.h.

The documentation for this class was generated from the following file:

- mask_array.h

5.578 std::match_results< _Bi_iter, _Allocator > Class Template Reference

The results of a match or search operation. Inheritance diagram for std::match_results< _Bi_iter, _Allocator >:

Private Types

- typedef _Tp_alloc_type::const_pointer **const_pointer**
- typedef std::reverse_iterator< const_iterator > **const_reverse_iterator**
- typedef _Tp_alloc_type::pointer **pointer**
- typedef std::reverse_iterator< iterator > **reverse_iterator**

Private Member Functions

- _Tp_alloc_type::pointer **_M_allocate** (size_t __n)
- pointer _M_allocate_and_copy (size_type __n, _ForwardIterator __first, _ForwardIterator __last)
- void **_M_assign_aux** (_ForwardIterator __first, _ForwardIterator __last, std::forward_iterator_tag)
- void **_M_assign_aux** (_InputIterator __first, _InputIterator __last, std::input_iterator_tag)
- void **_M_assign_dispatch** (_InputIterator __first, _InputIterator __last, __false_type)
- void **_M_assign_dispatch** (_Integer __n, _Integer __val, __true_type)
- size_type **_M_check_len** (size_type __n, const char *__s) const
- void **_M_deallocate** (typename _Tp_alloc_type::pointer __p, size_t __n)
- void **_M_erase_at_end** (pointer __pos)
- void **_M_fill_assign** (size_type __n, const value_type &__val)
- void **_M_fill_initialize** (size_type __n, const value_type &__value)
- void **_M_fill_insert** (iterator __pos, size_type __n, const value_type &__x)
- const _Tp_alloc_type & **_M_get_Tp_allocator** () const
- _Tp_alloc_type & **_M_get_Tp_allocator** ()
- void **_M_initialize_dispatch** (_InputIterator __first, _InputIterator __last, __false_type)
- void **_M_initialize_dispatch** (_Integer __n, _Integer __value, __true_type)
- void **_M_insert_aux** (iterator __position, _Args &&...__args)
- void **_M_insert_dispatch** (iterator __pos, _InputIterator __first, _InputIterator __last, __false_type)

- void **_M_insert_dispatch** (iterator __pos, _Integer __n, _Integer __val, __true_type)
- void _M_range_check (size_type __n) const
- void **_M_range_initialize** (_ForwardIterator __first, _ForwardIterator __last, std::forward_iterator_tag)
- void **_M_range_initialize** (_InputIterator __first, _InputIterator __last, std::input_iterator_tag)
- void **_M_range_insert** (iterator __pos, _ForwardIterator __first, _ForwardIterator __last, std::forward_iterator_tag)
- void **_M_range_insert** (iterator __pos, _InputIterator __first, _InputIterator __last, std::input_iterator_tag)
- void assign (initializer_list< value_type > __l)
- void assign (_InputIterator __first, _InputIterator __last)
- void assign (size_type __n, const value_type &__val)
- const_reference at (size_type __n) const
- reference at (size_type __n)
- const_reference back () const
- reference back ()
- iterator begin ()
- size_type capacity () const
- void clear ()
- const_reverse_iterator crbegin () const
- const_reverse_iterator crend () const
- const_pointer **data** () const
- pointer data ()
- iterator emplace (iterator __position, _Args &&...__args)
- void **emplace_back** (_Args &&...__args)
- iterator end ()
- iterator erase (iterator __first, iterator __last)
- iterator erase (iterator __position)
- const_reference front () const
- reference front ()
- allocator_type **get_allocator** () const
- void insert (iterator __position, _InputIterator __first, _InputIterator __last)
- void insert (iterator __position, size_type __n, const value_type &__x)
- void insert (iterator __position, initializer_list< value_type > __l)
- iterator insert (iterator __position, value_type &&__x)
- iterator insert (iterator __position, const value_type &__x)
- size_type max_size () const
- const_reference operator[ ] (size_type __n) const
- reference operator[ ] (size_type __n)
- void pop_back ()
- void **push_back** (value_type &&__x)

- void push_back (const value_type &__x)
- const_reverse_iterator rbegin () const
- reverse_iterator rbegin ()
- const_reverse_iterator rend () const
- reverse_iterator rend ()
- void reserve (size_type __n)
- void resize (size_type __new_size, value_type __x=value_type())
- void shrink_to_fit ()
- void swap (vector &__x)

Private Attributes

- _Vector_impl **_M_impl**

10.? Public Types

- typedef _Allocator **allocator_type**
- typedef iterator_traits< _Bi_iter >::value_type **char_type**
- typedef _Base_type::const_iterator **const_iterator**
- typedef _Allocator::const_reference **const_reference**
- typedef iterator_traits< _Bi_iter >::difference_type **difference_type**
- typedef const_iterator **iterator**
- typedef const_reference **reference**
- typedef _Allocator::size_type **size_type**
- typedef basic_string< char_type > **string_type**
- typedef sub_match< _Bi_iter > **value_type**

10.1 Construction, Copying, and Destruction

- match_results (const match_results &__rhs)
- match_results (const _Allocator &__a=_Allocator())
- ~match_results ()
- match_results & operator= (const match_results &__rhs)

10.3 Element Access

- const_iterator begin () const
- const_iterator cbegin () const
- const_iterator cend () const
- const_iterator end () const

- difference_type length (size_type __sub=0) const
- const_reference operator[ ] (size_type __sub) const
- difference_type position (size_type __sub=0) const
- const_reference prefix () const
- string_type str (size_type __sub=0) const
- const_reference suffix () const

10.2 Size

- bool empty () const
- size_type size () const

10.4 Formatting

These functions perform formatted substitution of the matched character sequences into their target. The format specifiers and escape sequences accepted by these functions are determined by their `flags` parameter as documented above.

- string_type format (const string_type &__fmt, regex_constants::match_flag_type __flags=regex_constants::format_default) const
- template<typename _Out_iter >
  _Out_iter format (_Out_iter __out, const string_type &__fmt, regex_constants::match_flag_type __flags=regex_constants::format_default) const

10.6 Swap

- void swap (match_results &__that)

5.578.1 Detailed Description

template<typename _Bi_iter, typename _Allocator = allocator<sub_match<_Bi_iter> > > class std::match_results< _Bi_iter, _Allocator >

The results of a match or search operation. A collection of character sequences representing the result of a regular expression match. Storage for the collection is allocated and freed as necessary by the member functions of class template match_results.

This class satisfies the Sequence requirements, with the exception that only the operations defined for a const-qualified Sequence are supported.

The sub_match object stored at index 0 represents sub-expression 0, i.e. the whole match. In this case the sub_match member matched is always true. The sub_match object stored at index n denotes what matched the marked sub-expression n within the

matched expression. If the sub-expression n participated in a regular expression match then the sub_match member matched evaluates to true, and members first and second denote the range of characters [first, second) which formed that match. Otherwise matched is false, and members first and second point to the end of the sequence that was searched.

Definition at line 1765 of file tr1_impl/regex.

5.578.2 Constructor & Destructor Documentation

5.578.2.1 template<typename _Bi_iter, typename _Allocator = allocator<sub_match<_Bi_iter> >> std::match_results< _Bi_iter, _Allocator >::match_results (const _Allocator & *__a* = _Allocator()) [inline, explicit]

Constructs a default match_results container.

Postcondition:

size() returns 0 and str() returns an empty string.

Definition at line 1801 of file tr1_impl/regex.

5.578.2.2 template<typename _Bi_iter, typename _Allocator = allocator<sub_match<_Bi_iter> >> std::match_results< _Bi_iter, _Allocator >::match_results (const match_results< _Bi_iter, _Allocator > & *__rhs*) [inline]

Copy constructs a match_results.

Definition at line 1808 of file tr1_impl/regex.

5.578.2.3 template<typename _Bi_iter, typename _Allocator = allocator<sub_match<_Bi_iter> >> std::match_results< _Bi_iter, _Allocator >::~match_results () [inline]

Destroys a match_results object.

Definition at line 1827 of file tr1_impl/regex.

5.578.3 Member Function Documentation

5.578.3.1 template<typename _Bi_iter, typename _Allocator = allocator<sub_match<_Bi_iter> >> const_iterator std::match_results< _Bi_iter, _Allocator >::begin () const [inline]

Gets an iterator to the start of the sub_match collection.

Reimplemented from std::vector< std::_GLIBCXX_TR1 sub_match< _Bi_iter >, _Allocator >.

Definition at line 1949 of file tr1_impl/regex.

5.578.3.2 template<typename _Bi_iter, typename _Allocator = allocator<sub_match<_Bi_iter> >> const_iterator std::match_results< _Bi_iter, _Allocator >::cbegin () const [inline]

Gets an iterator to the start of the sub_match collection.

Reimplemented from std::vector< std::_GLIBCXX_TR1 sub_match< _Bi_iter >, _Allocator >.

Definition at line 1957 of file tr1_impl/regex.

5.578.3.3 template<typename _Bi_iter, typename _Allocator = allocator<sub_match<_Bi_iter> >> const_iterator std::match_results< _Bi_iter, _Allocator >::cend () const [inline]

Gets an iterator to one-past-the-end of the collection.

Reimplemented from std::vector< std::_GLIBCXX_TR1 sub_match< _Bi_iter >, _Allocator >.

Definition at line 1973 of file tr1_impl/regex.

5.578.3.4 template<typename _Bi_iter, typename _Allocator = allocator<sub_match<_Bi_iter> >> bool std::match_results< _Bi_iter, _Allocator >::empty () const [inline]

Indicates if the match_results contains no results.

Return values:

true The match_results object is empty.

false The match_results object is not empty.

Reimplemented from std::vector< std::_GLIBCXX_TR1 sub_match< _Bi_iter >, _-Allocator >.

Definition at line 1860 of file tr1_impl/regex.

5.578.3.5 template<typename _Bi_iter, typename _Allocator = allocator<sub_match<_Bi_iter> >> const_iterator std::match_results< _Bi_iter, _Allocator >::end () const [inline]

Gets an iterator to one-past-the-end of the collection.

Reimplemented from std::vector< std::_GLIBCXX_TR1 sub_match< _Bi_iter >, _-Allocator >.

Definition at line 1965 of file tr1_impl/regex.

5.578.3.6 template<typename _Bi_iter, typename _Allocator = allocator<sub_match<_Bi_iter> >> string_type std::match_results< _Bi_iter, _Allocator >::format (const string_type & *__fmt*, regex_constants::match_flag_type *__flags* = regex_constants::format_default) const

Todo

Implement this function.

5.578.3.7 template<typename _Bi_iter, typename _Allocator = allocator<sub_match<_Bi_iter> >> template<typename _Out_iter > _Out_iter std::match_results< _Bi_iter, _Allocator >::format (_Out_iter *__out*, const string_type & *__fmt*, regex_constants::match_flag_type *__flags* = regex_constants::format_default) const [inline]

Todo

Implement this function.

5.578.3.8 template<typename _Bi_iter, typename _Allocator = allocator<sub_match<_Bi_iter> >> difference_type std::match_results< _Bi_iter, _Allocator >::length (size_type *__sub* = 0) const [inline]

Gets the length of the indicated submatch.

Parameters:

sub indicates the submatch.

This function returns the length of the indicated submatch, or the length of the entire match if `sub` is zero (the default).

Definition at line 1878 of file tr1_impl/regex.

5.578.3.9 template<typename _Bi_iter, typename _Allocator = allocator<sub_match<_Bi_iter> >> match_results& std::match_results< _Bi_iter, _Allocator >::operator= (const match_results< _Bi_iter, _Allocator > & *__rhs*) [inline]

Assigns rhs to ∗this.

Definition at line 1817 of file tr1_impl/regex.

5.578.3.10 template<typename _Bi_iter, typename _Allocator = allocator<sub_match<_Bi_iter> >> const_reference std::match_results< _Bi_iter, _Allocator >::operator[ ] (size_type *__sub*) const [inline]

Gets a sub_match reference for the match or submatch.

Parameters:

sub indicates the submatch.

This function gets a reference to the indicated submatch, or the entire match if `sub` is zero.

If `sub` >= size() then this function returns a sub_match with a special value indicating no submatch.

Definition at line 1920 of file tr1_impl/regex.

5.578.3.11 template<typename _Bi_iter, typename _Allocator = allocator<sub_match<_Bi_iter> >> difference_type std::match_results< _Bi_iter, _Allocator >::position (size_type *__sub* = 0) const [inline]

Gets the offset of the beginning of the indicated submatch.

Parameters:

sub indicates the submatch.

This function returns the offset from the beginning of the target sequence to the beginning of the submatch, unless the value of `sub` is zero (the default), in which case this function returns the offset from the beginning of the target sequence to the beginning of the match.

Definition at line 1892 of file tr1_impl/regex.

5.578.3.12 template<typename _Bi_iter, typename _Allocator = allocator<sub_match<_Bi_iter> >> const_reference std::match_results< _Bi_iter, _Allocator >::prefix () const [inline]

Gets a sub_match representing the match prefix. This function gets a reference to a sub_match object representing the part of the target range between the start of the target range and the start of the match.

Definition at line 1931 of file tr1_impl/regex.

Referenced by std::match_results< _Bi_iter >::position().

5.578.3.13 template<typename _Bi_iter, typename _Allocator = allocator<sub_match<_Bi_iter> >> size_type std::match_results< _Bi_iter, _Allocator >::size () const [inline]

Gets the number of matches and submatches. The number of matches for a given regular expression will be either 0 if there was no match or mark_count() + 1 if a match was successful. Some matches may be empty.

Returns:

the number of matches found.

Reimplemented from std::vector< std::_GLIBCXX_TR1 sub_match< _Bi_iter >, _Allocator >.

Definition at line 1847 of file tr1_impl/regex.

Referenced by std::match_results< _Bi_iter >::empty().

5.578.3.14 template<typename _Bi_iter, typename _Allocator = allocator<sub_match<_Bi_iter> >> string_type std::match_results< _Bi_iter, _Allocator >::str (size_type *__sub* = 0) const [inline]

Gets the match or submatch converted to a string type.

Parameters:

sub indicates the submatch.

This function gets the submatch (or match, if `sub` is zero) extracted from the target range and converted to the associated string type.

Definition at line 1906 of file tr1_impl/regex.

Referenced by std::match_results< _Bi_iter >::length().

5.578.3.15 template<typename _Bi_iter, typename _Allocator = allocator<sub_match<_Bi_iter> >> const_reference std::match_results< _Bi_iter, _Allocator >::suffix () const [inline]

Gets a sub_match representing the match suffix. This function gets a reference to a sub_match object representing the part of the target range between the end of the match and the end of the target range.

Definition at line 1942 of file tr1_impl/regex.

5.578.3.16 template<typename _Bi_iter, typename _Allocator = allocator<sub_match<_Bi_iter> >> void std::match_results< _Bi_iter, _Allocator >::swap (match_results< _Bi_iter, _Allocator > & *__that*) [inline]

Swaps the contents of two match_results.

Definition at line 2031 of file tr1_impl/regex.

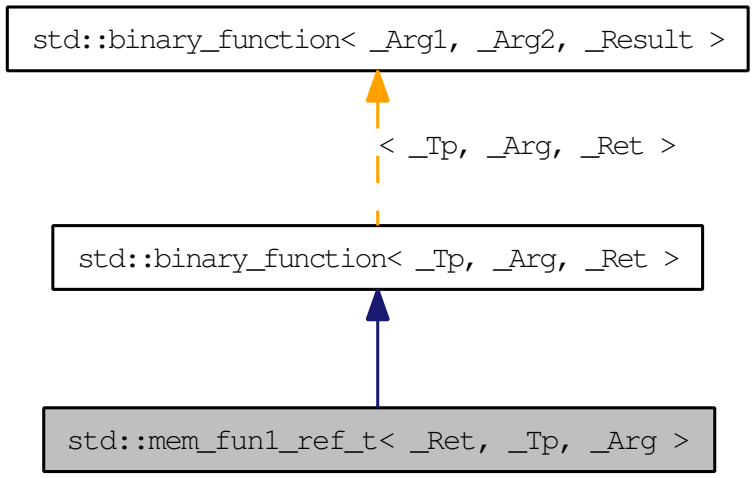
Referenced by std::match_results< _Bi_iter >::operator=(), std::swap(), and std::match_results< _Bi_iter >::swap().

The documentation for this class was generated from the following file:

- tr1_impl/regex

5.579 std::mem_fun1_ref_t< _Ret, _Tp, _Arg > Class Template Reference

One of the adaptors for member pointers. Inheritance diagram for std::mem_fun1_ref_t< _Ret, _Tp, _Arg >:



Public Types

- typedef _Tp first_argument_type
- typedef _Ret result_type
- typedef _Arg second_argument_type

Public Member Functions

- **mem_fun1_ref_t** (_Ret(_Tp::*__pf)(_Arg))
- _Ret **operator()** (_Tp &__r, _Arg __x) const

5.579.1 Detailed Description

template<typename _Ret, typename _Tp, typename _Arg> class std::mem_fun1_ref_t< _Ret, _Tp, _Arg >

One of the adaptors for member pointers.

Definition at line 632 of file stl_function.h.

5.579.2 Member Typedef Documentation

5.579.2.1 typedef _Tp std::binary_function< _Tp , _Arg , _Ret >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.579.2.2 typedef _Ret std::binary_function< _Tp , _Arg , _Ret >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.579.2.3 typedef _Arg std::binary_function< _Tp , _Arg , _Ret >::second_argument_type [inherited]

the type of the second argument

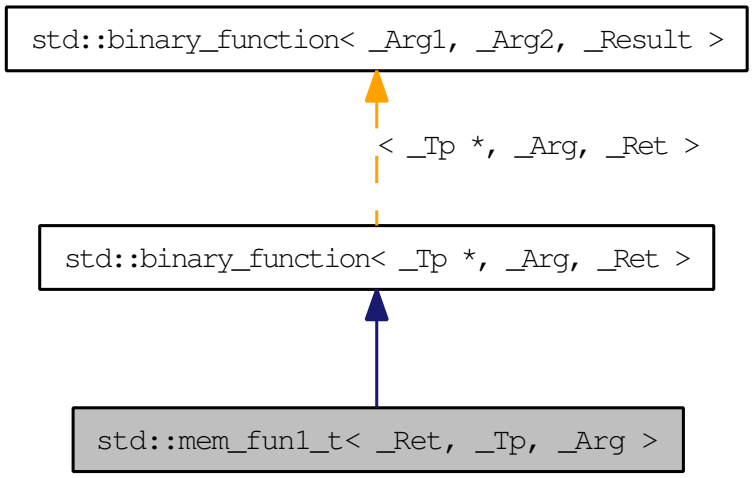
Definition at line 117 of file stl_function.h.

The documentation for this class was generated from the following file:

- stl_function.h

5.580 std::mem_fun1_t< _Ret, _Tp, _Arg > Class Template Reference

One of the adaptors for member pointers. Inheritance diagram for std::mem_fun1_t< _Ret, _Tp, _Arg >:



Public Types

- typedef _Tp ∗ first_argument_type
- typedef _Ret result_type
- typedef _Arg second_argument_type

Public Member Functions

- **mem_fun1_t** (_Ret(_Tp::∗__pf)(_Arg))
- _Ret **operator()** (_Tp ∗__p, _Arg __x) const

5.580.1 Detailed Description

template<typename _Ret, typename _Tp, typename _Arg> class std::mem_fun1_t< _Ret, _Tp, _Arg >

One of the adaptors for member pointers.

Definition at line 596 of file stl_function.h.

5.580.2 Member Typedef Documentation

5.580.2.1 typedef _Tp * std::binary_function< _Tp * , _Arg , _Ret >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.580.2.2 typedef _Ret std::binary_function< _Tp * , _Arg , _Ret >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.580.2.3 typedef _Arg std::binary_function< _Tp * , _Arg , _Ret >::second_argument_type [inherited]

the type of the second argument

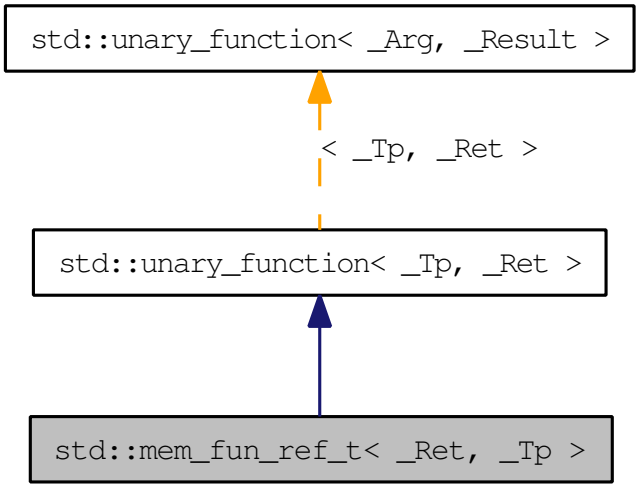
Definition at line 117 of file stl_function.h.

The documentation for this class was generated from the following file:

- stl_function.h

5.581 std::mem_fun_ref_t< _Ret, _Tp > Class Template Reference

One of the adaptors for member pointers. Inheritance diagram for std::mem_fun_ref_t< _Ret, _Tp >:



Public Types

- typedef _Tp argument_type
- typedef _Ret result_type

Public Member Functions

- **mem_fun_ref_t** (_Ret(_Tp::*__pf)())
- _Ret **operator()** (_Tp &__r) const

5.581.1 Detailed Description

template<typename _Ret, typename _Tp> class std::mem_fun_ref_t< _Ret, _Tp >

One of the adaptors for member pointers.

Definition at line 560 of file stl_function.h.

5.581.2 Member Typedef Documentation

5.581.2.1 typedef _Tp std::unary_function< _Tp , _Ret >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.581.2.2 typedef _Ret std::unary_function< _Tp , _Ret >::result_type [inherited]

`result_type` is the return type

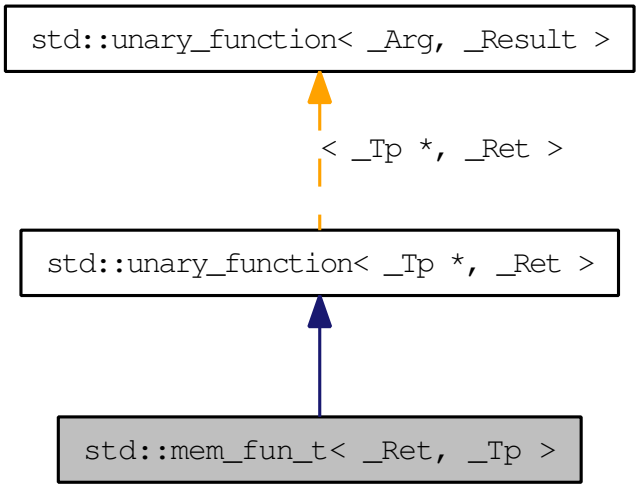
Definition at line 105 of file stl_function.h.

The documentation for this class was generated from the following file:

- stl_function.h

5.582 std::mem_fun_t< _Ret, _Tp > Class Template Reference

One of the adaptors for member pointers. Inheritance diagram for std::mem_fun_t< _Ret, _Tp >:



Public Types

- typedef _Tp * argument_type
- typedef _Ret result_type

Public Member Functions

- **mem_fun_t** (_Ret(_Tp::*__pf)())
- _Ret **operator()** (_Tp *__p) const

5.582.1 Detailed Description

template<typename _Ret, typename _Tp> class std::mem_fun_t< _Ret, _Tp >

One of the adaptors for member pointers.

Definition at line 524 of file stl_function.h.

5.582.2 Member Typedef Documentation

5.582.2.1 typedef _Tp * std::unary_function< _Tp * , _Ret >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.582.2.2 typedef _Ret std::unary_function< _Tp * , _Ret >::result_type [inherited]

`result_type` is the return type

Definition at line 105 of file stl_function.h.

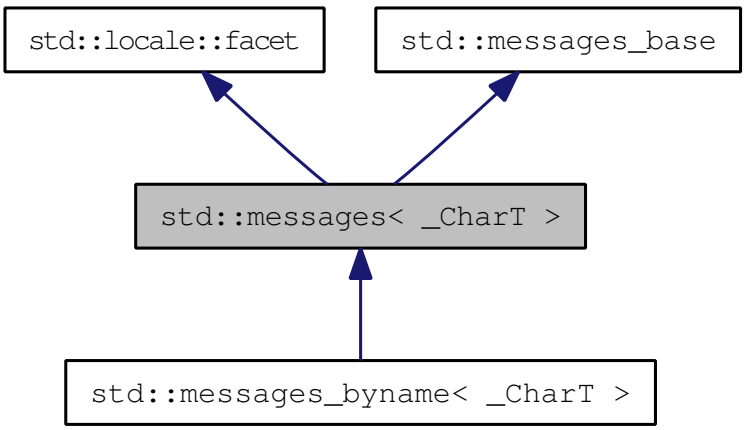
The documentation for this class was generated from the following file:

- stl_function.h

5.583 std::messages< _CharT > Class Template Reference

Primary class template messages.

This facet encapsulates the code to retrieve messages from message catalogs. The only thing defined by the standard for this facet is the interface. All underlying functionality is implementation-defined. Inheritance diagram for std::messages< _CharT >:



Public Types

- typedef int **catalog**

  - typedef _CharT char_type
  - typedef basic_string< _CharT > string_type

Public Member Functions

- messages (__c_locale __cloc, const char *__s, size_t __refs=0)
- messages (size_t __refs=0)
- void **close** (catalog __c) const
- template<>
  wstring **do_get** (catalog, int, int, const wstring &) const
- template<>
  string **do_get** (catalog, int, int, const string &) const
- string_type **get** (catalog __c, int __set, int __msgid, const string_type &__s) const

- catalog **open** (const basic_string< char > &, const locale &, const char *) const
- catalog **open** (const basic_string< char > &__s, const locale &__loc) const

Static Public Attributes

- static locale::id id

Protected Member Functions

- virtual ~messages ()
- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()
- string_type **_M_convert_from_char** (char *) const
- char * **_M_convert_to_char** (const string_type &__msg) const
- virtual void **do_close** (catalog) const
- virtual string_type **do_get** (catalog, int, int, const string_type &__dfault) const
- virtual catalog **do_open** (const basic_string< char > &, const locale &) const

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_locale __old=0)
- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Protected Attributes

- __c_locale **_M_c_locale_messages**
- const char * **_M_name_messages**

Friends

- class **locale::_Impl**

5.583.1 Detailed Description

template<typename _CharT> class std::messages< _CharT >

Primary class template messages.

This facet encapsulates the code to retrieve messages from message catalogs. The only thing defined by the standard for this facet is the interface. All underlying functionality is implementation-defined. This library currently implements 3 versions of the message facet. The first version (gnu) is a wrapper around gettext, provided by libintl. The second version (ieee) is a wrapper around catgets. The final version (default) does no actual translation. These implementations are only provided for char and wchar_t instantiations.

The messages template uses protected virtual functions to provide the actual results. The public accessors forward the call to the virtual functions. These virtual functions are hooks for developers to implement the behavior they require from the messages facet.

Definition at line 1689 of file locale_facets_nonio.h.

5.583.2 Member Typedef Documentation

5.583.2.1 template<typename _CharT > typedef _CharT std::messages< _CharT >::char_type

Public typedefs.

Reimplemented in std::messages_byname< _CharT >.

Definition at line 1695 of file locale_facets_nonio.h.

5.583.2.2 template<typename _CharT > typedef basic_string<_CharT> std::messages< _CharT >::string_type

Public typedefs.

Reimplemented in std::messages_byname< _CharT >.

Definition at line 1696 of file locale_facets_nonio.h.

5.583.3 Constructor & Destructor Documentation

5.583.3.1 template<typename _CharT > std::messages< _CharT >::messages (size_t *__refs* = 0) [inline, explicit]

Constructor performs initialization. This is the constructor provided by the standard.

Parameters:

refs Passed to the base facet class.

Definition at line 43 of file messages_members.h.

5.583.3.2 template<typename _CharT > std::messages< _CharT >::messages (__c_locale __*cloc*, const char * __*s*, size_t __*refs* = 0) [inline, explicit]

Internal constructor. Not for general use. This is a constructor for use by the library itself to set up new locales.

Parameters:

cloc The C locale.

s The name of a locale.

refs Refcount to pass to the base class.

Definition at line 49 of file messages_members.h.

5.583.3.3 template<typename _CharT > std::messages< _CharT >::~messages () [inline, protected, virtual]

Destructor.

Definition at line 78 of file messages_members.h.

5.583.4 Member Data Documentation

5.583.4.1 template<typename _CharT > locale::id std::messages< _CharT >::id [inline, static]

Numpunct facet id.

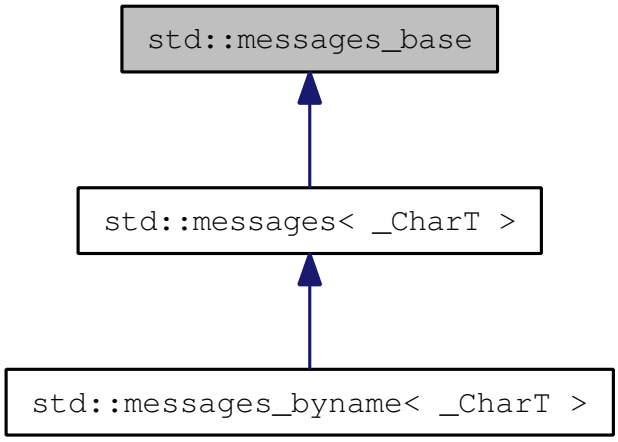
Definition at line 1707 of file locale_facets_nonio.h.

The documentation for this class was generated from the following files:

- locale_facets_nonio.h
- messages_members.h

5.584 std::messages_base Struct Reference

Messages facet base class providing catalog typedef. Inheritance diagram for std::messages_base:



Public Types

- typedef int **catalog**

5.584.1 Detailed Description

Messages facet base class providing catalog typedef.

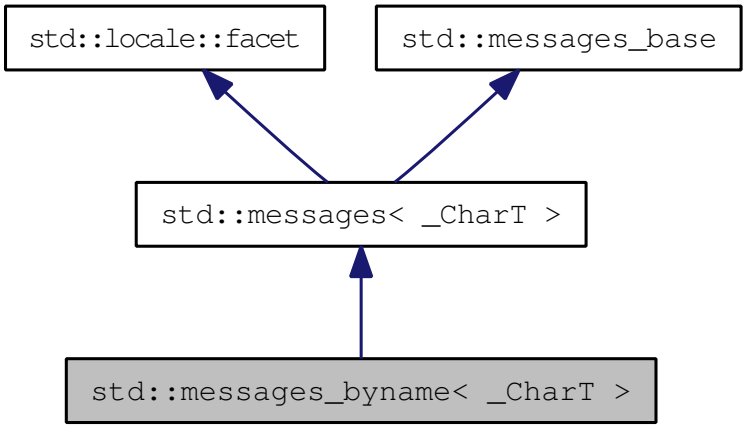
Definition at line 1662 of file locale_facets_nonio.h.

The documentation for this struct was generated from the following file:

- locale_facets_nonio.h

5.585 std::messages_byname< _CharT > Class Template Reference

class messages_byname [22.2.7.2]. Inheritance diagram for std::messages_byname< _CharT >:



Public Types

- typedef int **catalog**
- typedef _CharT char_type
- typedef basic_string< _CharT > string_type

Public Member Functions

- **messages_byname** (const char *__s, size_t __refs=0)
- void **close** (catalog __c) const
- template<>
  wstring **do_get** (catalog, int, int, const wstring &) const
- template<>
  string **do_get** (catalog, int, int, const string &) const
- string_type **get** (catalog __c, int __set, int __msgid, const string_type &__s) const
- catalog **open** (const basic_string< char > &, const locale &, const char *) const
- catalog **open** (const basic_string< char > &__s, const locale &__loc) const

Static Public Attributes

- static locale::id id

Protected Member Functions

- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()
- string_type **_M_convert_from_char** (char *) const
- char * **_M_convert_to_char** (const string_type &__msg) const
- virtual void **do_close** (catalog) const
- virtual string_type **do_get** (catalog, int, int, const string_type &__dfault) const
- virtual catalog **do_open** (const basic_string< char > &, const locale &) const

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_locale __old=0)
- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Protected Attributes

- __c_locale **_M_c_locale_messages**
- const char * **_M_name_messages**

Friends

- class **locale::_Impl**

5.585.1 Detailed Description

template<typename _CharT> class std::messages_byname< _CharT >

class messages_byname [22.2.7.2].

Definition at line 1906 of file locale_facets_nonio.h.

5.585.2 Member Typedef Documentation

5.585.2.1 template<typename _CharT > typedef _CharT std::messages_byname< _CharT >::char_type

Public typedefs.

Reimplemented from std::messages< _CharT >.

Definition at line 1909 of file locale_facets_nonio.h.

5.585.2.2 template<typename _CharT > typedef basic_string<_CharT> std::messages_byname< _CharT >::string_type

Public typedefs.

Reimplemented from std::messages< _CharT >.

Definition at line 1910 of file locale_facets_nonio.h.

5.585.3 Member Data Documentation

5.585.3.1 template<typename _CharT > locale::id std::messages< _CharT >::id [inline, static, inherited]

Numpunct facet id.

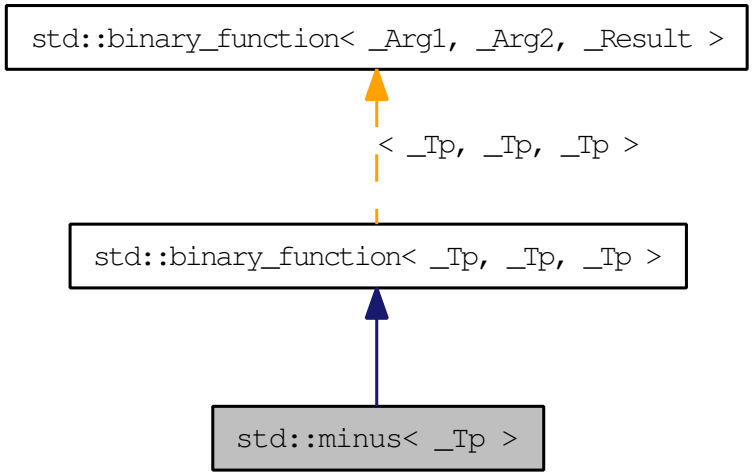
Definition at line 1707 of file locale_facets_nonio.h.

The documentation for this class was generated from the following files:

- locale_facets_nonio.h
- messages_members.h

5.586 std::minus< _Tp > Struct Template Reference

One of the math functors. Inheritance diagram for std::minus< _Tp >:



Public Types

- typedef _Tp first_argument_type
- typedef _Tp result_type
- typedef _Tp second_argument_type

Public Member Functions

- _Tp **operator()** (const _Tp &__x, const _Tp &__y) const

5.586.1 Detailed Description

template<typename _Tp> struct std::minus< _Tp >

One of the math functors.

Definition at line 144 of file stl_function.h.

5.586.2 Member Typedef Documentation

5.586.2.1 typedef _Tp std::binary_function< _Tp , _Tp , _Tp >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.586.2.2 typedef _Tp std::binary_function< _Tp , _Tp , _Tp >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.586.2.3 typedef _Tp std::binary_function< _Tp , _Tp , _Tp >::second_argument_type [inherited]

the type of the second argument

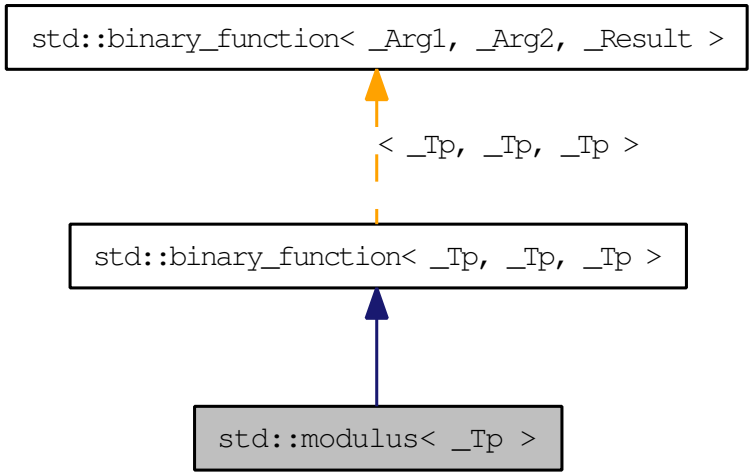
Definition at line 117 of file stl_function.h.

The documentation for this struct was generated from the following file:

- stl_function.h

5.587 std::modulus< _Tp > Struct Template Reference

One of the math functors. Inheritance diagram for std::modulus< _Tp >:



Public Types

- typedef _Tp first_argument_type
- typedef _Tp result_type
- typedef _Tp second_argument_type

Public Member Functions

- _Tp **operator()** (const _Tp &__x, const _Tp &__y) const

5.587.1 Detailed Description

template<typename _Tp> struct std::modulus< _Tp >

One of the math functors.

Definition at line 171 of file stl_function.h.

5.587.2 Member Typedef Documentation

5.587.2.1 typedef _Tp std::binary_function< _Tp , _Tp , _Tp >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.587.2.2 typedef _Tp std::binary_function< _Tp , _Tp , _Tp >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.587.2.3 typedef _Tp std::binary_function< _Tp , _Tp , _Tp >::second_argument_type [inherited]

the type of the second argument

Definition at line 117 of file stl_function.h.

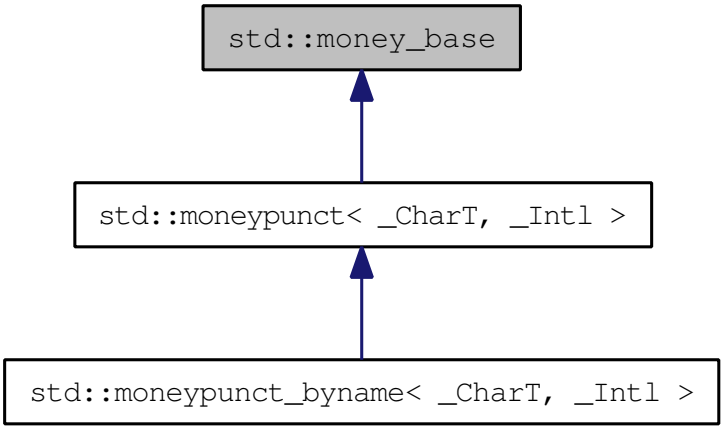
The documentation for this struct was generated from the following file:

- stl_function.h

5.588 std::money_base Class Reference

Money format ordering data.

This class contains an ordered array of 4 fields to represent the pattern for formatting a money amount. Each field may contain one entry from the part enum. symbol, sign, and value must be present and the remaining field must contain either none or space. Inheritance diagram for std::money_base:



Public Types

- enum { **_S_minus**, **_S_zero**, **_S_end** }
- enum **part** {

  none, **space**, **symbol**, **sign**,

  value }

Public Member Functions

- **__attribute__** ((__const__)) static pattern _S_construct_pattern(char __-precedes
- char char __posn **throw** ()

Public Attributes

- char **__space**

Static Public Attributes

- static const char * **_S_atoms**
- static const pattern **_S_default_pattern**

5.588.1 Detailed Description

Money format ordering data.

This class contains an ordered array of 4 fields to represent the pattern for formatting a money amount. Each field may contain one entry from the part enum. symbol, sign, and value must be present and the remaining field must contain either none or space.

See also:

moneypunct::pos_format() and moneypunct::neg_format() for details of how these fields are interpreted.

Definition at line 835 of file locale_facets_nonio.h.

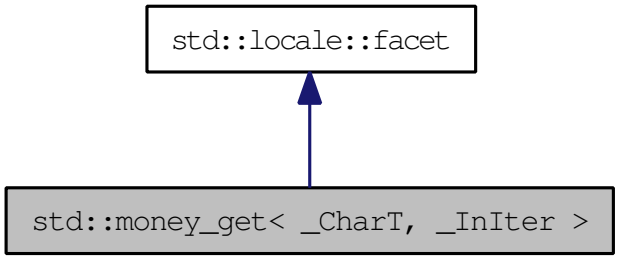
The documentation for this class was generated from the following file:

- locale_facets_nonio.h

5.589 std::money_get< _CharT, _InIter > Class Template Reference

Primary class template money_get.

This facet encapsulates the code to parse and return a monetary amount from a string. Inheritance diagram for std::money_get< _CharT, _InIter >:



Public Types

- typedef _CharT char_type
- typedef _InIter iter_type
- typedef basic_string< _CharT > string_type

Public Member Functions

- money_get (size_t __refs=0)
- iter_type get (iter_type __s, iter_type __end, bool __intl, ios_base &__io, ios_base::iostate &__err, string_type &__digits) const
- iter_type get (iter_type __s, iter_type __end, bool __intl, ios_base &__io, ios_base::iostate &__err, long double &__units) const

Static Public Attributes

- static locale::id id

Protected Member Functions

- virtual ~money_get ()
- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()

- template<bool _Intl>
  iter_type **_M_extract** (iter_type __s, iter_type __end, ios_base &__io, ios_base::iostate &__err, string &__digits) const
- virtual iter_type do_get (iter_type __s, iter_type __end, bool __intl, ios_base &__io, ios_base::iostate &__err, string_type &__digits) const
- virtual iter_type do_get (iter_type __s, iter_type __end, bool __intl, ios_base &__io, ios_base::iostate &__err, long double &__units) const

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_locale __old=0)
- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Friends

- class **locale::_Impl**

5.589.1 Detailed Description

template<typename _CharT, typename _InIter> class std::money_get< _CharT, _InIter >

Primary class template money_get.

This facet encapsulates the code to parse and return a monetary amount from a string. The money_get template uses protected virtual functions to provide the actual results. The public accessors forward the call to the virtual functions. These virtual functions are hooks for developers to implement the behavior they require from the money_get facet.

Definition at line 1364 of file locale_facets_nonio.h.

5.589.2 Member Typedef Documentation

5.589.2.1 template<typename _CharT , typename _InIter > typedef _CharT std::money_get< _CharT, _InIter >::char_type

Public typedefs.

Definition at line 1370 of file locale_facets_nonio.h.

5.589.2.2 template<typename _CharT , typename _InIter > typedef _InIter std::money_get< _CharT, _InIter >::iter_type

Public typedefs.

Definition at line 1371 of file locale_facets_nonio.h.

5.589.2.3 template<typename _CharT , typename _InIter > typedef basic_string<_CharT> std::money_get< _CharT, _InIter >::string_type

Public typedefs.

Definition at line 1372 of file locale_facets_nonio.h.

5.589.3 Constructor & Destructor Documentation

5.589.3.1 template<typename _CharT , typename _InIter > std::money_get< _CharT, _InIter >::money_get (size_t *__refs* = 0) [inline, explicit]

Constructor performs initialization. This is the constructor provided by the standard.

Parameters:

refs Passed to the base facet class.

Definition at line 1386 of file locale_facets_nonio.h.

5.589.3.2 template<typename _CharT , typename _InIter > virtual std::money_get< _CharT, _InIter >::~money_get () [inline, protected, virtual]

Destructor.

Definition at line 1454 of file locale_facets_nonio.h.

5.589.4 Member Function Documentation

5.589.4.1 template<typename _CharT , typename _InIter > _InIter std::money_get< _CharT, _InIter >::do_get (iter_type *__s*, iter_type *__end*, bool *__intl*, ios_base & *__io*, ios_base::iostate & *__err*, string_type & *__digits*) const [inline, protected, virtual]

Read and parse a monetary value. This function reads and parses characters representing a monetary value. This function is a hook for derived classes to change the value returned.

See also:

get() for details.

Definition at line 376 of file locale_facets_nonio.tcc.

References std::ios_base::_M_getloc(), std::basic_string< _CharT, _Traits, _Alloc >::resize(), and std::__ctype_abstract_base< _CharT >::widen().

5.589.4.2 template<typename _CharT , typename _InIter > _InIter std::money_get< _CharT, _InIter >::do_get (iter_type *__s*, iter_type *__end*, bool *__intl*, ios_base & *__io*, ios_base::iostate & *__err*, long double & *__units*) const [inline, protected, virtual]

Read and parse a monetary value. This function reads and parses characters representing a monetary value. This function is a hook for derived classes to change the value returned.

See also:

get() for details.

Definition at line 363 of file locale_facets_nonio.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::c_str().

Referenced by std::money_get< _CharT, _InIter >::get().

5.589.4.3 template<typename _CharT , typename _InIter > iter_type std::money_get< _CharT, _InIter >::get (iter_type *__s*, iter_type *__end*, bool *__intl*, ios_base & *__io*, ios_base::iostate & *__err*, string_type & *__digits*) const [inline]

Read and parse a monetary value. This function reads characters from *s*, interprets them as a monetary value according to moneypunct and ctype facets retrieved from

io.getloc(), and returns the result in *digits*. For example, the string $10.01 in a US locale would store `1001` in *digits*.

Any characters not part of a valid money amount are not consumed.

If a money value cannot be parsed from the input stream, sets err=(err|io.failbit). If the stream is consumed before finishing parsing, sets err=(err|io.failbit|io.eofbit).

This function works by returning the result of do_get().

Parameters:

s Start of characters to parse.

end End of characters to parse.

intl Parameter to use_facet<moneypunct<CharT,intl> >.

io Source of facets and io state.

err Error field to set if parsing fails.

digits Place to store result of parsing.

Returns:

Iterator referencing first character beyond valid money amount.

Definition at line 1447 of file locale_facets_nonio.h.

References std::money_get< _CharT, _InIter >::do_get().

5.589.4.4 template<typename _CharT , typename _InIter > iter_type std::money_get< _CharT, _InIter >::get (iter_type *__s*, iter_type *__end*, bool *__intl*, ios_base & *__io*, ios_base::iostate & *__err*, long double & *__units*) const [inline]

Read and parse a monetary value. This function reads characters from *s*, interprets them as a monetary value according to moneypunct and ctype facets retrieved from io.getloc(), and returns the result in *units* as an integral value moneypunct::frac_digits() * the actual amount. For example, the string $10.01 in a US locale would store 1001 in *units*.

Any characters not part of a valid money amount are not consumed.

If a money value cannot be parsed from the input stream, sets err=(err|io.failbit). If the stream is consumed before finishing parsing, sets err=(err|io.failbit|io.eofbit). *units* is unchanged if parsing fails.

This function works by returning the result of do_get().

Parameters:

s Start of characters to parse.

end End of characters to parse.

intl Parameter to use_facet<moneypunct<CharT,intl> >.

io Source of facets and io state.

err Error field to set if parsing fails.

units Place to store result of parsing.

Returns:

Iterator referencing first character beyond valid money amount.

Definition at line 1416 of file locale_facets_nonio.h.

References std::money_get< _CharT, _InIter >::do_get().

5.589.5 Member Data Documentation

5.589.5.1 template<typename _CharT , typename _InIter > locale::id std::money_get< _CharT, _InIter >::id [inline, static]

Numpunct facet id.

Definition at line 1376 of file locale_facets_nonio.h.

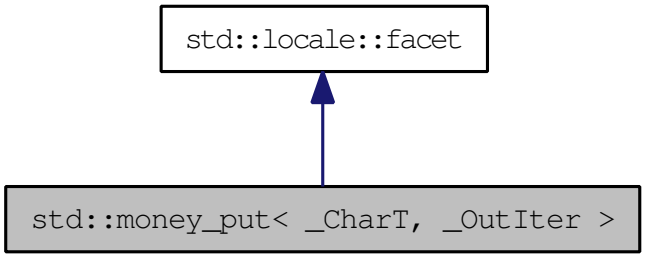
The documentation for this class was generated from the following files:

- locale_facets_nonio.h
- locale_facets_nonio.tcc

5.590 std::money_put< _CharT, _OutIter > Class Template Reference

Primary class template money_put.

This facet encapsulates the code to format and output a monetary amount. Inheritance diagram for std::money_put< _CharT, _OutIter >:



Public Types

- typedef _CharT char_type
- typedef _OutIter iter_type
- typedef basic_string< _CharT > string_type

Public Member Functions

- money_put (size_t __refs=0)
- iter_type put (iter_type __s, bool __intl, ios_base &__io, char_type __fill, const string_type &__digits) const
- iter_type put (iter_type __s, bool __intl, ios_base &__io, char_type __fill, long double __units) const

Static Public Attributes

- static locale::id id

Protected Member Functions

- virtual ~money_put ()
- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()

- template<bool _Intl>
  iter_type **_M_insert** (iter_type __s, ios_base &__io, char_type __fill, const string_type &__digits) const
- virtual iter_type do_put (iter_type __s, bool __intl, ios_base &__io, char_type __fill, const string_type &__digits) const
- virtual iter_type do_put (iter_type __s, bool __intl, ios_base &__io, char_type __fill, long double __units) const

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_locale __old=0)
- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Friends

- class **locale::_Impl**

5.590.1 Detailed Description

template<typename _CharT, typename _OutIter> class std::money_put< _CharT, _OutIter >

Primary class template money_put.

This facet encapsulates the code to format and output a monetary amount. The money_put template uses protected virtual functions to provide the actual results. The public accessors forward the call to the virtual functions. These virtual functions are hooks for developers to implement the behavior they require from the money_put facet.

Definition at line 1515 of file locale_facets_nonio.h.

5.590.2 Member Typedef Documentation

5.590.2.1 template<typename _CharT , typename _OutIter > typedef _CharT std::money_put< _CharT, _OutIter >::char_type

Public typedefs.

Definition at line 1520 of file locale_facets_nonio.h.

5.590.2.2 template<typename _CharT , typename _OutIter > typedef _OutIter std::money_put< _CharT, _OutIter >::iter_type

Public typedefs.

Definition at line 1521 of file locale_facets_nonio.h.

5.590.2.3 template<typename _CharT , typename _OutIter > typedef basic_string<_CharT> std::money_put< _CharT, _OutIter >::string_type

Public typedefs.

Definition at line 1522 of file locale_facets_nonio.h.

5.590.3 Constructor & Destructor Documentation

5.590.3.1 template<typename _CharT , typename _OutIter > std::money_put< _CharT, _OutIter >::money_put (size_t *__refs* = 0) [inline, explicit]

Constructor performs initialization. This is the constructor provided by the standard.

Parameters:

refs Passed to the base facet class.

Definition at line 1536 of file locale_facets_nonio.h.

5.590.3.2 template<typename _CharT , typename _OutIter > virtual std::money_put< _CharT, _OutIter >::~money_put () [inline, protected, virtual]

Destructor.

Definition at line 1586 of file locale_facets_nonio.h.

5.590.4 Member Function Documentation

5.590.4.1 template<typename _CharT , typename _OutIter > _OutIter std::money_put< _CharT, _OutIter >::do_put (iter_type *__s*, bool *__intl*, ios_base & *__io*, char_type *__fill*, const string_type & *__digits*) const [inline, protected, virtual]

Format and output a monetary value. This function formats *digits* as a monetary value according to moneypunct and ctype facets retrieved from io.getloc(), and writes the resulting characters to *s*. For example, the string `1001` in a US locale would write `$10.01` to *s*.

This function is a hook for derived classes to change the value returned.

See also:

put().

Parameters:

s The stream to write to.

intl Parameter to use_facet<moneypunct<CharT,intl> >.

io Source of facets and io state.

fill char_type to use for padding.

units Place to store result of parsing.

Returns:

Iterator after writing.

Definition at line 606 of file locale_facets_nonio.tcc.

5.590.4.2 template<typename _CharT , typename _OutIter > _OutIter std::money_put< _CharT, _OutIter >::do_put (iter_type *__s*, bool *__intl*, ios_base & *__io*, char_type *__fill*, long double *__units*) const [inline, protected, virtual]

Format and output a monetary value. This function formats *units* as a monetary value according to moneypunct and ctype facets retrieved from io.getloc(), and writes the resulting characters to *s*. For example, the value 1001 in a US locale would write `$10.01` to *s*.

This function is a hook for derived classes to change the value returned.

See also:

put().

Parameters:

s The stream to write to.

intl Parameter to use_facet<moneypunct<CharT,intl> >.

io Source of facets and io state.

fill char_type to use for padding.

units Place to store result of parsing.

Returns:

Iterator after writing.

Definition at line 568 of file locale_facets_nonio.tcc.

References std::ios_base::getloc(), and std::__ctype_abstract_base< _CharT >::widen().

Referenced by std::money_put< _CharT, _OutIter >::put().

5.590.4.3 template<typename _CharT , typename _OutIter > iter_type std::money_put< _CharT, _OutIter >::put (iter_type *__s*, bool *__intl*, ios_base & *__io*, char_type *__fill*, const string_type & *__digits*) const [inline]

Format and output a monetary value. This function formats *digits* as a monetary value according to moneypunct and ctype facets retrieved from io.getloc(), and writes the resulting characters to *s*. For example, the string `1001` in a US locale would write `$10.01` to *s*.

This function works by returning the result of do_put().

Parameters:

s The stream to write to.

intl Parameter to use_facet<moneypunct<CharT,intl> >.

io Source of facets and io state.

fill char_type to use for padding.

units Place to store result of parsing.

Returns:

Iterator after writing.

Definition at line 1579 of file locale_facets_nonio.h.

References std::money_put< _CharT, _OutIter >::do_put().

5.590.4.4 template<typename _CharT , typename _OutIter > iter_type std::money_put< _CharT, _OutIter >::put (iter_type __s, bool __intl, ios_base & __io, char_type __fill, long double __units) const [inline]

Format and output a monetary value. This function formats *units* as a monetary value according to moneypunct and ctype facets retrieved from io.getloc(), and writes the resulting characters to *s*. For example, the value 1001 in a US locale would write `$10.01` to *s*.

This function works by returning the result of do_put().

Parameters:

s The stream to write to.

intl Parameter to use_facet<moneypunct<CharT,intl> >.

io Source of facets and io state.

fill char_type to use for padding.

units Place to store result of parsing.

Returns:

Iterator after writing.

Definition at line 1556 of file locale_facets_nonio.h.

References std::money_put< _CharT, _OutIter >::do_put().

5.590.5 Member Data Documentation

5.590.5.1 template<typename _CharT , typename _OutIter > locale::id std::money_put< _CharT, _OutIter >::id [inline, static]

Numpunct facet id.

Definition at line 1526 of file locale_facets_nonio.h.

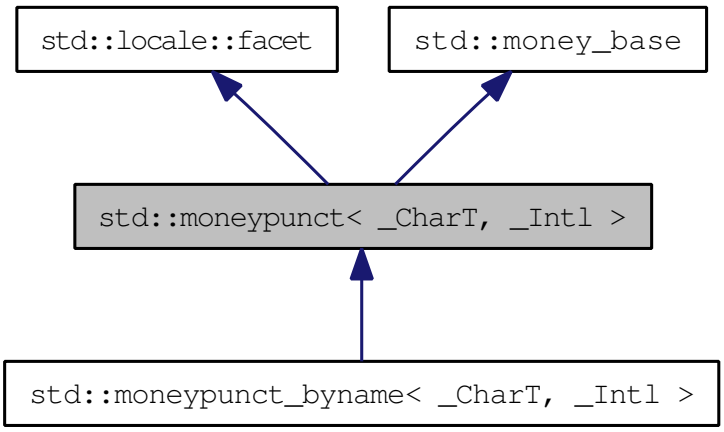
The documentation for this class was generated from the following files:

- locale_facets_nonio.h
- locale_facets_nonio.tcc

5.591 std::moneypunct< _CharT, _Intl > Class Template Reference

Primary class template moneypunct.

This facet encapsulates the punctuation, grouping and other formatting features of money amount string representations. Inheritance diagram for std::moneypunct< _CharT, _Intl >:



Public Types

- enum { **_S_minus**, **_S_zero**, **_S_end** }
- typedef __moneypunct_cache< _CharT, _Intl > **__cache_type**
- enum **part** {

  none, **space**, **symbol**, **sign**,

  value }

Public Member Functions

- moneypunct (__c_locale __cloc, const char *__s, size_t __refs=0)
- moneypunct (__cache_type *__cache, size_t __refs=0)
- moneypunct (size_t __refs=0)
- **__attribute__** ((__const__)) static pattern _S_construct_pattern(char __precedes
- template<>
  void **_M_initialize_moneypunct** (__c_locale, const char *)

- template<>
  void **_M_initialize_moneypunct** (__c_locale, const char *)
- template<>
  void **_M_initialize_moneypunct** (__c_locale, const char *)
- template<>
  void **_M_initialize_moneypunct** (__c_locale, const char *)
- string_type curr_symbol () const
- char_type decimal_point () const
- int frac_digits () const
- string grouping () const
- string_type negative_sign () const
- string_type positive_sign () const
- char_type thousands_sep () const
- char char __posn **throw** ()

Public Attributes

- char **__space**

Static Public Attributes

- static const char * **_S_atoms**
- static const pattern **_S_default_pattern**
- static locale::id id
- static const bool intl

Protected Member Functions

- virtual ~moneypunct ()
- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()
- void **_M_initialize_moneypunct** (__c_locale __cloc=NULL, const char *__name=NULL)
- virtual string_type do_curr_symbol () const
- virtual char_type do_decimal_point () const
- virtual int do_frac_digits () const
- virtual string do_grouping () const
- virtual pattern do_neg_format () const
- virtual string_type do_negative_sign () const
- virtual pattern do_pos_format () const
- virtual string_type do_positive_sign () const
- virtual char_type do_thousands_sep () const

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_-locale __old=0)
- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Friends

- class **locale::_Impl**

- typedef _CharT char_type
- typedef basic_string< _CharT > string_type
- pattern neg_format () const
- pattern pos_format () const

5.591.1 Detailed Description

template<typename _CharT, bool _Intl> class std::moneypunct< _CharT, _Intl >

Primary class template moneypunct.

This facet encapsulates the punctuation, grouping and other formatting features of money amount string representations.

Definition at line 929 of file locale_facets_nonio.h.

5.591.2 Member Typedef Documentation

5.591.2.1 template<typename _CharT, bool _Intl> typedef _CharT std::moneypunct< _CharT, _Intl >::char_type

Public typedefs.

Reimplemented in std::moneypunct_byname< _CharT, _Intl >.

Definition at line 935 of file locale_facets_nonio.h.

5.591.2.2 template<typename _CharT, bool _Intl> typedef basic_string<_CharT> std::moneypunct< _CharT, _Intl >::string_type

Public typedefs.

Reimplemented in std::moneypunct_byname< _CharT, _Intl >.

Definition at line 936 of file locale_facets_nonio.h.

5.591.3 Constructor & Destructor Documentation

5.591.3.1 template<typename _CharT, bool _Intl> std::moneypunct< _CharT, _Intl >::moneypunct (size_t *__refs* = 0) [inline, explicit]

Constructor performs initialization. This is the constructor provided by the standard.

Parameters:

refs Passed to the base facet class.

Definition at line 958 of file locale_facets_nonio.h.

5.591.3.2 template<typename _CharT, bool _Intl> std::moneypunct< _CharT, _Intl >::moneypunct (__cache_type * *__cache*, size_t *__refs* = 0) [inline, explicit]

Constructor performs initialization. This is an internal constructor.

Parameters:

cache Cache for optimization.

refs Passed to the base facet class.

Definition at line 970 of file locale_facets_nonio.h.

5.591.3.3 template<typename _CharT, bool _Intl> std::moneypunct< _CharT, _Intl >::moneypunct (__c_locale *__cloc*, const char * *__s*, size_t *__refs* = 0) [inline, explicit]

Internal constructor. Not for general use. This is a constructor for use by the library itself to set up new locales.

Parameters:

cloc The C locale.

s The name of a locale.

refs Passed to the base facet class.

Definition at line 985 of file locale_facets_nonio.h.

5.591.3.4 template<typename _CharT, bool _Intl> virtual std::moneypunct< _CharT, _Intl >::~moneypunct () [protected, virtual]

Destructor.

5.591.4 Member Function Documentation

5.591.4.1 template<typename _CharT, bool _Intl> string_type std::moneypunct< _CharT, _Intl >::curr_symbol () const [inline]

Return currency symbol string. This function returns a string_type to use as a currency symbol. It does so by returning returning moneypunct<char_type>::do_curr_symbol().

Returns:

string_type representing a currency symbol.

Definition at line 1055 of file locale_facets_nonio.h.

References std::moneypunct< _CharT, _Intl >::do_curr_symbol().

5.591.4.2 template<typename _CharT, bool _Intl> char_type std::moneypunct< _CharT, _Intl >::decimal_point () const [inline]

Return decimal point character. This function returns a char_type to use as a decimal point. It does so by returning returning moneypunct<char_type>::do_decimal_point().

Returns:

char_type representing a decimal point.

Definition at line 999 of file locale_facets_nonio.h.

References std::moneypunct< _CharT, _Intl >::do_decimal_point().

5.591.4.3 template<typename _CharT, bool _Intl> virtual string_type std::moneypunct< _CharT, _Intl >::do_curr_symbol () const [inline, protected, virtual]

Return currency symbol string. This function returns a string_type to use as a currency symbol. This function is a hook for derived classes to change the value returned.

See also:

curr_symbol() for details.

Returns:

string_type representing a currency symbol.

Definition at line 1201 of file locale_facets_nonio.h.

Referenced by std::moneypunct< _CharT, _Intl >::curr_symbol().

5.591.4.4 template<typename _CharT, bool _Intl> virtual char_type std::moneypunct< _CharT, _Intl >::do_decimal_point () const [inline, protected, virtual]

Return decimal point character. Returns a char_type to use as a decimal point. This function is a hook for derived classes to change the value returned.

Returns:

char_type representing a decimal point.

Definition at line 1163 of file locale_facets_nonio.h.

Referenced by std::moneypunct< _CharT, _Intl >::decimal_point().

5.591.4.5 template<typename _CharT, bool _Intl> virtual int std::moneypunct< _CharT, _Intl >::do_frac_digits () const [inline, protected, virtual]

Return number of digits in fraction. This function returns the exact number of digits that make up the fractional part of a money amount. This function is a hook for derived classes to change the value returned.

See also:

frac_digits() for details.

Returns:

Number of digits in amount fraction.

Definition at line 1241 of file locale_facets_nonio.h.

Referenced by std::moneypunct< _CharT, _Intl >::frac_digits().

5.591.4.6 template<typename _CharT, bool _Intl> virtual string std::moneypunct< _CharT, _Intl >::do_grouping () const [inline, protected, virtual]

Return grouping specification. Returns a string representing groupings for the integer part of a number. This function is a hook for derived classes to change the value returned.

See also:

grouping() for details.

Returns:

String representing grouping specification.

Definition at line 1188 of file locale_facets_nonio.h.

Referenced by std::moneypunct< _CharT, _Intl >::grouping().

5.591.4.7 template<typename _CharT, bool _Intl> virtual pattern std::moneypunct< _CharT, _Intl >::do_neg_format () const [inline, protected, virtual]

Return pattern for money values. This function returns a pattern describing the formatting of a negative valued money amount. This function is a hook for derived classes to change the value returned.

See also:

neg_format() for details.

Returns:

Pattern for money values.

Definition at line 1269 of file locale_facets_nonio.h.

Referenced by std::moneypunct< _CharT, _Intl >::neg_format().

5.591.4.8 template<typename _CharT, bool _Intl> virtual string_type std::moneypunct< _CharT, _Intl >::do_negative_sign () const [inline, protected, virtual]

Return negative sign string. This function returns a string_type to use as a sign for negative amounts. This function is a hook for derived classes to change the value returned.

See also:

negative_sign() for details.

Returns:

string_type representing a negative sign.

Definition at line 1227 of file locale_facets_nonio.h.

Referenced by std::moneypunct< _CharT, _Intl >::negative_sign().

5.591.4.9 template<typename _CharT, bool _Intl> virtual pattern std::moneypunct< _CharT, _Intl >::do_pos_format () const [inline, protected, virtual]

Return pattern for money values. This function returns a pattern describing the formatting of a positive valued money amount. This function is a hook for derived classes to change the value returned.

See also:

pos_format() for details.

Returns:

Pattern for money values.

Definition at line 1255 of file locale_facets_nonio.h.

Referenced by std::moneypunct< _CharT, _Intl >::pos_format().

5.591.4.10 template<typename _CharT, bool _Intl> virtual string_type std::moneypunct< _CharT, _Intl >::do_positive_sign () const [inline, protected, virtual]

Return positive sign string. This function returns a string_type to use as a sign for positive amounts. This function is a hook for derived classes to change the value returned.

See also:

positive_sign() for details.

Returns:

string_type representing a positive sign.

Definition at line 1214 of file locale_facets_nonio.h.

Referenced by std::moneypunct< _CharT, _Intl >::positive_sign().

5.591.4.11 template<typename _CharT, bool _Intl> virtual char_type std::moneypunct< _CharT, _Intl >::do_thousands_sep () const [inline, protected, virtual]

Return thousands separator character. Returns a char_type to use as a thousands separator. This function is a hook for derived classes to change the value returned.

Returns:

char_type representing a thousands separator.

Definition at line 1175 of file locale_facets_nonio.h.

Referenced by std::moneypunct< _CharT, _Intl >::thousands_sep().

5.591.4.12 template<typename _CharT, bool _Intl> int std::moneypunct< _CharT, _Intl >::frac_digits () const [inline]

Return number of digits in fraction. This function returns the exact number of digits that make up the fractional part of a money amount. It does so by returning returning moneypunct<char_type>::do_frac_digits().

The fractional part of a money amount is optional. But if it is present, there must be frac_digits() digits.

Returns:

Number of digits in amount fraction.

Definition at line 1105 of file locale_facets_nonio.h.

References std::moneypunct< _CharT, _Intl >::do_frac_digits().

5.591.4.13 template<typename _CharT, bool _Intl> string std::moneypunct< _CharT, _Intl >::grouping () const [inline]

Return grouping specification. This function returns a string representing groupings for the integer part of an amount. Groupings indicate where thousands separators should be inserted.

Each char in the return string is interpret as an integer rather than a character. These numbers represent the number of digits in a group. The first char in the string represents the number of digits in the least significant group. If a char is negative, it indicates an unlimited number of digits for the group. If more chars from the string are required to group a number, the last char is used repeatedly.

For example, if the grouping() returns and is applied to the number 123456789, this corresponds to 12,34,56,789. Note that if the string was `32`, this would put more than 50 digits into the least significant group if the character set is ASCII.

The string is returned by calling moneypunct<char_type>::do_grouping().

Returns:

string representing grouping specification.

Definition at line 1042 of file locale_facets_nonio.h.

References std::moneypunct< _CharT, _Intl >::do_grouping().

5.591.4.14 template<typename _CharT, bool _Intl> pattern std::moneypunct< _CharT, _Intl >::neg_format () const [inline]

Public typedefs.

Definition at line 1145 of file locale_facets_nonio.h.

References std::moneypunct< _CharT, _Intl >::do_neg_format().

5.591.4.15 template<typename _CharT, bool _Intl> string_type std::moneypunct< _CharT, _Intl >::negative_sign () const [inline]

Return negative sign string. This function returns a string_type to use as a sign for negative amounts. It does so by returning returning moneypunct<char_type>::do_-negative_sign().

If the return value contains more than one character, the first character appears in the position indicated by neg_format() and the remainder appear at the end of the formatted string.

Returns:

string_type representing a negative sign.

Definition at line 1089 of file locale_facets_nonio.h.

References std::moneypunct< _CharT, _Intl >::do_negative_sign().

5.591.4.16 template<typename _CharT, bool _Intl> pattern std::moneypunct< _CharT, _Intl >::pos_format () const [inline]

Return pattern for money values. This function returns a pattern describing the formatting of a positive or negative valued money amount. It does so by returning returning moneypunct<char_type>::do_pos_format() or moneypunct<char_type>::do_neg_format().

The pattern has 4 fields describing the ordering of symbol, sign, value, and none or space. There must be one of each in the pattern. The none and space enums may not appear in the first field and space may not appear in the final field.

The parts of a money string must appear in the order indicated by the fields of the pattern. The symbol field indicates that the value of curr_symbol() may be present. The sign field indicates that the value of positive_sign() or negative_sign() must be present. The value field indicates that the absolute value of the money amount is present. none indicates 0 or more whitespace characters, except at the end, where it permits no whitespace. space indicates that 1 or more whitespace characters must be present.

For example, for the US locale and pos_format() pattern {symbol,sign,value,none}, curr_symbol() == '$' positive_sign() == '+', and value 10.01, and options set to force the symbol, the corresponding string is `$+10.01`.

Returns:

Pattern for money values.

Definition at line 1141 of file locale_facets_nonio.h.

References std::moneypunct< _CharT, _Intl >::do_pos_format().

5.591.4.17 template<typename _CharT, bool _Intl> string_type std::moneypunct< _CharT, _Intl >::positive_sign () const [inline]

Return positive sign string. This function returns a string_type to use as a sign for positive amounts. It does so by returning returning moneypunct<char_type>::do_positive_sign().

If the return value contains more than one character, the first character appears in the position indicated by pos_format() and the remainder appear at the end of the formatted string.

Returns:

string_type representing a positive sign.

Definition at line 1072 of file locale_facets_nonio.h.

References std::moneypunct< _CharT, _Intl >::do_positive_sign().

5.591.4.18 template<typename _CharT, bool _Intl> char_type std::moneypunct< _CharT, _Intl >::thousands_sep () const [inline]

Return thousands separator character. This function returns a char_type to use as a thousands separator. It does so by returning returning moneypunct<char_type>::do_thousands_sep().

Returns:

char_type representing a thousands separator.

Definition at line 1012 of file locale_facets_nonio.h.

References std::moneypunct< _CharT, _Intl >::do_thousands_sep().

5.591.5 Member Data Documentation

5.591.5.1 template<typename _CharT, bool _Intl> locale::id std::moneypunct< _CharT, _Intl >::id [inline, static]

Numpunct facet id.

Definition at line 948 of file locale_facets_nonio.h.

5.591.5.2 template<typename _CharT, bool _Intl> const bool std::moneypunct< _CharT, _Intl >::intl [inline, static]

This value is provided by the standard, but no reason for its existence.

Reimplemented in std::moneypunct_byname< _CharT, _Intl >.

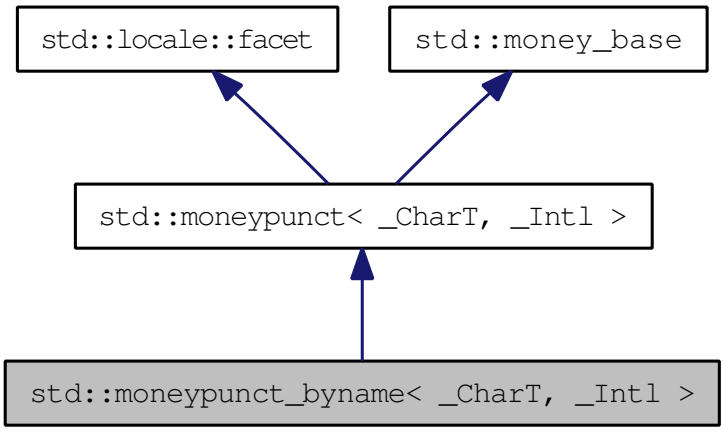
Definition at line 946 of file locale_facets_nonio.h.

The documentation for this class was generated from the following file:

- locale_facets_nonio.h

5.592 std::moneypunct_byname< _CharT, _Intl > Class Template Reference

class moneypunct_byname [22.2.6.4]. Inheritance diagram for std::moneypunct_byname< _CharT, _Intl >:



Public Types

- enum { **_S_minus**, **_S_zero**, **_S_end** }
- typedef __moneypunct_cache< _CharT, _Intl > **__cache_type**
- typedef _CharT char_type
- enum **part** {

  none, **space**, **symbol**, **sign**,

  value }
- typedef basic_string< _CharT > string_type

Public Member Functions

- **moneypunct_byname** (const char *__s, size_t __refs=0)
- **__attribute__** ((__const__)) static pattern _S_construct_pattern(char __precedes
- template<>
  void **_M_initialize_moneypunct** (__c_locale, const char *)
- template<>
  void **_M_initialize_moneypunct** (__c_locale, const char *)

- template<>
  void **_M_initialize_moneypunct** (__c_locale, const char *)
- template<>
  void **_M_initialize_moneypunct** (__c_locale, const char *)
- string_type curr_symbol () const
- char_type decimal_point () const
- int frac_digits () const
- string grouping () const
- string_type negative_sign () const
- string_type positive_sign () const
- char_type thousands_sep () const
- char char __posn **throw** ()

  - pattern neg_format () const
  - pattern pos_format () const

Public Attributes

- char **__space**

Static Public Attributes

- static const char * **_S_atoms**
- static const pattern **_S_default_pattern**
- static locale::id id
- static const bool intl

Protected Member Functions

- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()
- void **_M_initialize_moneypunct** (__c_locale __cloc=NULL, const char *__name=NULL)
- virtual string_type do_curr_symbol () const
- virtual char_type do_decimal_point () const
- virtual int do_frac_digits () const
- virtual string do_grouping () const
- virtual pattern do_neg_format () const
- virtual string_type do_negative_sign () const
- virtual pattern do_pos_format () const
- virtual string_type do_positive_sign () const
- virtual char_type do_thousands_sep () const

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_-locale __old=0)
- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Friends

- class **locale::_Impl**

5.592.1 Detailed Description

template<typename _CharT, bool _Intl> class std::moneypunct_byname< _-CharT, _Intl >

class moneypunct_byname [22.2.6.4].

Definition at line 1318 of file locale_facets_nonio.h.

5.592.2 Member Typedef Documentation

5.592.2.1 template<typename _CharT , bool _Intl> typedef _CharT std::moneypunct_byname< _CharT, _Intl >::char_type

Public typedefs.

Reimplemented from std::moneypunct< _CharT, _Intl >.

Definition at line 1321 of file locale_facets_nonio.h.

5.592.2.2 template<typename _CharT , bool _Intl> typedef basic_string<_CharT> std::moneypunct_byname< _CharT, _Intl >::string_type

Public typedefs.

Reimplemented from std::moneypunct< _CharT, _Intl >.

Definition at line 1322 of file locale_facets_nonio.h.

5.592.3 Member Function Documentation

5.592.3.1 template<typename _CharT, bool _Intl> string_type std::moneypunct< _CharT, _Intl >::curr_symbol () const [inline, inherited]

Return currency symbol string. This function returns a string_type to use as a currency symbol. It does so by returning returning moneypunct<char_type>::do_curr_symbol().

Returns:

string_type representing a currency symbol.

Definition at line 1055 of file locale_facets_nonio.h.

References std::moneypunct< _CharT, _Intl >::do_curr_symbol().

5.592.3.2 template<typename _CharT, bool _Intl> char_type std::moneypunct< _CharT, _Intl >::decimal_point () const [inline, inherited]

Return decimal point character. This function returns a char_type to use as a decimal point. It does so by returning returning moneypunct<char_type>::do_decimal_point().

Returns:

char_type representing a decimal point.

Definition at line 999 of file locale_facets_nonio.h.

References std::moneypunct< _CharT, _Intl >::do_decimal_point().

5.592.3.3 template<typename _CharT, bool _Intl> virtual string_type std::moneypunct< _CharT, _Intl >::do_curr_symbol () const [inline, protected, virtual, inherited]

Return currency symbol string. This function returns a string_type to use as a currency symbol. This function is a hook for derived classes to change the value returned.

See also:

curr_symbol() for details.

Returns:

string_type representing a currency symbol.

Definition at line 1201 of file locale_facets_nonio.h.

Referenced by std::moneypunct< _CharT, _Intl >::curr_symbol().

5.592.3.4 template<typename _CharT, bool _Intl> virtual char_type std::moneypunct< _CharT, _Intl >::do_decimal_point () const [inline, protected, virtual, inherited]

Return decimal point character. Returns a char_type to use as a decimal point. This function is a hook for derived classes to change the value returned.

Returns:

char_type representing a decimal point.

Definition at line 1163 of file locale_facets_nonio.h.

Referenced by std::moneypunct< _CharT, _Intl >::decimal_point().

5.592.3.5 template<typename _CharT, bool _Intl> virtual int std::moneypunct< _CharT, _Intl >::do_frac_digits () const [inline, protected, virtual, inherited]

Return number of digits in fraction. This function returns the exact number of digits that make up the fractional part of a money amount. This function is a hook for derived classes to change the value returned.

See also:

frac_digits() for details.

Returns:

Number of digits in amount fraction.

Definition at line 1241 of file locale_facets_nonio.h.

Referenced by std::moneypunct< _CharT, _Intl >::frac_digits().

5.592.3.6 template<typename _CharT, bool _Intl> virtual string std::moneypunct< _CharT, _Intl >::do_grouping () const [inline, protected, virtual, inherited]

Return grouping specification. Returns a string representing groupings for the integer part of a number. This function is a hook for derived classes to change the value returned.

See also:

grouping() for details.

Returns:

String representing grouping specification.

Definition at line 1188 of file locale_facets_nonio.h.

Referenced by std::moneypunct< _CharT, _Intl >::grouping().

5.592.3.7 template<typename _CharT, bool _Intl> virtual pattern std::moneypunct< _CharT, _Intl >::do_neg_format () const [inline, protected, virtual, inherited]

Return pattern for money values. This function returns a pattern describing the formatting of a negative valued money amount. This function is a hook for derived classes to change the value returned.

See also:

neg_format() for details.

Returns:

Pattern for money values.

Definition at line 1269 of file locale_facets_nonio.h.

Referenced by std::moneypunct< _CharT, _Intl >::neg_format().

5.592.3.8 template<typename _CharT, bool _Intl> virtual string_type std::moneypunct< _CharT, _Intl >::do_negative_sign () const [inline, protected, virtual, inherited]

Return negative sign string. This function returns a string_type to use as a sign for negative amounts. This function is a hook for derived classes to change the value returned.

See also:

negative_sign() for details.

Returns:

string_type representing a negative sign.

Definition at line 1227 of file locale_facets_nonio.h.

Referenced by std::moneypunct< _CharT, _Intl >::negative_sign().

5.592.3.9 template<typename _CharT, bool _Intl> virtual pattern std::moneypunct< _CharT, _Intl >::do_pos_format () const [inline, protected, virtual, inherited]

Return pattern for money values. This function returns a pattern describing the formatting of a positive valued money amount. This function is a hook for derived classes to change the value returned.

See also:

pos_format() for details.

Returns:

Pattern for money values.

Definition at line 1255 of file locale_facets_nonio.h.

Referenced by std::moneypunct< _CharT, _Intl >::pos_format().

5.592.3.10 template<typename _CharT, bool _Intl> virtual string_type std::moneypunct< _CharT, _Intl >::do_positive_sign () const [inline, protected, virtual, inherited]

Return positive sign string. This function returns a string_type to use as a sign for positive amounts. This function is a hook for derived classes to change the value returned.

See also:

positive_sign() for details.

Returns:

string_type representing a positive sign.

Definition at line 1214 of file locale_facets_nonio.h.

Referenced by std::moneypunct< _CharT, _Intl >::positive_sign().

5.592.3.11 template<typename _CharT, bool _Intl> virtual char_type std::moneypunct< _CharT, _Intl >::do_thousands_sep () const [inline, protected, virtual, inherited]

Return thousands separator character. Returns a char_type to use as a thousands separator. This function is a hook for derived classes to change the value returned.

Returns:

char_type representing a thousands separator.

Definition at line 1175 of file locale_facets_nonio.h.

Referenced by std::moneypunct< _CharT, _Intl >::thousands_sep().

5.592.3.12 template<typename _CharT, bool _Intl> int std::moneypunct< _CharT, _Intl >::frac_digits () const [inline, inherited]

Return number of digits in fraction. This function returns the exact number of digits that make up the fractional part of a money amount. It does so by returning returning moneypunct<char_type>::do_frac_digits().

The fractional part of a money amount is optional. But if it is present, there must be frac_digits() digits.

Returns:

Number of digits in amount fraction.

Definition at line 1105 of file locale_facets_nonio.h.

References std::moneypunct< _CharT, _Intl >::do_frac_digits().

5.592.3.13 template<typename _CharT, bool _Intl> string std::moneypunct< _CharT, _Intl >::grouping () const [inline, inherited]

Return grouping specification. This function returns a string representing groupings for the integer part of an amount. Groupings indicate where thousands separators should be inserted.

Each char in the return string is interpret as an integer rather than a character. These numbers represent the number of digits in a group. The first char in the string represents the number of digits in the least significant group. If a char is negative, it indicates an unlimited number of digits for the group. If more chars from the string are required to group a number, the last char is used repeatedly.

For example, if the grouping() returns and is applied to the number 123456789, this corresponds to 12,34,56,789. Note that if the string was `32`, this would put more than 50 digits into the least significant group if the character set is ASCII.

The string is returned by calling moneypunct<char_type>::do_grouping().

Returns:

string representing grouping specification.

Definition at line 1042 of file locale_facets_nonio.h.

References std::moneypunct< _CharT, _Intl >::do_grouping().

5.592.3.14 template<typename _CharT, bool _Intl> pattern std::moneypunct< _CharT, _Intl >::neg_format () const [inline, inherited]

Public typedefs.

Definition at line 1145 of file locale_facets_nonio.h.

References std::moneypunct< _CharT, _Intl >::do_neg_format().

5.592.3.15 template<typename _CharT, bool _Intl> string_type std::moneypunct< _CharT, _Intl >::negative_sign () const [inline, inherited]

Return negative sign string. This function returns a string_type to use as a sign for negative amounts. It does so by returning returning moneypunct<char_type>::do_negative_sign().

If the return value contains more than one character, the first character appears in the position indicated by neg_format() and the remainder appear at the end of the formatted string.

Returns:

string_type representing a negative sign.

Definition at line 1089 of file locale_facets_nonio.h.

References std::moneypunct< _CharT, _Intl >::do_negative_sign().

5.592.3.16 template<typename _CharT, bool _Intl> pattern std::moneypunct< _CharT, _Intl >::pos_format () const [inline, inherited]

Return pattern for money values. This function returns a pattern describing the formatting of a positive or negative valued money amount. It does so by returning returning moneypunct<char_type>::do_pos_format() or moneypunct<char_type>::do_neg_format().

The pattern has 4 fields describing the ordering of symbol, sign, value, and none or space. There must be one of each in the pattern. The none and space enums may not appear in the first field and space may not appear in the final field.

The parts of a money string must appear in the order indicated by the fields of the pattern. The symbol field indicates that the value of curr_symbol() may be present. The sign field indicates that the value of positive_sign() or negative_sign() must be present. The value field indicates that the absolute value of the money amount is present. none indicates 0 or more whitespace characters, except at the end, where it permits no whitespace. space indicates that 1 or more whitespace characters must be present.

For example, for the US locale and pos_format() pattern {symbol,sign,value,none}, curr_symbol() == '$' positive_sign() == '+', and value 10.01, and options set to force the symbol, the corresponding string is `$+10.01`.

Returns:

Pattern for money values.

Definition at line 1141 of file locale_facets_nonio.h.

References std::moneypunct< _CharT, _Intl >::do_pos_format().

5.592.3.17 template<typename _CharT, bool _Intl> string_type std::moneypunct< _CharT, _Intl >::positive_sign () const [inline, inherited]

Return positive sign string. This function returns a string_type to use as a sign for positive amounts. It does so by returning returning moneypunct<char_type>::do_positive_sign().

If the return value contains more than one character, the first character appears in the position indicated by pos_format() and the remainder appear at the end of the formatted string.

Returns:

string_type representing a positive sign.

Definition at line 1072 of file locale_facets_nonio.h.

References std::moneypunct< _CharT, _Intl >::do_positive_sign().

5.592.3.18 template<typename _CharT, bool _Intl> char_type std::moneypunct< _CharT, _Intl >::thousands_sep () const [inline, inherited]

Return thousands separator character. This function returns a char_type to use as a thousands separator. It does so by returning returning moneypunct<char_type>::do_thousands_sep().

Returns:

char_type representing a thousands separator.

Definition at line 1012 of file locale_facets_nonio.h.

References std::moneypunct< _CharT, _Intl >::do_thousands_sep().

5.592.4 Member Data Documentation

5.592.4.1 template<typename _CharT, bool _Intl> locale::id std::moneypunct< _CharT, _Intl >::id [inline, static, inherited]

Numpunct facet id.

Definition at line 948 of file locale_facets_nonio.h.

5.592.4.2 template<typename _CharT , bool _Intl> const bool std::moneypunct_byname< _CharT, _Intl >::intl [inline, static]

This value is provided by the standard, but no reason for its existence.

Reimplemented from std::moneypunct< _CharT, _Intl >.

Definition at line 1324 of file locale_facets_nonio.h.

The documentation for this class was generated from the following file:

- locale_facets_nonio.h

5.593 std::move_iterator< _Iterator > Class Template Reference

Public Types

- typedef __traits_type::difference_type **difference_type**
- typedef __traits_type::iterator_category **iterator_category**
- typedef _Iterator **iterator_type**
- typedef _Iterator **pointer**
- typedef value_type && **reference**
- typedef __traits_type::value_type **value_type**

Public Member Functions

- template<typename _Iter >
  move_iterator (const move_iterator< _Iter > &__i)
- **move_iterator** (iterator_type __i)
- iterator_type **base** () const
- reference **operator*** () const
- move_iterator **operator+** (difference_type __n) const
- move_iterator **operator++** (int)
- move_iterator & **operator++** ()
- move_iterator & **operator+=** (difference_type __n)
- move_iterator **operator-** (difference_type __n) const
- move_iterator **operator--** (int)
- move_iterator & **operator--** ()
- move_iterator & **operator-=** (difference_type __n)
- pointer **operator->** () const
- reference **operator[ ]** (difference_type __n) const

Protected Types

- typedef iterator_traits< _Iterator > **__traits_type**

Protected Attributes

- _Iterator **_M_current**

5.593.1 Detailed Description

template<typename _Iterator> class std::move_iterator< _Iterator >

Class template move_iterator is an iterator adapter with the same behavior as the underlying iterator except that its dereference operator implicitly converts the value returned by the underlying iterator's dereference operator to an rvalue reference. Some generic algorithms can be called with move iterators to replace copying with moving.

Definition at line 894 of file stl_iterator.h.

The documentation for this class was generated from the following file:

- stl_iterator.h

5.594 std::multimap< _Key, _Tp, _Compare, _Alloc > Class Template Reference

A standard container made up of (key,value) pairs, which can be retrieved based on a key, in logarithmic time.

Public Types

- typedef _Alloc **allocator_type**
- typedef _Rep_type::const_iterator **const_iterator**
- typedef _Pair_alloc_type::const_pointer **const_pointer**
- typedef _Pair_alloc_type::const_reference **const_reference**
- typedef _Rep_type::const_reverse_iterator **const_reverse_iterator**
- typedef _Rep_type::difference_type **difference_type**
- typedef _Rep_type::iterator **iterator**
- typedef _Compare **key_compare**
- typedef _Key **key_type**
- typedef _Tp **mapped_type**
- typedef _Pair_alloc_type::pointer **pointer**
- typedef _Pair_alloc_type::reference **reference**
- typedef _Rep_type::reverse_iterator **reverse_iterator**
- typedef _Rep_type::size_type **size_type**
- typedef std::pair< const _Key, _Tp > **value_type**

Public Member Functions

- template<typename _InputIterator >
  multimap (_InputIterator __first, _InputIterator __last, const _Compare &__comp, const allocator_type &__a=allocator_type())
- template<typename _InputIterator >
  multimap (_InputIterator __first, _InputIterator __last)
- multimap (initializer_list< value_type > __l, const _Compare &__comp=_Compare(), const allocator_type &__a=allocator_type())
- multimap (multimap &&__x)
- multimap (const multimap &__x)
- multimap (const _Compare &__comp, const allocator_type &__a=allocator_type())
- multimap ()
- const_iterator begin () const
- iterator begin ()
- const_iterator cbegin () const
- const_iterator cend () const

- void clear ()
- size_type count (const key_type &__x) const
- const_reverse_iterator crbegin () const
- const_reverse_iterator crend () const
- bool empty () const
- const_iterator end () const
- iterator end ()
- std::pair< const_iterator, const_iterator > equal_range (const key_type &__x) const
- std::pair< iterator, iterator > equal_range (const key_type &__x)
- iterator erase (iterator __first, iterator __last)
- size_type erase (const key_type &__x)
- iterator erase (iterator __position)
- const_iterator find (const key_type &__x) const
- iterator find (const key_type &__x)
- allocator_type get_allocator () const
- void insert (initializer_list< value_type > __l)
- template<typename _InputIterator >
  void insert (_InputIterator __first, _InputIterator __last)
- iterator insert (iterator __position, const value_type &__x)
- iterator insert (const value_type &__x)
- key_compare key_comp () const
- const_iterator lower_bound (const key_type &__x) const
- iterator lower_bound (const key_type &__x)
- size_type max_size () const
- multimap & operator= (initializer_list< value_type > __l)
- multimap & operator= (multimap &&__x)
- multimap & operator= (const multimap &__x)
- const_reverse_iterator rbegin () const
- reverse_iterator rbegin ()
- const_reverse_iterator rend () const
- reverse_iterator rend ()
- size_type size () const
- void swap (multimap &__x)
- const_iterator upper_bound (const key_type &__x) const
- iterator upper_bound (const key_type &__x)
- value_compare value_comp () const

Friends

- template<typename _K1 , typename _T1 , typename _C1 , typename _A1 >
  bool **operator**< (const multimap< _K1, _T1, _C1, _A1 > &, const multimap< _K1, _T1, _C1, _A1 > &)
- template<typename _K1 , typename _T1 , typename _C1 , typename _A1 >
  bool **operator==** (const multimap< _K1, _T1, _C1, _A1 > &, const multimap< _K1, _T1, _C1, _A1 > &)

5.594.1 Detailed Description

template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> > > class std::multimap< _Key, _Tp, _Compare, _Alloc >

A standard container made up of (key,value) pairs, which can be retrieved based on a key, in logarithmic time. Meets the requirements of a `container`, a `reversible container`, and an `associative container` (using equivalent keys). For a `multimap<Key,T>` the key_type is Key, the mapped_type is T, and the value_type is std::pair<const Key,T>.

Multimaps support bidirectional iterators.

The private tree data is declared exactly the same way for map and multimap; the distinction is made entirely in how the tree functions are called (*_unique versus *_equal, same as the standard).

Definition at line 86 of file stl_multimap.h.

5.594.2 Constructor & Destructor Documentation

5.594.2.1 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> > > std::multimap< _Key, _Tp, _Compare, _Alloc >::multimap () [inline]

Default constructor creates no elements.

Definition at line 148 of file stl_multimap.h.

5.594.2.2 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> std::multimap< _Key, _Tp, _Compare, _Alloc >::multimap (const _Compare & *__comp*, const allocator_type & *__a* = `allocator_type()`) `[inline, explicit]`

Creates a multimap with no elements.

Parameters:

comp A comparison object.

a An allocator object.

Definition at line 157 of file stl_multimap.h.

5.594.2.3 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> std::multimap< _Key, _Tp, _Compare, _Alloc >::multimap (const multimap< _Key, _Tp, _Compare, _Alloc > & *__x*) `[inline]`

Multimap copy constructor.

Parameters:

x A multimap of identical element and allocator types.

The newly-created multimap uses a copy of the allocation object used by *x*.

Definition at line 168 of file stl_multimap.h.

5.594.2.4 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> std::multimap< _Key, _Tp, _Compare, _Alloc >::multimap (multimap< _Key, _Tp, _Compare, _Alloc > && *__x*) `[inline]`

Multimap move constructor.

Parameters:

x A multimap of identical element and allocator types.

The newly-created multimap contains the exact contents of *x*. The contents of *x* are a valid, but unspecified multimap.

Definition at line 179 of file stl_multimap.h.

5.594.2.5 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> std::multimap< _Key, _Tp, _Compare, _Alloc >::multimap (initializer_list< value_type > __l, const _Compare & __comp = _Compare(), const allocator_type & __a = allocator_type()) [inline]

Builds a multimap from an initializer_list.

Parameters:

l An initializer_list.

comp A comparison functor.

a An allocator object.

Create a multimap consisting of copies of the elements from the initializer_list. This is linear in N if the list is already sorted, and NlogN otherwise (where N is *__l.size()*).

Definition at line 192 of file stl_multimap.h.

5.594.2.6 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> template<typename _InputIterator > std::multimap< _Key, _Tp, _Compare, _Alloc >::multimap (_InputIterator __first, _InputIterator __last) [inline]

Builds a multimap from a range.

Parameters:

first An input iterator.

last An input iterator.

Create a multimap consisting of copies of the elements from [first,last). This is linear in N if the range is already sorted, and NlogN otherwise (where N is distance(first,last)).

Definition at line 209 of file stl_multimap.h.

5.594.2.7 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> template<typename _InputIterator > std::multimap< _Key, _Tp, _Compare, _Alloc >::multimap (_InputIterator __first, _InputIterator __last, const _Compare & __comp, const allocator_type & __a = allocator_type()) [inline]

Builds a multimap from a range.

Parameters:

first An input iterator.

last An input iterator.

comp A comparison functor.

a An allocator object.

Create a multimap consisting of copies of the elements from [first,last). This is linear in N if the range is already sorted, and NlogN otherwise (where N is distance(first,last)).

Definition at line 225 of file stl_multimap.h.

5.594.3 Member Function Documentation

5.594.3.1 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> const_iterator std::multimap< _Key, _Tp, _Compare, _Alloc >::begin () const [inline]

Returns a read-only (constant) iterator that points to the first pair in the multimap. Iteration is done in ascending order according to the keys.

Definition at line 313 of file stl_multimap.h.

5.594.3.2 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> iterator std::multimap< _Key, _Tp, _Compare, _Alloc >::begin () [inline]

Returns a read/write iterator that points to the first pair in the multimap. Iteration is done in ascending order according to the keys.

Definition at line 304 of file stl_multimap.h.

5.594.3.3 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> const_iterator std::multimap< _Key, _Tp, _Compare, _Alloc >::cbegin () const [inline]

Returns a read-only (constant) iterator that points to the first pair in the multimap. Iteration is done in ascending order according to the keys.

Definition at line 377 of file stl_multimap.h.

5.594.3.4 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> const_iterator std::multimap< _Key, _Tp, _Compare, _Alloc >::cend () const [inline]

Returns a read-only (constant) iterator that points one past the last pair in the multimap. Iteration is done in ascending order according to the keys.

Definition at line 386 of file stl_multimap.h.

5.594.3.5 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> void std::multimap< _Key, _Tp, _Compare, _Alloc >::clear () [inline]

Erases all elements in a multimap. Note that this function only erases the elements, and that if the elements themselves are pointers, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 601 of file stl_multimap.h.

5.594.3.6 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> size_type std::multimap< _Key, _Tp, _Compare, _Alloc >::count (const key_type & __x) const [inline]

Finds the number of elements with given key.

Parameters:

x Key of (key, value) pairs to be located.

Returns:

Number of elements with specified key.

Definition at line 658 of file stl_multimap.h.

5.594.3.7 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> const_reverse_iterator std::multimap< _Key, _Tp, _Compare, _Alloc >::crbegin () const [inline]

Returns a read-only (constant) reverse iterator that points to the last pair in the multimap. Iteration is done in descending order according to the keys.

Definition at line 395 of file stl_multimap.h.

5.594.3.8 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> const_reverse_iterator std::multimap< _Key, _Tp, _Compare, _Alloc >::crend () const [inline]

Returns a read-only (constant) reverse iterator that points to one before the first pair in the multimap. Iteration is done in descending order according to the keys.

Definition at line 404 of file stl_multimap.h.

5.594.3.9 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> bool std::multimap< _Key, _Tp, _Compare, _Alloc >::empty () const [inline]

Returns true if the multimap is empty.

Definition at line 411 of file stl_multimap.h.

5.594.3.10 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> const_iterator std::multimap< _Key, _Tp, _Compare, _Alloc >::end () const [inline]

Returns a read-only (constant) iterator that points one past the last pair in the multimap. Iteration is done in ascending order according to the keys.

Definition at line 331 of file stl_multimap.h.

5.594.3.11 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> iterator std::multimap< _Key, _Tp, _Compare, _Alloc >::end () [inline]

Returns a read/write iterator that points one past the last pair in the multimap. Iteration is done in ascending order according to the keys.

Definition at line 322 of file stl_multimap.h.

5.594.3.12 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> std::pair<const_iterator, const_iterator> std::multimap< _Key, _Tp, _Compare, _Alloc >::equal_range (const key_type & __x) const [inline]

Finds a subsequence matching given key.

Parameters:

x Key of (key, value) pairs to be located.

Returns:

Pair of read-only (constant) iterators that possibly points to the subsequence matching given key.

This function is equivalent to

```
std::make_pair(c.lower_bound(val),
               c.upper_bound(val))
```

(but is faster than making the calls separately).

Definition at line 742 of file stl_multimap.h.

5.594.3.13 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> std::pair<iterator, iterator> std::multimap< _Key, _Tp, _Compare, _Alloc >::equal_range (const key_type & __x) [inline]

Finds a subsequence matching given key.

Parameters:

x Key of (key, value) pairs to be located.

Returns:

Pair of iterators that possibly points to the subsequence matching given key.

This function is equivalent to

```
std::make_pair(c.lower_bound(val),
               c.upper_bound(val))
```

(but is faster than making the calls separately).

Definition at line 725 of file stl_multimap.h.

5.594.3.14 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> iterator std::multimap< _Key, _Tp, _Compare, _Alloc >::erase (iterator *__first*, iterator *__last*) [inline]

Erases a [first,last) range of elements from a multimap.

Parameters:

first Iterator pointing to the start of the range to be erased.

last Iterator pointing to the end of the range to be erased.

Returns:

The iterator *last*.

This function erases a sequence of elements from a multimap. Note that this function only erases the elements, and that if the elements themselves are pointers, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 558 of file stl_multimap.h.

5.594.3.15 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> size_type std::multimap< _Key, _Tp, _Compare, _Alloc >::erase (const key_type & *__x*) [inline]

Erases elements according to the provided key.

Parameters:

x Key of element to be erased.

Returns:

The number of elements erased.

This function erases all elements located by the given key from a multimap. Note that this function only erases the element, and that if the element is itself a pointer, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 539 of file stl_multimap.h.

5.594.3.16 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> iterator std::multimap< _Key, _Tp, _Compare, _Alloc >::erase (iterator *__position*) [inline]

Erases an element from a multimap.

Parameters:

position An iterator pointing to the element to be erased.

Returns:

An iterator pointing to the element immediately following *position* prior to the element being erased. If no such element exists, end() is returned.

This function erases an element, pointed to by the given iterator, from a multimap. Note that this function only erases the element, and that if the element is itself a pointer, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 509 of file stl_multimap.h.

5.594.3.17 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> const_iterator std::multimap< _Key, _Tp, _Compare, _Alloc >::find (const key_type & *__x*) const [inline]

Tries to locate an element in a multimap.

Parameters:

x Key of (key, value) pair to be located.

Returns:

Read-only (constant) iterator pointing to sought-after element, or end() if not found.

This function takes a key and tries to locate the element with which the key matches. If successful the function returns a constant iterator pointing to the sought after pair. If unsuccessful it returns the past-the-end (`end()`) iterator.

Definition at line 649 of file stl_multimap.h.

5.594.3.18 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> iterator std::multimap< _Key, _Tp, _Compare, _Alloc >::find (const key_type & __x) [inline]

Tries to locate an element in a multimap.

Parameters:

x Key of (key, value) pair to be located.

Returns:

Iterator pointing to sought-after element, or end() if not found.

This function takes a key and tries to locate the element with which the key matches. If successful the function returns an iterator pointing to the sought after pair. If unsuccessful it returns the past-the-end (`end()`) iterator.

Definition at line 634 of file stl_multimap.h.

5.594.3.19 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> allocator_type std::multimap< _Key, _Tp, _Compare, _Alloc >::get_allocator () const [inline]

Get a copy of the memory allocation object.

Definition at line 294 of file stl_multimap.h.

5.594.3.20 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> void std::multimap< _Key, _Tp, _Compare, _Alloc >::insert (initializer_list< value_type > __l) [inline]

Attempts to insert a list of std::pairs into the multimap.

Parameters:

list A std::initializer_list<value_type> of pairs to be inserted.

Complexity similar to that of the range constructor.

Definition at line 488 of file stl_multimap.h.

References std::multimap< _Key, _Tp, _Compare, _Alloc >::insert().

Referenced by std::multimap< _Key, _Tp, _Compare, _Alloc >::insert().

5.594.3.21 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> template<typename _InputIterator > void std::multimap< _Key, _Tp, _Compare, _Alloc >::insert (_InputIterator *__first*, _InputIterator *__last*) [inline]

A template function that attempts to insert a range of elements.

Parameters:

first Iterator pointing to the start of the range to be inserted.

last Iterator pointing to the end of the range.

Complexity similar to that of the range constructor.

Definition at line 476 of file stl_multimap.h.

5.594.3.22 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> iterator std::multimap< _Key, _Tp, _Compare, _Alloc >::insert (iterator *__position*, const value_type & *__x*) [inline]

Inserts a std::pair into the multimap.

Parameters:

position An iterator that serves as a hint as to where the pair should be inserted.

x Pair to be inserted (see std::make_pair for easy creation of pairs).

Returns:

An iterator that points to the inserted (key,value) pair.

This function inserts a (key, value) pair into the multimap. Contrary to a std::map the multimap does not rely on unique keys and thus multiple pairs with the same key can be inserted. Note that the first parameter is only a hint and can potentially improve the performance of the insertion process. A bad hint would cause no gains in efficiency.

For more on *hinting*, see: http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt07ch17

Insertion requires logarithmic time (if the hint is not taken).

Definition at line 462 of file stl_multimap.h.

5.594.3.23 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> iterator std::multimap< _Key, _Tp, _Compare, _Alloc >::insert (const value_type & __x) [inline]

Inserts a std::pair into the multimap.

Parameters:

x Pair to be inserted (see std::make_pair for easy creation of pairs).

Returns:

An iterator that points to the inserted (key,value) pair.

This function inserts a (key, value) pair into the multimap. Contrary to a std::map the multimap does not rely on unique keys and thus multiple pairs with the same key can be inserted.

Insertion requires logarithmic time.

Definition at line 438 of file stl_multimap.h.

5.594.3.24 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> key_compare std::multimap< _Key, _Tp, _Compare, _Alloc >::key_comp () const [inline]

Returns the key comparison object out of which the multimap was constructed.

Definition at line 610 of file stl_multimap.h.

5.594.3.25 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> const_iterator std::multimap< _Key, _Tp, _Compare, _Alloc >::lower_bound (const key_type & __x) const [inline]

Finds the beginning of a subsequence matching given key.

Parameters:

x Key of (key, value) pair to be located.

Returns:

Read-only (constant) iterator pointing to first element equal to or greater than key, or end().

This function returns the first element of a subsequence of elements that matches the given key. If unsuccessful the iterator will point to the next greatest element or, if no such greater element exists, to end().

Definition at line 688 of file stl_multimap.h.

5.594.3.26 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> iterator std::multimap< _Key, _Tp, _Compare, _Alloc >::lower_bound (const key_type & __x) [inline]

Finds the beginning of a subsequence matching given key.

Parameters:

x Key of (key, value) pair to be located.

Returns:

Iterator pointing to first element equal to or greater than key, or end().

This function returns the first element of a subsequence of elements that matches the given key. If unsuccessful it returns an iterator pointing to the first element that has a greater value than given key or end() if no such element exists.

Definition at line 673 of file stl_multimap.h.

5.594.3.27 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> size_type std::multimap< _Key, _Tp, _Compare, _Alloc >::max_size () const [inline]

Returns the maximum size of the multimap.

Definition at line 421 of file stl_multimap.h.

5.594.3.28 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> multimap& std::multimap< _Key, _Tp, _Compare, _Alloc >::operator= (initializer_list< value_type > __l) [inline]

Multimap list assignment operator.

Parameters:

l An initializer_list.

This function fills a multimap with copies of the elements in the initializer list *l*.

Note that the assignment completely changes the multimap and that the resulting multimap's size is the same as the number of elements assigned. Old data may be lost.

Definition at line 284 of file stl_multimap.h.

5.594.3.29 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> multimap& std::multimap< _Key, _Tp, _Compare, _Alloc >::operator= (multimap< _Key, _Tp, _Compare, _Alloc > && __x) [inline]

Multimap move assignment operator.

Parameters:

x A multimap of identical element and allocator types.

The contents of *x* are moved into this multimap (without copying). *x* is a valid, but unspecified multimap.

Definition at line 263 of file stl_multimap.h.

References std::swap().

5.594.3.30 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> multimap& std::multimap< _Key, _Tp, _Compare, _Alloc >::operator= (const multimap< _Key, _Tp, _Compare, _Alloc > & __x) [inline]

Multimap assignment operator. The dtor only erases the elements, and note that if the elements themselves are pointers, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Parameters:

x A multimap of identical element and allocator types.

All the elements of *x* are copied, but unlike the copy constructor, the allocator object is not copied.

Definition at line 248 of file stl_multimap.h.

5.594.3.31 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> const_reverse_iterator std::multimap< _Key, _Tp, _Compare, _Alloc >::rbegin () const [inline]

Returns a read-only (constant) reverse iterator that points to the last pair in the multimap. Iteration is done in descending order according to the keys.

Definition at line 349 of file stl_multimap.h.

5.594.3.32 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> reverse_iterator std::multimap< _Key, _Tp, _Compare, _Alloc >::rbegin () [inline]

Returns a read/write reverse iterator that points to the last pair in the multimap. Iteration is done in descending order according to the keys.

Definition at line 340 of file stl_multimap.h.

5.594.3.33 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> const_reverse_iterator std::multimap< _Key, _Tp, _Compare, _Alloc >::rend () const [inline]

Returns a read-only (constant) reverse iterator that points to one before the first pair in the multimap. Iteration is done in descending order according to the keys.

Definition at line 367 of file stl_multimap.h.

5.594.3.34 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> reverse_iterator std::multimap< _Key, _Tp, _Compare, _Alloc >::rend () [inline]

Returns a read/write reverse iterator that points to one before the first pair in the multimap. Iteration is done in descending order according to the keys.

Definition at line 358 of file stl_multimap.h.

5.594.3.35 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> size_type std::multimap< _Key, _Tp, _Compare, _Alloc >::size () const [inline]

Returns the size of the multimap.

Definition at line 416 of file stl_multimap.h.

5.594.3.36 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> void std::multimap< _Key, _Tp, _Compare, _Alloc >::swap (multimap< _Key, _Tp, _Compare, _Alloc > & __x) [inline]

Swaps data with another multimap.

Parameters:

x A multimap of the same element and allocator types.

This exchanges the elements between two multimaps in constant time. (It is only swapping a pointer, an integer, and an instance of the `Compare` type (which itself is often stateless and empty), so it should be quite fast.) Note that the global std::swap() function is specialized such that std::swap(m1,m2) will feed to this function.

Definition at line 591 of file stl_multimap.h.

Referenced by std::swap().

5.594.3.37 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> const_iterator std::multimap< _Key, _Tp, _Compare, _Alloc >::upper_bound (const key_type & __x) const [inline]

Finds the end of a subsequence matching given key.

Parameters:

x Key of (key, value) pair to be located.

Returns:

Read-only (constant) iterator pointing to first iterator greater than key, or end().

Definition at line 708 of file stl_multimap.h.

5.594.3.38 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> iterator std::multimap< _Key, _Tp, _Compare, _Alloc >::upper_bound (const key_type & __x) [inline]

Finds the end of a subsequence matching given key.

Parameters:

x Key of (key, value) pair to be located.

Returns:

Iterator pointing to the first element greater than key, or end().

Definition at line 698 of file stl_multimap.h.

5.594.3.39 template<typename _Key, typename _Tp, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<std::pair<const _Key, _Tp> >> value_compare std::multimap< _Key, _Tp, _Compare, _Alloc >::value_comp () const [inline]

Returns a value comparison object, built from the key comparison object out of which the multimap was constructed.

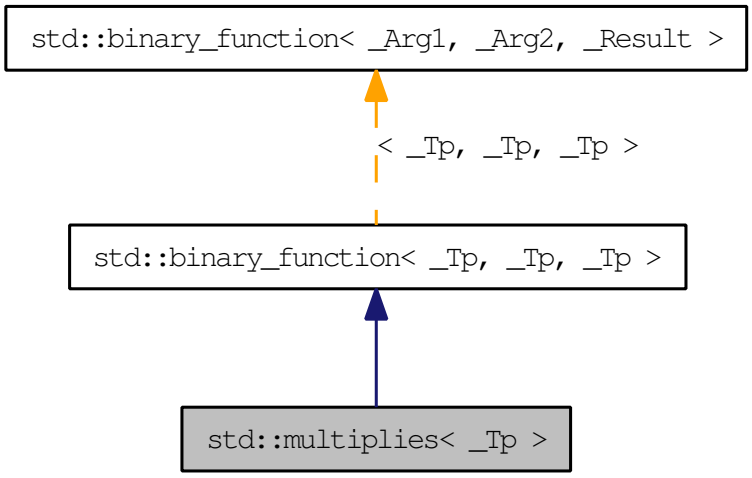
Definition at line 618 of file stl_multimap.h.

The documentation for this class was generated from the following file:

- stl_multimap.h

5.595 std::multiplies< _Tp > Struct Template Reference

One of the math functors. Inheritance diagram for std::multiplies< _Tp >:



Public Types

- typedef _Tp first_argument_type
- typedef _Tp result_type
- typedef _Tp second_argument_type

Public Member Functions

- _Tp **operator()** (const _Tp &__x, const _Tp &__y) const

5.595.1 Detailed Description

template<typename _Tp> struct std::multiplies< _Tp >

One of the math functors.

Definition at line 153 of file stl_function.h.

5.595.2 Member Typedef Documentation

5.595.2.1 typedef _Tp std::binary_function< _Tp , _Tp , _Tp >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.595.2.2 typedef _Tp std::binary_function< _Tp , _Tp , _Tp >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.595.2.3 typedef _Tp std::binary_function< _Tp , _Tp , _Tp >::second_argument_type [inherited]

the type of the second argument

Definition at line 117 of file stl_function.h.

The documentation for this struct was generated from the following file:

- stl_function.h

5.596 std::multiset< _Key, _Compare, _Alloc > Class Template Reference

A standard container made up of elements, which can be retrieved in logarithmic time.

Public Types

- typedef _Alloc **allocator_type**
- typedef _Rep_type::const_iterator **const_iterator**
- typedef _Key_alloc_type::const_pointer **const_pointer**
- typedef _Key_alloc_type::const_reference **const_reference**
- typedef _Rep_type::const_reverse_iterator **const_reverse_iterator**
- typedef _Rep_type::difference_type **difference_type**
- typedef _Rep_type::const_iterator **iterator**
- typedef _Compare **key_compare**
- typedef _Key **key_type**
- typedef _Key_alloc_type::pointer **pointer**
- typedef _Key_alloc_type::reference **reference**
- typedef _Rep_type::const_reverse_iterator **reverse_iterator**
- typedef _Rep_type::size_type **size_type**
- typedef _Compare **value_compare**
- typedef _Key **value_type**

Public Member Functions

- multiset (initializer_list< value_type > __l, const _Compare &__comp=_-Compare(), const allocator_type &__a=allocator_type())
- multiset (multiset &&__x)
- multiset (const multiset &__x)
- template<typename _InputIterator >
  multiset (_InputIterator __first, _InputIterator __last, const _Compare &__comp, const allocator_type &__a=allocator_type())
- template<typename _InputIterator >
  multiset (_InputIterator __first, _InputIterator __last)
- multiset (const _Compare &__comp, const allocator_type &__a=allocator_-type())
- multiset ()
- iterator begin () const
- iterator cbegin () const
- iterator cend () const
- void clear ()

- size_type count (const key_type &__x) const
- reverse_iterator crbegin () const
- reverse_iterator crend () const
- bool empty () const
- iterator end () const
- iterator erase (iterator __first, iterator __last)
- size_type erase (const key_type &__x)
- iterator erase (iterator __position)
- allocator_type get_allocator () const
- void insert (initializer_list< value_type > __l)
- template<typename _InputIterator >
  void insert (_InputIterator __first, _InputIterator __last)
- iterator insert (iterator __position, const value_type &__x)
- iterator insert (const value_type &__x)
- key_compare key_comp () const
- size_type max_size () const
- multiset & operator= (initializer_list< value_type > __l)
- multiset & operator= (multiset &&__x)
- multiset & operator= (const multiset &__x)
- reverse_iterator rbegin () const
- reverse_iterator rend () const
- size_type size () const
- void swap (multiset &__x)
- value_compare value_comp () const

- std::pair< const_iterator, const_iterator > equal_range (const key_type &__x) const
- std::pair< iterator, iterator > equal_range (const key_type &__x)
- const_iterator find (const key_type &__x) const
- iterator find (const key_type &__x)
- const_iterator lower_bound (const key_type &__x) const
- iterator lower_bound (const key_type &__x)
- const_iterator upper_bound (const key_type &__x) const
- iterator upper_bound (const key_type &__x)
- template<typename _K1 , typename _C1 , typename _A1 >
  bool operator< (const multiset< _K1, _C1, _A1 > &, const multiset< _K1, _C1, _A1 > &)
- template<typename _K1 , typename _C1 , typename _A1 >
  bool operator== (const multiset< _K1, _C1, _A1 > &, const multiset< _K1, _C1, _A1 > &)

5.596.1 Detailed Description

template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> class std::multiset< _Key, _Compare, _Alloc >

A standard container made up of elements, which can be retrieved in logarithmic time. Meets the requirements of a `container`, a `reversible container`, and an `associative container` (using equivalent keys). For a `multiset<Key>` the key_type and value_type are Key.

Multisets support bidirectional iterators.

The private tree data is declared exactly the same way for set and multiset; the distinction is made entirely in how the tree functions are called (*_unique versus *_equal, same as the standard).

Definition at line 84 of file stl_multiset.h.

5.596.2 Constructor & Destructor Documentation

5.596.2.1 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> std::multiset< _Key, _Compare, _Alloc >::multiset () [inline]

Default constructor creates no elements.

Definition at line 129 of file stl_multiset.h.

5.596.2.2 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> std::multiset< _Key, _Compare, _Alloc >::multiset (const _Compare & *__comp*, const allocator_type & *__a* = `allocator_type()`) [inline, explicit]

Creates a multiset with no elements.

Parameters:

comp Comparator to use.

a An allocator object.

Definition at line 138 of file stl_multiset.h.

5.596.2.3 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> template<typename _InputIterator > std::multiset< _Key, _Compare, _Alloc >::multiset (_InputIterator *__first*, _InputIterator *__last*) [inline]

Builds a multiset from a range.

Parameters:

first An input iterator.

last An input iterator.

Create a multiset consisting of copies of the elements from [first,last). This is linear in N if the range is already sorted, and NlogN otherwise (where N is distance(first,last)).

Definition at line 152 of file stl_multiset.h.

5.596.2.4 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> template<typename _InputIterator > std::multiset< _Key, _Compare, _Alloc >::multiset (_InputIterator *__first*, _InputIterator *__last*, const _Compare & *__comp*, const allocator_type & *__a* = allocator_type()) [inline]

Builds a multiset from a range.

Parameters:

first An input iterator.

last An input iterator.

comp A comparison functor.

a An allocator object.

Create a multiset consisting of copies of the elements from [first,last). This is linear in N if the range is already sorted, and NlogN otherwise (where N is distance(first,last)).

Definition at line 168 of file stl_multiset.h.

5.596.2.5 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> std::multiset< _Key, _Compare, _Alloc >::multiset (const multiset< _Key, _Compare, _Alloc > & *__x*) [inline]

Multiset copy constructor.

Parameters:

x A multiset of identical element and allocator types.

The newly-created multiset uses a copy of the allocation object used by *x*.

Definition at line 181 of file stl_multiset.h.

5.596.2.6 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> std::multiset< _Key, _Compare, _Alloc >::multiset (multiset< _Key, _Compare, _Alloc > && *__x*) [inline]

Multiset move constructor.

Parameters:

x A multiset of identical element and allocator types.

The newly-created multiset contains the exact contents of *x*. The contents of *x* are a valid, but unspecified multiset.

Definition at line 192 of file stl_multiset.h.

5.596.2.7 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> std::multiset< _Key, _Compare, _Alloc >::multiset (initializer_list< value_type > *__l*, const _Compare & *__comp* = `_Compare()`, const allocator_type & *__a* = `allocator_type()`) [inline]

Builds a multiset from an initializer_list.

Parameters:

l An initializer_list.

comp A comparison functor.

a An allocator object.

Create a multiset consisting of copies of the elements from the list. This is linear in N if the list is already sorted, and NlogN otherwise (where N is *l.size()*).

Definition at line 205 of file stl_multiset.h.

5.596.3 Member Function Documentation

5.596.3.1 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> iterator std::multiset< _Key, _Compare, _Alloc >::begin () const [inline]

Returns a read-only (constant) iterator that points to the first element in the multiset. Iteration is done in ascending order according to the keys.

Definition at line 285 of file stl_multiset.h.

5.596.3.2 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> iterator std::multiset< _Key, _Compare, _Alloc >::cbegin () const [inline]

Returns a read-only (constant) iterator that points to the first element in the multiset. Iteration is done in ascending order according to the keys.

Definition at line 322 of file stl_multiset.h.

5.596.3.3 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> iterator std::multiset< _Key, _Compare, _Alloc >::cend () const [inline]

Returns a read-only (constant) iterator that points one past the last element in the multiset. Iteration is done in ascending order according to the keys.

Definition at line 331 of file stl_multiset.h.

5.596.3.4 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> void std::multiset< _Key, _Compare, _Alloc >::clear () [inline]

Erases all elements in a multiset. Note that this function only erases the elements, and that if the elements themselves are pointers, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 541 of file stl_multiset.h.

5.596.3.5 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> size_type std::multiset< _Key, _Compare, _Alloc >::count (const key_type & __*x*) const [inline]

Finds the number of elements with given key.

Parameters:

x Key of elements to be located.

Returns:

Number of elements with specified key.

Definition at line 552 of file stl_multiset.h.

5.596.3.6 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> reverse_iterator std::multiset< _Key, _Compare, _Alloc >::crbegin () const [inline]

Returns a read-only (constant) reverse iterator that points to the last element in the multiset. Iteration is done in descending order according to the keys.

Definition at line 340 of file stl_multiset.h.

5.596.3.7 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> reverse_iterator std::multiset< _Key, _Compare, _Alloc >::crend () const [inline]

Returns a read-only (constant) reverse iterator that points to the last element in the multiset. Iteration is done in descending order according to the keys.

Definition at line 349 of file stl_multiset.h.

5.596.3.8 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> bool std::multiset< _Key, _Compare, _Alloc >::empty () const [inline]

Returns true if the set is empty.

Definition at line 355 of file stl_multiset.h.

5.596.3.9 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> iterator std::multiset< _Key, _Compare, _Alloc >::end () const [inline]

Returns a read-only (constant) iterator that points one past the last element in the multiset. Iteration is done in ascending order according to the keys.

Definition at line 294 of file stl_multiset.h.

5.596.3.10 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> std::pair<const_iterator, const_iterator> std::multiset< _Key, _Compare, _Alloc >::equal_range (const key_type & __x) const [inline]

Finds a subsequence matching given key.

Parameters:

x Key to be located.

Returns:

Pair of iterators that possibly points to the subsequence matching given key.

This function is equivalent to

```
std::make_pair(c.lower_bound(val),
               c.upper_bound(val))
```

(but is faster than making the calls separately).

This function probably only makes sense for multisets.

Definition at line 636 of file stl_multiset.h.

5.596.3.11 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> std::pair<iterator, iterator> std::multiset< _Key, _Compare, _Alloc >::equal_range (const key_type & __x) [inline]

Finds a subsequence matching given key.

Parameters:

x Key to be located.

Returns:

Pair of iterators that possibly points to the subsequence matching given key.

This function is equivalent to

```
std::make_pair(c.lower_bound(val),
               c.upper_bound(val))
```

(but is faster than making the calls separately).

This function probably only makes sense for multisets.

Definition at line 632 of file stl_multiset.h.

5.596.3.12 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> iterator std::multiset< _Key, _Compare, _Alloc >::erase (iterator *__first*, iterator *__last*) [inline]

Erases a [first,last) range of elements from a multiset.

Parameters:

first Iterator pointing to the start of the range to be erased.

last Iterator pointing to the end of the range to be erased.

Returns:

The iterator *last*.

This function erases a sequence of elements from a multiset. Note that this function only erases the elements, and that if the elements themselves are pointers, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 515 of file stl_multiset.h.

5.596.3.13 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> size_type std::multiset< _Key, _Compare, _Alloc >::erase (const key_type & *__x*) [inline]

Erases elements according to the provided key.

Parameters:

x Key of element to be erased.

Returns:

The number of elements erased.

This function erases all elements located by the given key from a multiset. Note that this function only erases the element, and that if the element is itself a pointer, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 496 of file stl_multiset.h.

5.596.3.14 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> iterator std::multiset< _Key, _Compare, _Alloc >::erase (iterator *__position*) [inline]

Erases an element from a multiset.

Parameters:

position An iterator pointing to the element to be erased.

Returns:

An iterator pointing to the element immediately following *position* prior to the element being erased. If no such element exists, end() is returned.

This function erases an element, pointed to by the given iterator, from a multiset. Note that this function only erases the element, and that if the element is itself a pointer, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 466 of file stl_multiset.h.

5.596.3.15 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> const_iterator std::multiset< _Key, _Compare, _Alloc >::find (const key_type & *__x*) const [inline]

Finds a subsequence matching given key.

Parameters:

x Key to be located.

Returns:

Pair of iterators that possibly points to the subsequence matching given key.

This function is equivalent to

```
std::make_pair(c.lower_bound(val),
               c.upper_bound(val))
```

(but is faster than making the calls separately).

This function probably only makes sense for multisets.

Definition at line 574 of file stl_multiset.h.

5.596.3.16 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> iterator std::multiset< _Key, _Compare, _Alloc >::find (const key_type & __x) [inline]

Tries to locate an element in a set.

Parameters:

x Element to be located.

Returns:

Iterator pointing to sought-after element, or end() if not found.

This function takes a key and tries to locate the element with which the key matches. If successful the function returns an iterator pointing to the sought after element. If unsuccessful it returns the past-the-end (`end()`) iterator.

Definition at line 570 of file stl_multiset.h.

5.596.3.17 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> allocator_type std::multiset< _Key, _Compare, _Alloc >::get_allocator () const [inline]

Returns the memory allocation object.

Definition at line 276 of file stl_multiset.h.

5.596.3.18 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> void std::multiset< _Key, _Compare, _Alloc >::insert (initializer_list< value_type > __l) [inline]

Attempts to insert a list of elements into the multiset.

Parameters:

list A std::initializer_list<value_type> of elements to be inserted.

Complexity similar to that of the range constructor.

Definition at line 445 of file stl_multiset.h.

References std::multiset< _Key, _Compare, _Alloc >::insert().

Referenced by std::multiset< _Key, _Compare, _Alloc >::insert().

5.596.3.19 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> template<typename _InputIterator > void std::multiset< _Key, _Compare, _Alloc >::insert (_InputIterator *__first*, _InputIterator *__last*) [inline]

A template function that tries to insert a range of elements.

Parameters:

first Iterator pointing to the start of the range to be inserted.

last Iterator pointing to the end of the range.

Complexity similar to that of the range constructor.

Definition at line 433 of file stl_multiset.h.

5.596.3.20 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> iterator std::multiset< _Key, _Compare, _Alloc >::insert (iterator *__position*, const value_type & *__x*) [inline]

Inserts an element into the multiset.

Parameters:

position An iterator that serves as a hint as to where the element should be inserted.

x Element to be inserted.

Returns:

An iterator that points to the inserted element.

This function inserts an element into the multiset. Contrary to a std::set the multiset does not rely on unique keys and thus multiple copies of the same element can be inserted.

Note that the first parameter is only a hint and can potentially improve the performance of the insertion process. A bad hint would cause no gains in efficiency.

See http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt07ch17.html for more on *hinting*.

Insertion requires logarithmic time (if the hint is not taken).

Definition at line 420 of file stl_multiset.h.

5.596.3.21 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> iterator std::multiset< _Key, _Compare, _Alloc >::insert (const value_type & __x) [inline]

Inserts an element into the multiset.

Parameters:

x Element to be inserted.

Returns:

An iterator that points to the inserted element.

This function inserts an element into the multiset. Contrary to a std::set the multiset does not rely on unique keys and thus multiple copies of the same element can be inserted.

Insertion requires logarithmic time.

Definition at line 396 of file stl_multiset.h.

5.596.3.22 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> key_compare std::multiset< _Key, _Compare, _Alloc >::key_comp () const [inline]

Returns the comparison object.

Definition at line 268 of file stl_multiset.h.

5.596.3.23 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> const_iterator std::multiset< _Key, _Compare, _Alloc >::lower_bound (const key_type & __x) const [inline]

Finds a subsequence matching given key.

Parameters:

x Key to be located.

Returns:

Pair of iterators that possibly points to the subsequence matching given key.

This function is equivalent to

```
std::make_pair(c.lower_bound(val),
               c.upper_bound(val))
```

(but is faster than making the calls separately).

This function probably only makes sense for multisets.

Definition at line 595 of file stl_multiset.h.

5.596.3.24 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> iterator std::multiset< _Key, _Compare, _Alloc >::lower_bound (const key_type & __x) [inline]

Finds the beginning of a subsequence matching given key.

Parameters:

x Key to be located.

Returns:

Iterator pointing to first element equal to or greater than key, or end().

This function returns the first element of a subsequence of elements that matches the given key. If unsuccessful it returns an iterator pointing to the first element that has a greater value than given key or end() if no such element exists.

Definition at line 591 of file stl_multiset.h.

5.596.3.25 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> size_type std::multiset< _Key, _Compare, _Alloc >::max_size () const [inline]

Returns the maximum size of the set.

Definition at line 365 of file stl_multiset.h.

5.596.3.26 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> multiset& std::multiset< _Key, _Compare, _Alloc >::operator= (initializer_list< value_type > __l) [inline]

Multiset list assignment operator.

Parameters:

l An initializer_list.

This function fills a multiset with copies of the elements in the initializer list *l*.

Note that the assignment completely changes the multiset and that the resulting multiset's size is the same as the number of elements assigned. Old data may be lost.

Definition at line 256 of file stl_multiset.h.

5.596.3.27 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> multiset& std::multiset< _Key, _Compare, _Alloc >::operator= (multiset< _Key, _Compare, _Alloc > && __x) [inline]

Multiset move assignment operator.

Parameters:

x A multiset of identical element and allocator types.

The contents of *x* are moved into this multiset (without copying). *x* is a valid, but unspecified multiset.

Definition at line 235 of file stl_multiset.h.

References std::swap().

5.596.3.28 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> multiset& std::multiset< _Key, _Compare, _Alloc >::operator= (const multiset< _Key, _Compare, _Alloc > & __x) [inline]

Multiset assignment operator.

Parameters:

x A multiset of identical element and allocator types.

All the elements of *x* are copied, but unlike the copy constructor, the allocator object is not copied.

Definition at line 220 of file stl_multiset.h.

5.596.3.29 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> reverse_iterator std::multiset< _Key, _Compare, _Alloc >::rbegin () const [inline]

Returns a read-only (constant) reverse iterator that points to the last element in the multiset. Iteration is done in descending order according to the keys.

Definition at line 303 of file stl_multiset.h.

5.596.3.30 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> reverse_iterator std::multiset< _Key, _Compare, _Alloc >::rend () const [inline]

Returns a read-only (constant) reverse iterator that points to the last element in the multiset. Iteration is done in descending order according to the keys.

Definition at line 312 of file stl_multiset.h.

5.596.3.31 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> size_type std::multiset< _Key, _Compare, _Alloc >::size () const [inline]

Returns the size of the set.

Definition at line 360 of file stl_multiset.h.

5.596.3.32 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> void std::multiset< _Key, _Compare, _Alloc >::swap (multiset< _Key, _Compare, _Alloc > & __x) [inline]

Swaps data with another multiset.

Parameters:

x A multiset of the same element and allocator types.

This exchanges the elements between two multisets in constant time. (It is only swapping a pointer, an integer, and an instance of the `Compare` type (which itself is often stateless and empty), so it should be quite fast.) Note that the global std::swap() function is specialized such that std::swap(s1,s2) will feed to this function.

Definition at line 380 of file stl_multiset.h.

Referenced by std::swap().

5.596.3.33 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> const_iterator std::multiset< _Key, _Compare, _Alloc >::upper_bound (const key_type & __x) const [inline]

Finds a subsequence matching given key.

Parameters:

x Key to be located.

Returns:

Pair of iterators that possibly points to the subsequence matching given key.

This function is equivalent to

```
std::make_pair(c.lower_bound(val),
               c.upper_bound(val))
```

(but is faster than making the calls separately).

This function probably only makes sense for multisets.

Definition at line 611 of file stl_multiset.h.

5.596.3.34 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> iterator std::multiset< _Key, _Compare, _Alloc >::upper_bound (const key_type & __x) [inline]

Finds the end of a subsequence matching given key.

Parameters:

x Key to be located.

Returns:

Iterator pointing to the first element greater than key, or end().

Definition at line 607 of file stl_multiset.h.

5.596.3.35 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> value_compare std::multiset< _Key, _Compare, _Alloc >::value_comp () const [inline]

Returns the comparison object.

Definition at line 272 of file stl_multiset.h.

5.596.4 Friends And Related Function Documentation

5.596.4.1 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> template<typename _K1 , typename _C1 , typename _A1 > bool operator< (const multiset< _K1, _C1, _A1 > &, const multiset< _K1, _C1, _A1 > &) [friend]

Finds a subsequence matching given key.

Parameters:

x Key to be located.

Returns:

Pair of iterators that possibly points to the subsequence matching given key.

This function is equivalent to

```
std::make_pair(c.lower_bound(val),
               c.upper_bound(val))
```

(but is faster than making the calls separately).

This function probably only makes sense for multisets.

5.596.4.2 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> template<typename _K1 , typename _C1 , typename _A1 > bool operator== (const multiset< _K1, _C1, _A1 > &, const multiset< _K1, _C1, _A1 > &) [friend]

Finds a subsequence matching given key.

Parameters:

x Key to be located.

Returns:

Pair of iterators that possibly points to the subsequence matching given key.

This function is equivalent to

```
std::make_pair(c.lower_bound(val),
               c.upper_bound(val))
```

(but is faster than making the calls separately).

This function probably only makes sense for multisets.

The documentation for this class was generated from the following file:

- stl_multiset.h

5.597 std::mutex Class Reference

mutex

Public Types

- typedef __native_type * **native_handle_type**

Public Member Functions

- **mutex** (const mutex &)
- void **lock** ()
- native_handle_type **native_handle** ()
- mutex & **operator=** (const mutex &)
- bool **try_lock** ()
- void **unlock** ()

5.597.1 Detailed Description

mutex

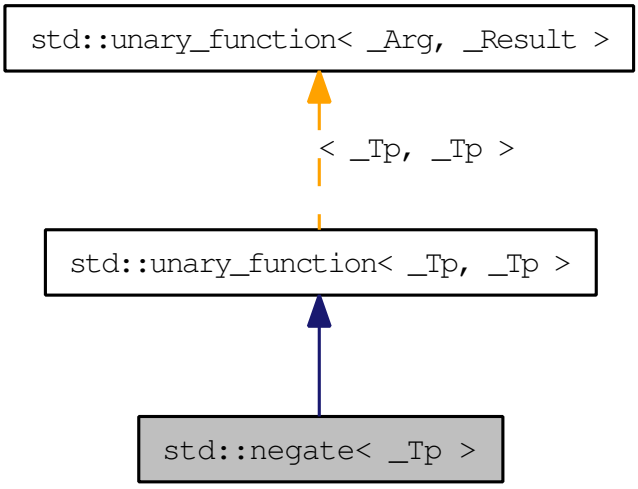
Definition at line 63 of file mutex.

The documentation for this class was generated from the following file:

- mutex

5.598 std::negate< _Tp > Struct Template Reference

One of the math functors. Inheritance diagram for std::negate< _Tp >:



Public Types

- typedef _Tp argument_type
- typedef _Tp result_type

Public Member Functions

- _Tp **operator**() (const _Tp &__x) const

5.598.1 Detailed Description

template<typename _Tp> struct std::negate< _Tp >

One of the math functors.

Definition at line 180 of file stl_function.h.

5.598.2 Member Typedef Documentation

5.598.2.1 typedef _Tp std::unary_function< _Tp , _Tp >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.598.2.2 typedef _Tp std::unary_function< _Tp , _Tp >::result_type [inherited]

`result_type` is the return type

Definition at line 105 of file stl_function.h.

The documentation for this struct was generated from the following file:

- stl_function.h

5.599 std::negative_binomial_distribution< _IntType > Class Template Reference

A negative_binomial_distribution random number distribution.

Classes

- struct param_type

Public Types

- typedef _IntType result_type

Public Member Functions

- **negative_binomial_distribution** (const param_type &__p)
- **negative_binomial_distribution** (_IntType __k=1, double __p=0.5)
- _IntType k () const
- result_type max () const
- result_type min () const
- template<typename _UniformRandomNumberGenerator > result_type **operator()** (_UniformRandomNumberGenerator &__urng, const param_type &__p)
- template<typename _UniformRandomNumberGenerator > result_type **operator()** (_UniformRandomNumberGenerator &__urng)
- double p () const
- void param (const param_type &__param)
- param_type param () const
- void reset ()

Friends

- template<typename _IntType1 , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & operator<< (std::basic_ostream< _CharT, _Traits > &, const std::negative_binomial_distribution< _IntType1 > &)
- template<typename _IntType1 , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & operator>> (std::basic_istream< _CharT, _Traits > &, std::negative_binomial_distribution< _IntType1 > &)

5.599.1 Detailed Description

template<typename _IntType = int> class std::negative_binomial_distribution< _IntType >

A negative_binomial_distribution random number distribution. The formula for the negative binomial probability mass function is $p(i) = \binom{n}{i} p^i (1-p)^{t-i}$ where t and p are the parameters of the distribution.

Definition at line 3340 of file random.h.

5.599.2 Member Typedef Documentation

5.599.2.1 template<typename _IntType = int> typedef _IntType std::negative_binomial_distribution< _IntType >::result_type

The type of the range of the distribution.

Definition at line 3347 of file random.h.

5.599.3 Member Function Documentation

5.599.3.1 template<typename _IntType = int> _IntType std::negative_binomial_distribution< _IntType >::k () const [inline]

Return the k parameter of the distribution.

Definition at line 3392 of file random.h.

5.599.3.2 template<typename _IntType = int> result_type std::negative_binomial_distribution< _IntType >::max () const [inline]

Returns the least upper bound value of the distribution.

Definition at line 3428 of file random.h.

5.599.3.3 template<typename _IntType = int> result_type std::negative_binomial_distribution< _IntType >::min () const [inline]

Returns the greatest lower bound value of the distribution.

Definition at line 3421 of file random.h.

5.599.3.4 template<typename _IntType = int> double std::negative_binomial_distribution< _IntType >::p () const [inline]

Return the p parameter of the distribution.

Definition at line 3399 of file random.h.

5.599.3.5 template<typename _IntType = int> void std::negative_binomial_distribution< _IntType >::param (const param_type & *__param*) [inline]

Sets the parameter set of the distribution.

Parameters:

__param The new parameter set of the distribution.

Definition at line 3414 of file random.h.

5.599.3.6 template<typename _IntType = int> param_type std::negative_binomial_distribution< _IntType >::param () const [inline]

Returns the parameter set of the distribution.

Definition at line 3406 of file random.h.

5.599.3.7 template<typename _IntType = int> void std::negative_binomial_distribution< _IntType >::reset () [inline]

Resets the distribution state.

Definition at line 3385 of file random.h.

References std::gamma_distribution< _RealType >::reset().

5.599.4 Friends And Related Function Documentation

5.599.4.1 template<typename _IntType = int> template<typename _IntType1 , typename _CharT , typename _Traits > std::basic_ostream<_CharT, _Traits>& operator<< (std::basic_ostream< _CharT, _Traits > &, const std::negative_binomial_distribution< _IntType1 > &) [friend]

Inserts a negative_binomial_distribution random number distribution __x into the output stream __os.

Parameters:

__os An output stream.

__x A negative_binomial_distribution random number distribution.

Returns:

The output stream with the state of __x inserted or in an error state.

5.599.4.2 template<typename _IntType = int> template<typename _IntType1 , typename _CharT , typename _Traits > std::basic_istream<_CharT, _Traits>& operator>> (std::basic_istream< _CharT, _Traits > &, std::negative_binomial_distribution< _IntType1 > &) [friend]

Extracts a negative_binomial_distribution random number distribution __x from the input stream __is.

Parameters:

__is An input stream.

__x A negative_binomial_distribution random number generator engine.

Returns:

The input stream with __x extracted or in an error state.

The documentation for this class was generated from the following files:

- random.h
- random.tcc

5.600 std::negative_binomial_distribution< _IntType >::param_type Struct Reference

Public Types

- typedef negative_binomial_distribution< _IntType > **distribution_type**

Public Member Functions

- **param_type** (_IntType __k=1, double __p=0.5)
- _IntType **k** () const
- double **p** () const

5.600.1 Detailed Description

template<typename _IntType = int> struct std::negative_binomial_distribution< _IntType >::param_type

Parameter type.

Definition at line 3349 of file random.h.

The documentation for this struct was generated from the following file:

- random.h

5.601 std::nested_exception Class Reference

Exception class with exception_ptr data member.

Inherited by std::_Nested_exception< _Except >.

Public Member Functions

- **nested_exception** (const nested_exception &)
- exception_ptr **nested_ptr** () const
- nested_exception & **operator=** (const nested_exception &)
- void **rethrow_nested** () const __attribute__((__noreturn__))

5.601.1 Detailed Description

Exception class with exception_ptr data member.

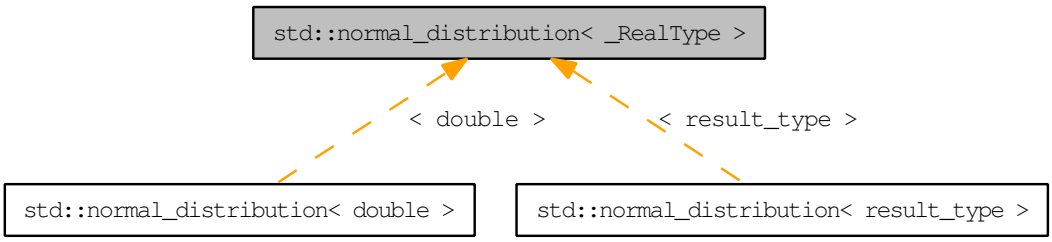
Definition at line 55 of file nested_exception.h.

The documentation for this class was generated from the following file:

- nested_exception.h

5.602 std::normal_distribution< _RealType > Class Template Reference

A normal continuous distribution for random numbers. Inheritance diagram for std::normal_distribution< _RealType >:



Classes

- struct param_type

Public Types

- typedef _RealType result_type

Public Member Functions

- **normal_distribution** (const param_type &__p)
- normal_distribution (result_type __mean=result_type(0), result_type __stddev=result_type(1))
- result_type max () const
- _RealType mean () const
- result_type min () const
- template<typename _UniformRandomNumberGenerator > result_type operator() (_UniformRandomNumberGenerator &__urng, const param_type &__p)
- template<typename _UniformRandomNumberGenerator > result_type **operator()** (_UniformRandomNumberGenerator &__urng)
- void param (const param_type &__param)
- param_type param () const
- void reset ()
- _RealType stddev () const

Friends

- template<typename _RealType1 , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & operator<< (std::basic_ostream< _CharT, _Traits > &, const std::normal_distribution< _RealType1 > &)
- template<typename _RealType1 , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & operator>> (std::basic_istream< _CharT, _Traits > &, std::normal_distribution< _RealType1 > &)

5.602.1 Detailed Description

template<typename _RealType = double> class std::normal_distribution< _RealType >

A normal continuous distribution for random numbers. The formula for the normal probability density function is

$$p(x|\mu,\sigma) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{x-\mu^2}{2\sigma^2}}$$

Definition at line 1813 of file random.h.

5.602.2 Member Typedef Documentation

5.602.2.1 template<typename _RealType = double> typedef _RealType std::normal_distribution< _RealType >::result_type

The type of the range of the distribution.

Definition at line 1820 of file random.h.

5.602.3 Constructor & Destructor Documentation

5.602.3.1 template<typename _RealType = double> std::normal_distribution< _RealType >::normal_distribution (result_type *__mean* = result_type(0), result_type *__stddev* = result_type(1)) [inline, explicit]

Constructs a normal distribution with parameters $mean$ and standard deviation.

Definition at line 1853 of file random.h.

5.602.4 Member Function Documentation

5.602.4.1 template<typename _RealType = double> result_type std::normal_distribution< _RealType >::max () const [inline]

Returns the least upper bound value of the distribution.

Definition at line 1910 of file random.h.

Referenced by std::normal_distribution< result_type >::max().

5.602.4.2 template<typename _RealType = double> _RealType std::normal_distribution< _RealType >::mean () const [inline]

Returns the mean of the distribution.

Definition at line 1874 of file random.h.

5.602.4.3 template<typename _RealType = double> result_type std::normal_distribution< _RealType >::min () const [inline]

Returns the greatest lower bound value of the distribution.

Definition at line 1903 of file random.h.

Referenced by std::normal_distribution< result_type >::min().

5.602.4.4 template<typename _RealType > template<typename _UniformRandomNumberGenerator > normal_distribution< _RealType >::result_type std::normal_distribution< _RealType >::operator() (_UniformRandomNumberGenerator & *__urng*, const param_type & *__param*) [inline]

Polar method due to Marsaglia.

Devroye, L. Non-Uniform Random Variates Generation. Springer-Verlag, New York, 1986, Ch. V, Sect. 4.4.

Definition at line 1597 of file random.tcc.

References std::log(), and std::sqrt().

5.602.4.5 template<typename _RealType = double> void std::normal_distribution< _RealType >::param (const param_type & *__param*) [inline]

Sets the parameter set of the distribution.

Parameters:

__param The new parameter set of the distribution.

Definition at line 1896 of file random.h.

5.602.4.6 template<typename _RealType = double> param_type std::normal_distribution< _RealType >::param () const [inline]

Returns the parameter set of the distribution.

Definition at line 1888 of file random.h.

5.602.4.7 template<typename _RealType = double> void std::normal_distribution< _RealType >::reset () [inline]

Resets the distribution state.

Definition at line 1867 of file random.h.

Referenced by std::poisson_distribution< _IntType >::reset(), std::binomial_distribution< _IntType >::reset(), std::student_t_distribution< _RealType >::reset(), std::gamma_distribution< result_type >::reset(), and std::lognormal_distribution< _RealType >::reset().

5.602.4.8 template<typename _RealType = double> _RealType std::normal_distribution< _RealType >::stddev () const [inline]

Returns the standard deviation of the distribution.

Definition at line 1881 of file random.h.

5.602.5 Friends And Related Function Documentation

5.602.5.1 template<typename _RealType = double> template<typename _RealType1 , typename _CharT , typename _Traits > std::basic_ostream<_CharT, _Traits>& operator<< (std::basic_ostream< _CharT, _Traits > &, const std::normal_distribution< _RealType1 > &) [friend]

Inserts a normal_distribution random number distribution __x into the output stream __os.

Parameters:

__os An output stream.

__x A normal_distribution random number distribution.

Returns:

The output stream with the state of __x inserted or in an error state.

5.602.5.2 template<typename _RealType = double> template<typename _RealType1 , typename _CharT , typename _Traits > std::basic_istream<_CharT, _Traits>& operator>> (std::basic_istream< _CharT, _Traits > &, std::normal_distribution< _RealType1 > &) [friend]

Extracts a normal_distribution random number distribution __x from the input stream __is.

Parameters:

__is An input stream.

__x A normal_distribution random number generator engine.

Returns:

The input stream with __x extracted or in an error state.

The documentation for this class was generated from the following files:

- random.h
- random.tcc

5.603 std::normal_distribution< _RealType >::param_type Struct Reference

Public Types

- typedef normal_distribution< _RealType > **distribution_type**

Public Member Functions

- **param_type** (_RealType __mean=_RealType(0), _RealType __stddev=_RealType(1))
- _RealType **mean** () const
- _RealType **stddev** () const

5.603.1 Detailed Description

template<typename _RealType = double> struct std::normal_distribution< _RealType >::param_type

Parameter type.

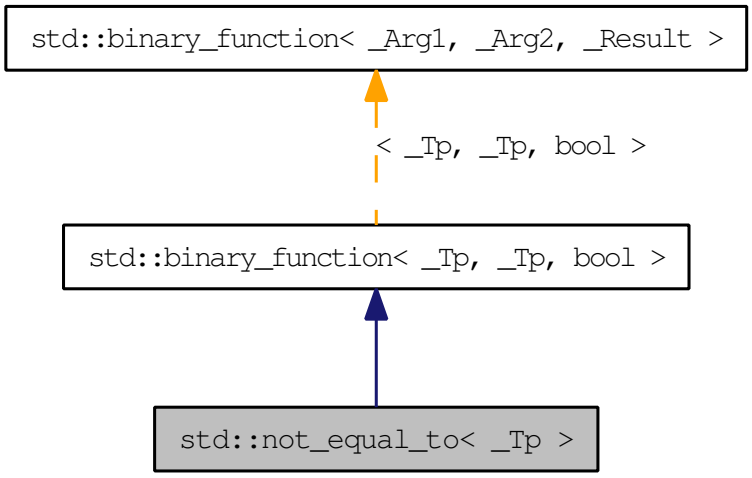
Definition at line 1822 of file random.h.

The documentation for this struct was generated from the following file:

- random.h

5.604 std::not_equal_to< _Tp > Struct Template Reference

One of the comparison functors. Inheritance diagram for std::not_equal_to< _Tp >:



Public Types

- typedef _Tp first_argument_type
- typedef bool result_type
- typedef _Tp second_argument_type

Public Member Functions

- bool **operator()** (const _Tp &__x, const _Tp &__y) const

5.604.1 Detailed Description

template<typename _Tp> struct std::not_equal_to< _Tp >

One of the comparison functors.

Definition at line 208 of file stl_function.h.

5.604.2 Member Typedef Documentation

5.604.2.1 typedef _Tp std::binary_function< _Tp , _Tp , bool >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.604.2.2 typedef bool std::binary_function< _Tp , _Tp , bool >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.604.2.3 typedef _Tp std::binary_function< _Tp , _Tp , bool >::second_argument_type [inherited]

the type of the second argument

Definition at line 117 of file stl_function.h.

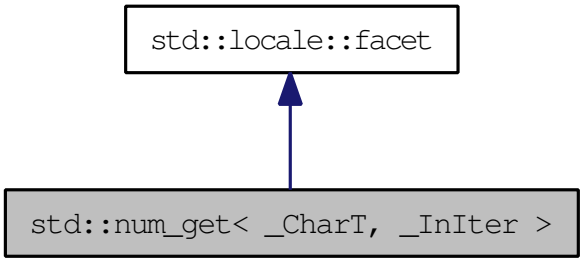
The documentation for this struct was generated from the following file:

- stl_function.h

5.605 std::num_get< _CharT, _InIter > Class Template Reference

Primary class template num_get.

This facet encapsulates the code to parse and return a number from a string. It is used by the istream numeric extraction operators. Inheritance diagram for std::num_get< _CharT, _InIter >:



Public Member Functions

- num_get (size_t __refs=0)
- iter_type get (iter_type __in, iter_type __end, ios_base &__io, ios_base::iostate &__err, void *&__v) const
- iter_type get (iter_type __in, iter_type __end, ios_base &__io, ios_base::iostate &__err, bool &__v) const

Static Public Attributes

- static locale::id id

Protected Member Functions

- virtual ~num_get ()
- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()
- iter_type **_M_extract_float** (iter_type, iter_type, ios_base &, ios_base::iostate &, string &) const
- template<typename _ValueT > iter_type **_M_extract_int** (iter_type, iter_type, ios_base &, ios_base::iostate &, _ValueT &) const
- template<typename _CharT2 > __gnu_cxx::__enable_if<!__is_char< _CharT2 >::__value, int >::__type **_M_find** (const _CharT2 *__zero, size_t __len, _CharT2 __c) const

- template<typename _CharT2 >
  __gnu_cxx::__enable_if< __is_char< _CharT2 >::__value, int >::__type **_M_find** (const _CharT2 *, size_t __len, _CharT2 __c) const

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_locale __old=0)
- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Friends

- class **locale::_Impl**

- typedef _CharT char_type
- typedef _InIter iter_type
- iter_type get (iter_type __in, iter_type __end, ios_base &__io, ios_base::iostate &__err, long double &__v) const
- iter_type get (iter_type __in, iter_type __end, ios_base &__io, ios_base::iostate &__err, double &__v) const
- iter_type get (iter_type __in, iter_type __end, ios_base &__io, ios_base::iostate &__err, float &__v) const
- iter_type get (iter_type __in, iter_type __end, ios_base &__io, ios_base::iostate &__err, unsigned long long &__v) const
- iter_type get (iter_type __in, iter_type __end, ios_base &__io, ios_base::iostate &__err, long long &__v) const
- iter_type get (iter_type __in, iter_type __end, ios_base &__io, ios_base::iostate &__err, unsigned long &__v) const
- iter_type get (iter_type __in, iter_type __end, ios_base &__io, ios_base::iostate &__err, unsigned int &__v) const
- iter_type get (iter_type __in, iter_type __end, ios_base &__io, ios_base::iostate &__err, unsigned short &__v) const
- iter_type get (iter_type __in, iter_type __end, ios_base &__io, ios_base::iostate &__err, long &__v) const
- virtual iter_type do_get (iter_type, iter_type, ios_base &, ios_base::iostate &__err, void *&) const
- virtual iter_type do_get (iter_type, iter_type, ios_base &, ios_base::iostate &__err, long double &) const

- virtual iter_type do_get (iter_type, iter_type, ios_base &, ios_base::iostate &__-err, double &) const
- virtual iter_type do_get (iter_type, iter_type, ios_base &, ios_base::iostate &__-err, float &) const
- virtual iter_type do_get (iter_type __beg, iter_type __end, ios_base &__io, ios_-base::iostate &__err, unsigned long long &__v) const
- virtual iter_type do_get (iter_type __beg, iter_type __end, ios_base &__io, ios_-base::iostate &__err, long long &__v) const
- virtual iter_type do_get (iter_type __beg, iter_type __end, ios_base &__io, ios_-base::iostate &__err, unsigned long &__v) const
- virtual iter_type do_get (iter_type __beg, iter_type __end, ios_base &__io, ios_-base::iostate &__err, unsigned int &__v) const
- virtual iter_type do_get (iter_type __beg, iter_type __end, ios_base &__io, ios_-base::iostate &__err, unsigned short &__v) const
- virtual iter_type do_get (iter_type __beg, iter_type __end, ios_base &__io, ios_-base::iostate &__err, long &__v) const
- virtual iter_type do_get (iter_type, iter_type, ios_base &, ios_base::iostate &, bool &) const

5.605.1 Detailed Description

template<typename _CharT, typename _InIter> class std::num_get< _CharT, _InIter >

Primary class template num_get.

This facet encapsulates the code to parse and return a number from a string. It is used by the istream numeric extraction operators. The num_get template uses protected virtual functions to provide the actual results. The public accessors forward the call to the virtual functions. These virtual functions are hooks for developers to implement the behavior they require from the num_get facet.

Definition at line 1909 of file locale_facets.h.

5.605.2 Member Typedef Documentation

5.605.2.1 template<typename _CharT , typename _InIter > typedef _CharT std::num_get< _CharT, _InIter >::char_type

Public typedefs.

Definition at line 1915 of file locale_facets.h.

5.605.2.2 template<typename _CharT , typename _InIter > typedef _InIter std::num_get< _CharT, _InIter >::iter_type

Public typedefs.

Definition at line 1916 of file locale_facets.h.

5.605.3 Constructor & Destructor Documentation

5.605.3.1 template<typename _CharT , typename _InIter > std::num_get< _CharT, _InIter >::num_get (size_t *__refs* = 0) [inline, explicit]

Constructor performs initialization. This is the constructor provided by the standard.

Parameters:

refs Passed to the base facet class.

Definition at line 1930 of file locale_facets.h.

5.605.3.2 template<typename _CharT , typename _InIter > virtual std::num_get< _CharT, _InIter >::~num_get () [inline, protected, virtual]

Destructor.

Definition at line 2099 of file locale_facets.h.

5.605.4 Member Function Documentation

5.605.4.1 template<typename _CharT , typename _InIter > _InIter std::num_get< _CharT, _InIter >::do_get (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, void *& *__v*) const [inline, protected, virtual]

Public typedefs.

Definition at line 748 of file locale_facets.tcc.

References std::ios_base::basefield, std::ios_base::flags(), and std::ios_base::hex.

5.605.4.2 template<typename _CharT , typename _InIter > _InIter std::num_get< _CharT, _InIter >::do_get (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, long double & *__v*) const [inline, protected, virtual]

Public typedefs.

Definition at line 733 of file locale_facets.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::c_str(), std::ios_base::eofbit, and std::basic_string< _CharT, _Traits, _Alloc >::reserve().

5.605.4.3 template<typename _CharT , typename _InIter > _InIter std::num_get< _CharT, _InIter >::do_get (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, double & *__v*) const [inline, protected, virtual]

Public typedefs.

Definition at line 701 of file locale_facets.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::c_str(), std::ios_base::eofbit, and std::basic_string< _CharT, _Traits, _Alloc >::reserve().

5.605.4.4 template<typename _CharT , typename _InIter > _InIter std::num_get< _CharT, _InIter >::do_get (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, float & *__v*) const [inline, protected, virtual]

Public typedefs.

Definition at line 686 of file locale_facets.tcc.

References std::basic_string< _CharT, _Traits, _Alloc >::c_str(), std::ios_base::eofbit, and std::basic_string< _CharT, _Traits, _Alloc >::reserve().

5.605.4.5 template<typename _CharT , typename _InIter > virtual iter_type std::num_get< _CharT, _InIter >::do_get (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, unsigned long long & *__v*) const [inline, protected, virtual]

Public typedefs.

Definition at line 2193 of file locale_facets.h.

5.605.4.6 template<typename _CharT , typename _InIter > virtual iter_type std::num_get< _CharT, _InIter >::do_get (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, long long & *__v*) const [inline, protected, virtual]

Public typedefs.

Definition at line 2188 of file locale_facets.h.

5.605.4.7 template<typename _CharT , typename _InIter > virtual iter_type std::num_get< _CharT, _InIter >::do_get (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, unsigned long & *__v*) const [inline, protected, virtual]

Public typedefs.

Definition at line 2182 of file locale_facets.h.

5.605.4.8 template<typename _CharT , typename _InIter > virtual iter_type std::num_get< _CharT, _InIter >::do_get (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, unsigned int & *__v*) const [inline, protected, virtual]

Public typedefs.

Definition at line 2177 of file locale_facets.h.

5.605.4.9 template<typename _CharT , typename _InIter > virtual iter_type std::num_get< _CharT, _InIter >::do_get (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, unsigned short & *__v*) const [inline, protected, virtual]

Public typedefs.

Definition at line 2172 of file locale_facets.h.

5.605.4.10 template<typename _CharT , typename _InIter > virtual iter_type std::num_get< _CharT, _InIter >::do_get (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, long & *__v*) const [inline, protected, virtual]

Public typedefs.

Definition at line 2167 of file locale_facets.h.

5.605.4.11 template<typename _CharT , typename _InIter > _InIter std::num_get< _CharT, _InIter >::do_get (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, bool & *__v*) const [inline, protected, virtual]

Numeric parsing. Parses the input stream into the variable *v*. This function is a hook for derived classes to change the value returned.

See also:

get() for more details.

Parameters:

in Start of input stream.

end End of input stream.

io Source of locale and flags.

err Error flags to set.

v Value to format and insert.

Returns:

Iterator after reading.

Definition at line 590 of file locale_facets.tcc.

References std::ios_base::_M_getloc(), std::ios_base::boolalpha, std::ios_base::eofbit, std::ios_base::failbit, std::ios_base::flags(), and std::ios_base::goodbit.

Referenced by std::num_get< _CharT, _InIter >::get().

5.605.4.12 template<typename _CharT , typename _InIter > iter_type std::num_get< _CharT, _InIter >::get (iter_type *__in*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, void *& *__v*) const [inline]

Numeric parsing. Parses the input stream into the pointer variable *v*. It does so by calling num_get::do_get().

The input characters are parsed like the scanf p specifier.

Digit grouping is interpreted according to numpunct::grouping() and numpunct::thousands_sep(). If the pattern of digit groups isn't consistent, sets err to ios_base::failbit.

Note that the digit grouping effect for pointers is a bit ambiguous in the standard and shouldn't be relied on. See DR 344.

If parsing the string yields a valid value for *v*, *v* is set. Otherwise, sets err to ios_base::failbit and leaves *v* unaltered. Sets err to ios_base::eofbit if the stream is emptied.

Parameters:

in Start of input stream.

end End of input stream.

io Source of locale and flags.

err Error flags to set.

v Value to format and insert.

Returns:

Iterator after reading.

Definition at line 2093 of file locale_facets.h.

References std::num_get< _CharT, _InIter >::do_get().

5.605.4.13 template<typename _CharT , typename _InIter > iter_type std::num_get< _CharT, _InIter >::get (iter_type *__in*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, long double & *__v*) const [inline]

Public typedefs.

Definition at line 2061 of file locale_facets.h.

References std::num_get< _CharT, _InIter >::do_get().

5.605.4.14 template<typename _CharT , typename _InIter > iter_type std::num_get< _CharT, _InIter >::get (iter_type *__in*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, double & *__v*) const [inline]

Public typedefs.

Definition at line 2056 of file locale_facets.h.

References std::num_get< _CharT, _InIter >::do_get().

5.605.4.15 template<typename _CharT , typename _InIter > iter_type std::num_get< _CharT, _InIter >::get (iter_type *__in*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, float & *__v*) const [inline]

Numeric parsing. Parses the input stream into the integral variable *v*. It does so by calling num_get::do_get().

The input characters are parsed like the scanf g specifier. The matching type length modifier is also used.

The decimal point character used is numpunct::decimal_point(). Digit grouping is interpreted according to numpunct::grouping() and numpunct::thousands_sep(). If the pattern of digit groups isn't consistent, sets err to ios_base::failbit.

If parsing the string yields a valid value for *v*, *v* is set. Otherwise, sets err to ios_base::failbit and leaves *v* unaltered. Sets err to ios_base::eofbit if the stream is emptied.

Parameters:

in Start of input stream.

end End of input stream.

io Source of locale and flags.

err Error flags to set.

v Value to format and insert.

Returns:

Iterator after reading.

Definition at line 2051 of file locale_facets.h.

References std::num_get< _CharT, _InIter >::do_get().

5.605.4.16 template<typename _CharT , typename _InIter > iter_type std::num_get< _CharT, _InIter >::get (iter_type *__in*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, unsigned long long & *__v*) const [inline]

Public typedefs.

Definition at line 2018 of file locale_facets.h.

References std::num_get< _CharT, _InIter >::do_get().

5.605.4.17 template<typename _CharT , typename _InIter > iter_type std::num_get< _CharT, _InIter >::get (iter_type *__in*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, long long & *__v*) const [inline]

Public typedefs.

Definition at line 2013 of file locale_facets.h.

References std::num_get< _CharT, _InIter >::do_get().

5.605.4.18 template<typename _CharT , typename _InIter > iter_type std::num_get< _CharT, _InIter >::get (iter_type *__in*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, unsigned long & *__v*) const [inline]

Public typedefs.

Definition at line 2007 of file locale_facets.h.

References std::num_get< _CharT, _InIter >::do_get().

5.605.4.19 template<typename _CharT , typename _InIter > iter_type std::num_get< _CharT, _InIter >::get (iter_type *__in*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, unsigned int & *__v*) const [inline]

Public typedefs.

Definition at line 2002 of file locale_facets.h.

References std::num_get< _CharT, _InIter >::do_get().

5.605.4.20 template<typename _CharT , typename _InIter > iter_type std::num_get< _CharT, _InIter >::get (iter_type *__in*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, unsigned short & *__v*) const [inline]

Public typedefs.

Definition at line 1997 of file locale_facets.h.

References std::num_get< _CharT, _InIter >::do_get().

5.605.4.21 template<typename _CharT , typename _InIter > iter_type std::num_get< _CharT, _InIter >::get (iter_type *__in*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, long & *__v*) const [inline]

Numeric parsing. Parses the input stream into the integral variable *v*. It does so by calling num_get::do_get().

Parsing is affected by the flag settings in *io*.

The basic parse is affected by the value of io.flags() & ios_base::basefield. If equal to ios_base::oct, parses like the scanf o specifier. Else if equal to ios_base::hex, parses like X specifier. Else if basefield equal to 0, parses like the i specifier. Otherwise, parses like d for signed and u for unsigned types. The matching type length modifier is also used.

Digit grouping is interpreted according to numpunct::grouping() and numpunct::thousands_sep(). If the pattern of digit groups isn't consistent, sets err to ios_base::failbit.

If parsing the string yields a valid value for *v*, *v* is set. Otherwise, sets err to ios_base::failbit and leaves *v* unaltered. Sets err to ios_base::eofbit if the stream is emptied.

Parameters:

in Start of input stream.

end End of input stream.

io Source of locale and flags.

err Error flags to set.

v Value to format and insert.

Returns:

Iterator after reading.

Definition at line 1992 of file locale_facets.h.

References std::num_get< _CharT, _InIter >::do_get().

5.605.4.22 template<typename _CharT , typename _InIter > iter_type std::num_get< _CharT, _InIter >::get (iter_type *__in*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, bool & *__v*) const [inline]

Numeric parsing. Parses the input stream into the bool *v*. It does so by calling num_get::do_get().

If ios_base::boolalpha is set, attempts to read ctype<CharT>::truename() or ctype<CharT>::falsename(). Sets *v* to true or false if successful. Sets err to ios_base::failbit if reading the string fails. Sets err to ios_base::eofbit if the stream is emptied.

If ios_base::boolalpha is not set, proceeds as with reading a long, except if the value is 1, sets *v* to true, if the value is 0, sets *v* to false, and otherwise set err to ios_base::failbit.

Parameters:

in Start of input stream.

end End of input stream.

io Source of locale and flags.

err Error flags to set.

v Value to format and insert.

Returns:

Iterator after reading.

Definition at line 1956 of file locale_facets.h.

References std::num_get< _CharT, _InIter >::do_get().

Referenced by std::basic_istream< _CharT, _Traits >::operator>>().

5.605.5 Member Data Documentation

5.605.5.1 template<typename _CharT , typename _InIter > locale::id std::num_get< _CharT, _InIter >::id [inline, static]

Numpunct facet id.

Definition at line 1920 of file locale_facets.h.

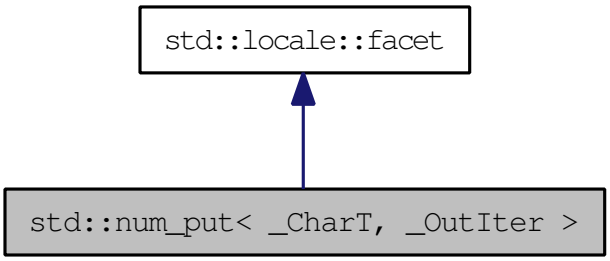
The documentation for this class was generated from the following files:

- locale_facets.h
- locale_facets.tcc

5.606 std::num_put< _CharT, _OutIter > Class Template Reference

Primary class template num_put.

This facet encapsulates the code to convert a number to a string. It is used by the ostream numeric insertion operators. Inheritance diagram for std::num_put< _CharT, _OutIter >:



Public Member Functions

- num_put (size_t __refs=0)
- iter_type put (iter_type __s, ios_base &__f, char_type __fill, const void *__v) const
- iter_type put (iter_type __s, ios_base &__f, char_type __fill, bool __v) const

Static Public Attributes

- static locale::id id

Protected Member Functions

- virtual ~num_put ()
- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()
- void **_M_group_float** (const char *__grouping, size_t __grouping_size, char_type __sep, const char_type *__p, char_type *__new, char_type *__cs, int &__len) const
- void **_M_group_int** (const char *__grouping, size_t __grouping_size, char_type __sep, ios_base &__io, char_type *__new, char_type *__cs, int &__len) const
- template<typename _ValueT >
  iter_type **_M_insert_float** (iter_type, ios_base &__io, char_type __fill, char __mod, _ValueT __v) const

- template<typename _ValueT >
  iter_type **_M_insert_int** (iter_type, ios_base &__io, char_type __fill, _ValueT __v) const
- void **_M_pad** (char_type __fill, streamsize __w, ios_base &__io, char_type *_-_new, const char_type *__cs, int &__len) const

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_-locale __old=0)
- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Friends

- class **locale::_Impl**

- typedef _CharT char_type
- typedef _OutIter iter_type
- iter_type put (iter_type __s, ios_base &__f, char_type __fill, long double __v) const
- iter_type put (iter_type __s, ios_base &__f, char_type __fill, double __v) const
- iter_type put (iter_type __s, ios_base &__f, char_type __fill, unsigned long long __v) const
- iter_type put (iter_type __s, ios_base &__f, char_type __fill, long long __v) const
- iter_type put (iter_type __s, ios_base &__f, char_type __fill, unsigned long __v) const
- iter_type put (iter_type __s, ios_base &__f, char_type __fill, long __v) const
- virtual iter_type do_put (iter_type, ios_base &, char_type __fill, const void *__-v) const
- virtual iter_type do_put (iter_type, ios_base &, char_type __fill, long double _-_v) const
- virtual iter_type do_put (iter_type, ios_base &, char_type __fill, double __v) const
- virtual iter_type do_put (iter_type __s, ios_base &__io, char_type __fill, unsigned long long __v) const
- virtual iter_type do_put (iter_type __s, ios_base &__io, char_type __fill, long long __v) const

- virtual iter_type do_put (iter_type __s, ios_base &__io, char_type __fill, unsigned long __v) const
- virtual iter_type do_put (iter_type __s, ios_base &__io, char_type __fill, long __v) const
- virtual iter_type do_put (iter_type, ios_base &, char_type __fill, bool __v) const

5.606.1 Detailed Description

template<typename _CharT, typename _OutIter> class std::num_put< _CharT, _OutIter >

Primary class template num_put.

This facet encapsulates the code to convert a number to a string. It is used by the ostream numeric insertion operators. The num_put template uses protected virtual functions to provide the actual results. The public accessors forward the call to the virtual functions. These virtual functions are hooks for developers to implement the behavior they require from the num_put facet.

Definition at line 2247 of file locale_facets.h.

5.606.2 Member Typedef Documentation

5.606.2.1 template<typename _CharT , typename _OutIter > typedef _CharT std::num_put< _CharT, _OutIter >::char_type

Public typedefs.

Definition at line 2253 of file locale_facets.h.

5.606.2.2 template<typename _CharT , typename _OutIter > typedef _OutIter std::num_put< _CharT, _OutIter >::iter_type

Public typedefs.

Definition at line 2254 of file locale_facets.h.

5.606.3 Constructor & Destructor Documentation

5.606.3.1 template<typename _CharT , typename _OutIter > std::num_put< _CharT, _OutIter >::num_put (size_t *__refs* = 0) [inline, explicit]

Constructor performs initialization. This is the constructor provided by the standard.

Parameters:

refs Passed to the base facet class.

Definition at line 2268 of file locale_facets.h.

5.606.3.2 template<typename _CharT , typename _OutIter > virtual std::num_put< _CharT, _OutIter >::~num_put () [inline, protected, virtual]

Destructor.

Definition at line 2447 of file locale_facets.h.

5.606.4 Member Function Documentation

5.606.4.1 template<typename _CharT , typename _OutIter > _OutIter std::num_put< _CharT, _OutIter >::do_put (iter_type *__s*, ios_base & *__io*, char_type *__fill*, const void * *__v*) const [inline, protected, virtual]

Public typedefs.

Definition at line 1162 of file locale_facets.tcc.

References std::ios_base::flags(), std::ios_base::hex, and std::ios_base::uppercase.

5.606.4.2 template<typename _CharT , typename _OutIter > _OutIter std::num_put< _CharT, _OutIter >::do_put (iter_type *__s*, ios_base & *__io*, char_type *__fill*, long double *__v*) const [inline, protected, virtual]

Public typedefs.

Definition at line 1155 of file locale_facets.tcc.

5.606.4.3 template<typename _CharT , typename _OutIter > _OutIter std::num_put< _CharT, _OutIter >::do_put (iter_type *__s*, ios_base & *__io*, char_type *__fill*, double *__v*) const [inline, protected, virtual]

Public typedefs.

Definition at line 1141 of file locale_facets.tcc.

5.606.4.4 template<typename _CharT , typename _OutIter > virtual iter_type std::num_put< _CharT, _OutIter >::do_put (iter_type __s, ios_base & __io, char_type __fill, unsigned long long __v) const [inline, protected, virtual]

Public typedefs.

Definition at line 2482 of file locale_facets.h.

5.606.4.5 template<typename _CharT , typename _OutIter > virtual iter_type std::num_put< _CharT, _OutIter >::do_put (iter_type __s, ios_base & __io, char_type __fill, long long __v) const [inline, protected, virtual]

Public typedefs.

Definition at line 2477 of file locale_facets.h.

5.606.4.6 template<typename _CharT , typename _OutIter > virtual iter_type std::num_put< _CharT, _OutIter >::do_put (iter_type __s, ios_base & __io, char_type __fill, unsigned long __v) const [inline, protected, virtual]

Public typedefs.

Definition at line 2471 of file locale_facets.h.

5.606.4.7 template<typename _CharT , typename _OutIter > virtual iter_type std::num_put< _CharT, _OutIter >::do_put (iter_type __s, ios_base & __io, char_type __fill, long __v) const [inline, protected, virtual]

Public typedefs.

Definition at line 2467 of file locale_facets.h.

5.606.4.8 template<typename _CharT , typename _OutIter > _OutIter std::num_put< _CharT, _OutIter >::do_put (iter_type __s, ios_base & __io, char_type __fill, bool __v) const [inline, protected, virtual]

Numeric formatting. These functions do the work of formatting numeric values and inserting them into a stream. This function is a hook for derived classes to change the value returned.

Parameters:

s Stream to write to.

io Source of locale and flags.

fill Char_type to use for filling.

v Value to format and insert.

Returns:

Iterator after writing.

Definition at line 1089 of file locale_facets.tcc.

References std::ios_base::_M_getloc(), std::ios_base::adjustfield, std::ios_base::boolalpha, std::ios_base::flags(), std::ios_base::left, and std::ios_base::width().

Referenced by std::num_put< _CharT, _OutIter >::put().

5.606.4.9 template<typename _CharT , typename _OutIter > iter_type std::num_put< _CharT, _OutIter >::put (iter_type __s, ios_base & __f, char_type __fill, const void * __v) const [inline]

Numeric formatting. Formats the pointer value *v* and inserts it into a stream. It does so by calling num_put::do_put().

This function formats *v* as an unsigned long with ios_base::hex and ios_base::showbase set.

Parameters:

s Stream to write to.

io Source of locale and flags.

fill Char_type to use for filling.

v Value to format and insert.

Returns:

Iterator after writing.

Definition at line 2416 of file locale_facets.h.

References std::num_put< _CharT, _OutIter >::do_put().

5.606.4.10 template<typename _CharT , typename _OutIter > iter_type std::num_put< _CharT, _OutIter >::put (iter_type __s, ios_base & __f, char_type __fill, long double __v) const [inline]

Public typedefs.

Definition at line 2395 of file locale_facets.h.

References std::num_put< _CharT, _OutIter >::do_put().

5.606.4.11 template<typename _CharT , typename _OutIter > iter_type std::num_put< _CharT, _OutIter >::put (iter_type __s, ios_base & __f, char_type __fill, double __v) const [inline]

Numeric formatting. Formats the floating point value *v* and inserts it into a stream. It does so by calling num_put::do_put().

Formatting is affected by the flag settings in *io*.

The basic format is affected by the value of io.flags() & ios_base::floatfield. If equal to ios_base::fixed, formats like the printf f specifier. Else if equal to ios_base::scientific, formats like e or E with ios_base::uppercase unset or set respectively. Otherwise, formats like g or G depending on uppercase. Note that if both fixed and scientific are set, the effect will also be like g or G.

The output precision is given by io.precision(). This precision is capped at numeric_limits::digits10 + 2 (different for double and long double). The default precision is 6.

If ios_base::showpos is set, '+' is output before positive values. If ios_base::showpoint is set, a decimal point will always be output.

Thousands separators are inserted according to numpunct::grouping() and numpunct::thousands_sep(). The decimal point character used is numpunct::decimal_point().

If io.width() is non-zero, enough *fill* characters are inserted to make the result at least that wide. If (io.flags() & ios_base::adjustfield) == ios_base::left, result is padded at the end. If ios_base::internal, then padding occurs immediately after either a '+' or '-' or after '0x' or '0X'. Otherwise, padding occurs at the beginning.

Parameters:

s Stream to write to.

io Source of locale and flags.

fill Char_type to use for filling.

v Value to format and insert.

Returns:

Iterator after writing.

Definition at line 2391 of file locale_facets.h.

References std::num_put< _CharT, _OutIter >::do_put().

5.606.4.12 template<typename _CharT , typename _OutIter > iter_type std::num_put< _CharT, _OutIter >::put (iter_type __s, ios_base & __f, char_type __fill, unsigned long long __v) const [inline]

Public typedefs.

Definition at line 2342 of file locale_facets.h.

References std::num_put< _CharT, _OutIter >::do_put().

5.606.4.13 template<typename _CharT , typename _OutIter > iter_type std::num_put< _CharT, _OutIter >::put (iter_type __s, ios_base & __f, char_type __fill, long long __v) const [inline]

Public typedefs.

Definition at line 2338 of file locale_facets.h.

References std::num_put< _CharT, _OutIter >::do_put().

5.606.4.14 template<typename _CharT , typename _OutIter > iter_type std::num_put< _CharT, _OutIter >::put (iter_type __s, ios_base & __f, char_type __fill, unsigned long __v) const [inline]

Public typedefs.

Definition at line 2332 of file locale_facets.h.

References std::num_put< _CharT, _OutIter >::do_put().

5.606.4.15 template<typename _CharT , typename _OutIter > iter_type std::num_put< _CharT, _OutIter >::put (iter_type __s, ios_base & __f, char_type __fill, long __v) const [inline]

Numeric formatting. Formats the integral value *v* and inserts it into a stream. It does so by calling num_put::do_put().

Formatting is affected by the flag settings in *io*.

The basic format is affected by the value of io.flags() & ios_base::basefield. If equal to ios_base::oct, formats like the printf o specifier. Else if equal to ios_base::hex, formats like x or X with ios_base::uppercase unset or set respectively. Otherwise, formats like d, ld, lld for signed and u, lu, llu for unsigned values. Note that if both oct and hex are set, neither will take effect.

If ios_base::showpos is set, '+' is output before positive values. If ios_base::showbase is set, '0' precedes octal values (except 0) and '0[xX]' precedes hex values.

Thousands separators are inserted according to numpunct::grouping() and numpunct::thousands_sep(). The decimal point character used is numpunct::decimal_point().

If io.width() is non-zero, enough *fill* characters are inserted to make the result at least that wide. If (io.flags() & ios_base::adjustfield) == ios_base::left, result is padded at the end. If ios_base::internal, then padding occurs immediately after either a '+' or '-' or after '0x' or '0X'. Otherwise, padding occurs at the beginning.

Parameters:

s Stream to write to.

io Source of locale and flags.

fill Char_type to use for filling.

v Value to format and insert.

Returns:

Iterator after writing.

Definition at line 2328 of file locale_facets.h.

References std::num_put< _CharT, _OutIter >::do_put().

5.606.4.16 template<typename _CharT , typename _OutIter > iter_type std::num_put< _CharT, _OutIter >::put (iter_type __s, ios_base & __f, char_type __fill, bool __v) const [inline]

Numeric formatting. Formats the boolean *v* and inserts it into a stream. It does so by calling num_put::do_put().

If ios_base::boolalpha is set, writes ctype<CharT>::truename() or ctype<CharT>::falsename(). Otherwise formats *v* as an int.

Parameters:

s Stream to write to.

io Source of locale and flags.

fill Char_type to use for filling.

v Value to format and insert.

Returns:

Iterator after writing.

Definition at line 2286 of file locale_facets.h.

References std::num_put< _CharT, _OutIter >::do_put().

5.606.5 Member Data Documentation

5.606.5.1 template<typename _CharT , typename _OutIter > locale::id std::num_put< _CharT, _OutIter >::id [inline, static]

Numpunct facet id.

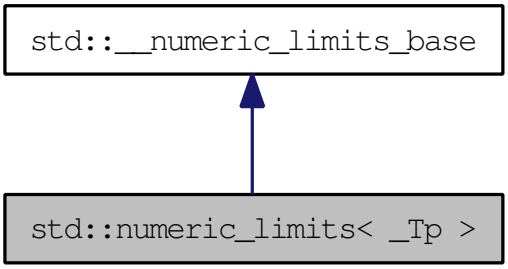
Definition at line 2258 of file locale_facets.h.

The documentation for this class was generated from the following files:

- locale_facets.h
- locale_facets.tcc

5.607 std::numeric_limits< _Tp > Struct Template Reference

Properties of fundamental types. Inheritance diagram for std::numeric_limits< _Tp >:



Static Public Member Functions

- static _Tp denorm_min () throw ()
- static _Tp epsilon () throw ()
- static _Tp infinity () throw ()
- static _Tp lowest () throw ()
- static _Tp max () throw ()
- static _Tp min () throw ()
- static _Tp quiet_NaN () throw ()
- static _Tp round_error () throw ()
- static _Tp signaling_NaN () throw ()

Static Public Attributes

- static const int digits
- static const int digits10
- static const float_denorm_style has_denorm
- static const bool has_denorm_loss
- static const bool has_infinity
- static const bool has_quiet_NaN
- static const bool has_signaling_NaN
- static const bool is_bounded
- static const bool is_exact
- static const bool is_iec559
- static const bool is_integer
- static const bool is_modulo

- static const bool is_signed
- static const bool is_specialized
- static const int max_digits10
- static const int max_exponent
- static const int max_exponent10
- static const int min_exponent
- static const int min_exponent10
- static const int radix
- static const float_round_style round_style
- static const bool tinyness_before
- static const bool traps

5.607.1 Detailed Description

template<typename _Tp> struct std::numeric_limits< _Tp >

Properties of fundamental types. This class allows a program to obtain information about the representation of a fundamental type on a given platform. For non-fundamental types, the functions will return 0 and the data members will all be `false`.

_GLIBCXX_RESOLVE_LIB_DEFECTS: DRs 201 and 184 (hi Gaby!) are noted, but not incorporated in this documented (yet).

Definition at line 284 of file limits.

5.607.2 Member Function Documentation

5.607.2.1 template<typename _Tp > static _Tp std::numeric_limits< _Tp >::denorm_min () throw () [inline, static]

The minimum positive denormalized value. For types where `has_denorm` is false, this is the minimum positive normalized value.

Definition at line 313 of file limits.

5.607.2.2 template<typename _Tp > static _Tp std::numeric_limits< _Tp >::epsilon () throw () [inline, static]

The *machine epsilon:* the difference between 1 and the least value greater than 1 that is representable.

Definition at line 298 of file limits.

5.607.2.3 template<typename _Tp > static _Tp std::numeric_limits< _Tp >::infinity () throw () [inline, static]

The representation of positive infinity, if `has_infinity`.

Definition at line 302 of file limits.

5.607.2.4 template<typename _Tp > static _Tp std::numeric_limits< _Tp >::lowest () throw () [inline, static]

A finite value x such that there is no other finite value y where y < x.

Definition at line 294 of file limits.

5.607.2.5 template<typename _Tp > static _Tp std::numeric_limits< _Tp >::max () throw () [inline, static]

The maximum finite value.

Definition at line 290 of file limits.

5.607.2.6 template<typename _Tp > static _Tp std::numeric_limits< _Tp >::min () throw () [inline, static]

The minimum finite value, or for floating types with denormalization, the minimum positive normalized value.

Definition at line 288 of file limits.

5.607.2.7 template<typename _Tp > static _Tp std::numeric_limits< _Tp >::quiet_NaN () throw () [inline, static]

The representation of a quiet *Not a Number*, if `has_quiet_NaN`.

Definition at line 306 of file limits.

5.607.2.8 template<typename _Tp > static _Tp std::numeric_limits< _Tp >::round_error () throw () [inline, static]

The maximum rounding error measurement (see LIA-1).

Definition at line 300 of file limits.

5.607.2.9 template<typename _Tp > static _Tp std::numeric_limits< _Tp >::signaling_NaN () throw () [inline, static]

The representation of a signaling *Not a Number*, if `has_signaling_NaN`.

Definition at line 309 of file limits.

5.607.3 Member Data Documentation

5.607.3.1 const int std::__numeric_limits_base::digits [static, inherited]

The number of `radix` digits that be represented without change: for integer types, the number of non-sign bits in the mantissa; for floating types, the number of `radix` digits in the mantissa.

Definition at line 199 of file limits.

5.607.3.2 const int std::__numeric_limits_base::digits10 [static, inherited]

The number of base 10 digits that can be represented without change.

Definition at line 201 of file limits.

5.607.3.3 const float_denorm_style std::__numeric_limits_base::has_denorm [static, inherited]

See std::float_denorm_style for more information.

Definition at line 244 of file limits.

5.607.3.4 const bool std::__numeric_limits_base::has_denorm_loss [static, inherited]

True if loss of accuracy is detected as a denormalization loss, rather than as an inexact result. [18.2.1.2]/42

Definition at line 247 of file limits.

5.607.3.5 const bool std::__numeric_limits_base::has_infinity [static, inherited]

True if the type has a representation for positive infinity.

Definition at line 236 of file limits.

5.607.3.6 const bool std::__numeric_limits_base::has_quiet_NaN [static, inherited]

True if the type has a representation for a quiet (non-signaling) *Not a Number*.

Definition at line 239 of file limits.

5.607.3.7 const bool std::__numeric_limits_base::has_signaling_NaN [static, inherited]

True if the type has a representation for a signaling *Not a Number*.

Definition at line 242 of file limits.

5.607.3.8 const bool std::__numeric_limits_base::is_bounded [static, inherited]

True if the set of values representable by the type is finite. All built-in types are bounded, this member would be false for arbitrary precision types. [18.2.1.2]/54

Definition at line 255 of file limits.

5.607.3.9 const bool std::__numeric_limits_base::is_exact [static, inherited]

True if the type uses an exact representation. *All integer types are exact, but not all exact types are integer. For example, rational and fixed-exponent representations are exact but not integer.* [18.2.1.2]/15

Definition at line 216 of file limits.

5.607.3.10 const bool std::__numeric_limits_base::is_iec559 [static, inherited]

True if-and-only-if the type adheres to the IEC 559 standard, also known as IEEE 754. (Only makes sense for floating point types.)

Definition at line 251 of file limits.

5.607.3.11 const bool std::__numeric_limits_base::is_integer [static, inherited]

True if the type is integer. Is this supposed to be *if the type is integral?*

Definition at line 211 of file limits.

5.607.3.12 const bool std::__numeric_limits_base::is_modulo [static, inherited]

True if the type is *modulo*, that is, if it is possible to add two positive numbers and have a result that wraps around to a third number that is less. Typically false for floating types, true for unsigned integers, and true for signed integers.

Definition at line 260 of file limits.

5.607.3.13 const bool std::__numeric_limits_base::is_signed [static, inherited]

True if the type is signed.

Definition at line 208 of file limits.

5.607.3.14 const bool std::__numeric_limits_base::is_specialized [static, inherited]

This will be true for all fundamental types (which have specializations), and false for everything else.

Definition at line 194 of file limits.

5.607.3.15 const int std::__numeric_limits_base::max_digits10 [static, inherited]

The number of base 10 digits required to ensure that values which differ are always differentiated.

Definition at line 205 of file limits.

5.607.3.16 const int std::__numeric_limits_base::max_exponent [static, inherited]

The maximum positive integer such that `radix` raised to the power of (one less than that integer) is a representable finite floating point number.

Definition at line 230 of file limits.

5.607.3.17 const int std::__numeric_limits_base::max_exponent10 [static, inherited]

The maximum positive integer such that 10 raised to that power is in the range of representable finite floating point numbers.

Definition at line 233 of file limits.

5.607.3.18 const int std::__numeric_limits_base::min_exponent [static, inherited]

The minimum negative integer such that `radix` raised to the power of (one less than that integer) is a normalized floating point number.

Definition at line 223 of file limits.

5.607.3.19 const int std::__numeric_limits_base::min_exponent10 [static, inherited]

The minimum negative integer such that 10 raised to that power is in the range of normalized floating point numbers.

Definition at line 226 of file limits.

5.607.3.20 const int std::__numeric_limits_base::radix [static, inherited]

For integer types, specifies the base of the representation. For floating types, specifies the base of the exponent representation.

Definition at line 219 of file limits.

5.607.3.21 const float_round_style std::__numeric_limits_base::round_style [static, inherited]

See std::float_round_style for more information. This is only meaningful for floating types; integer types will all be round_toward_zero.

Definition at line 269 of file limits.

5.607.3.22 const bool std::__numeric_limits_base::tinyness_before [static, inherited]

True if tininess is detected before rounding. (see IEC 559)

Definition at line 265 of file limits.

5.607.3.23 const bool std::__numeric_limits_base::traps [static, inherited]

True if trapping is implemented for this type.

Definition at line 263 of file limits.

The documentation for this struct was generated from the following file:

- limits

5.608 std::numeric_limits< bool > Struct Template Reference

numeric_limits<bool> specialization.

Static Public Member Functions

- static bool **denorm_min** () throw ()
- static bool **epsilon** () throw ()
- static bool **infinity** () throw ()
- static bool **lowest** () throw ()
- static bool **max** () throw ()
- static bool **min** () throw ()
- static bool **quiet_NaN** () throw ()
- static bool **round_error** () throw ()
- static bool **signaling_NaN** () throw ()

Static Public Attributes

- static const int **digits**
- static const int **digits10**
- static const float_denorm_style **has_denorm**
- static const bool **has_denorm_loss**
- static const bool **has_infinity**
- static const bool **has_quiet_NaN**
- static const bool **has_signaling_NaN**
- static const bool **is_bounded**
- static const bool **is_exact**
- static const bool **is_iec559**
- static const bool **is_integer**
- static const bool **is_modulo**
- static const bool **is_signed**
- static const bool **is_specialized**
- static const int **max_digits10**
- static const int **max_exponent**
- static const int **max_exponent10**
- static const int **min_exponent**
- static const int **min_exponent10**
- static const int **radix**
- static const float_round_style **round_style**
- static const bool **tinyness_before**
- static const bool **traps**

5.608.1 Detailed Description

template<> struct std::numeric_limits< bool >

numeric_limits<bool> specialization.

Definition at line 335 of file limits.

The documentation for this struct was generated from the following file:

- limits

5.609 std::numeric_limits< char > Struct Template Reference

numeric_limits<char> specialization.

Static Public Member Functions

- static char **denorm_min** () throw ()
- static char **epsilon** () throw ()
- static char **infinity** () throw ()
- static char **lowest** () throw ()
- static char **max** () throw ()
- static char **min** () throw ()
- static char **quiet_NaN** () throw ()
- static char **round_error** () throw ()
- static char **signaling_NaN** () throw ()

Static Public Attributes

- static const int **digits**
- static const int **digits10**
- static const float_denorm_style **has_denorm**
- static const bool **has_denorm_loss**
- static const bool **has_infinity**
- static const bool **has_quiet_NaN**
- static const bool **has_signaling_NaN**
- static const bool **is_bounded**
- static const bool **is_exact**
- static const bool **is_iec559**
- static const bool **is_integer**
- static const bool **is_modulo**
- static const bool **is_signed**
- static const bool **is_specialized**
- static const int **max_digits10**
- static const int **max_exponent**
- static const int **max_exponent10**
- static const int **min_exponent**
- static const int **min_exponent10**
- static const int **radix**
- static const float_round_style **round_style**
- static const bool **tinyness_before**
- static const bool **traps**

5.609.1 Detailed Description

template<> struct std::numeric_limits< char >

numeric_limits<char> specialization.

Definition at line 395 of file limits.

The documentation for this struct was generated from the following file:

- limits

5.610 std::numeric_limits< char16_t > Struct Template Reference

numeric_limits<char16_t> specialization.

Static Public Member Functions

- static char16_t **denorm_min** () throw ()
- static char16_t **epsilon** () throw ()
- static char16_t **infinity** () throw ()
- static char16_t **lowest** () throw ()
- static char16_t **max** () throw ()
- static char16_t **min** () throw ()
- static char16_t **quiet_NaN** () throw ()
- static char16_t **round_error** () throw ()
- static char16_t **signaling_NaN** () throw ()

Static Public Attributes

- static const int **digits**
- static const int **digits10**
- static const float_denorm_style **has_denorm**
- static const bool **has_denorm_loss**
- static const bool **has_infinity**
- static const bool **has_quiet_NaN**
- static const bool **has_signaling_NaN**
- static const bool **is_bounded**
- static const bool **is_exact**
- static const bool **is_iec559**
- static const bool **is_integer**
- static const bool **is_modulo**
- static const bool **is_signed**
- static const bool **is_specialized**
- static const int **max_digits10**
- static const int **max_exponent**
- static const int **max_exponent10**
- static const int **min_exponent**
- static const int **min_exponent10**
- static const int **radix**
- static const float_round_style **round_style**
- static const bool **tinyness_before**
- static const bool **traps**

5.610.1 Detailed Description

template<> struct std::numeric_limits< char16_t >

numeric_limits<char16_t> specialization.

Definition at line 628 of file limits.

The documentation for this struct was generated from the following file:

- limits

5.611 std::numeric_limits< char32_t > Struct Template Reference

numeric_limits<char32_t> specialization.

Static Public Member Functions

- static char32_t **denorm_min** () throw ()
- static char32_t **epsilon** () throw ()
- static char32_t **infinity** () throw ()
- static char32_t **lowest** () throw ()
- static char32_t **max** () throw ()
- static char32_t **min** () throw ()
- static char32_t **quiet_NaN** () throw ()
- static char32_t **round_error** () throw ()
- static char32_t **signaling_NaN** () throw ()

Static Public Attributes

- static const int **digits**
- static const int **digits10**
- static const float_denorm_style **has_denorm**
- static const bool **has_denorm_loss**
- static const bool **has_infinity**
- static const bool **has_quiet_NaN**
- static const bool **has_signaling_NaN**
- static const bool **is_bounded**
- static const bool **is_exact**
- static const bool **is_iec559**
- static const bool **is_integer**
- static const bool **is_modulo**
- static const bool **is_signed**
- static const bool **is_specialized**
- static const int **max_digits10**
- static const int **max_exponent**
- static const int **max_exponent10**
- static const int **min_exponent**
- static const int **min_exponent10**
- static const int **radix**
- static const float_round_style **round_style**
- static const bool **tinyness_before**
- static const bool **traps**

5.611.1 Detailed Description

template<> struct std::numeric_limits< char32_t >

numeric_limits<char32_t> specialization.

Definition at line 686 of file limits.

The documentation for this struct was generated from the following file:

- limits

5.612 std::numeric_limits< double > Struct Template Reference

numeric_limits<double> specialization.

Static Public Member Functions

- static double **denorm_min** () throw ()
- static double **epsilon** () throw ()
- static double **infinity** () throw ()
- static double **lowest** () throw ()
- static double **max** () throw ()
- static double **min** () throw ()
- static double **quiet_NaN** () throw ()
- static double **round_error** () throw ()
- static double **signaling_NaN** () throw ()

Static Public Attributes

- static const int **digits**
- static const int **digits10**
- static const float_denorm_style **has_denorm**
- static const bool **has_denorm_loss**
- static const bool **has_infinity**
- static const bool **has_quiet_NaN**
- static const bool **has_signaling_NaN**
- static const bool **is_bounded**
- static const bool **is_exact**
- static const bool **is_iec559**
- static const bool **is_integer**
- static const bool **is_modulo**
- static const bool **is_signed**
- static const bool **is_specialized**
- static const int **max_digits10**
- static const int **max_exponent**
- static const int **max_exponent10**
- static const int **min_exponent**
- static const int **min_exponent10**
- static const int **radix**
- static const float_round_style **round_style**
- static const bool **tinyness_before**
- static const bool **traps**

5.612.1 Detailed Description

template<> struct std::numeric_limits< double >

numeric_limits<double> specialization.

Definition at line 1274 of file limits.

The documentation for this struct was generated from the following file:

- limits

5.613 std::numeric_limits< float > Struct Template Reference

numeric_limits<float> specialization.

Static Public Member Functions

- static float **denorm_min** () throw ()
- static float **epsilon** () throw ()
- static float **infinity** () throw ()
- static float **lowest** () throw ()
- static float **max** () throw ()
- static float **min** () throw ()
- static float **quiet_NaN** () throw ()
- static float **round_error** () throw ()
- static float **signaling_NaN** () throw ()

Static Public Attributes

- static const int **digits**
- static const int **digits10**
- static const float_denorm_style **has_denorm**
- static const bool **has_denorm_loss**
- static const bool **has_infinity**
- static const bool **has_quiet_NaN**
- static const bool **has_signaling_NaN**
- static const bool **is_bounded**
- static const bool **is_exact**
- static const bool **is_iec559**
- static const bool **is_integer**
- static const bool **is_modulo**
- static const bool **is_signed**
- static const bool **is_specialized**
- static const int **max_digits10**
- static const int **max_exponent**
- static const int **max_exponent10**
- static const int **min_exponent**
- static const int **min_exponent10**
- static const int **radix**
- static const float_round_style **round_style**
- static const bool **tinyness_before**
- static const bool **traps**

5.613.1 Detailed Description

template<> struct std::numeric_limits< float >

numeric_limits<float> specialization.

Definition at line 1209 of file limits.

The documentation for this struct was generated from the following file:

- limits

5.614 std::numeric_limits< int > Struct Template Reference

numeric_limits<int> specialization.

Static Public Member Functions

- static int **denorm_min** () throw ()
- static int **epsilon** () throw ()
- static int **infinity** () throw ()
- static int **lowest** () throw ()
- static int **max** () throw ()
- static int **min** () throw ()
- static int **quiet_NaN** () throw ()
- static int **round_error** () throw ()
- static int **signaling_NaN** () throw ()

Static Public Attributes

- static const int **digits**
- static const int **digits10**
- static const float_denorm_style **has_denorm**
- static const bool **has_denorm_loss**
- static const bool **has_infinity**
- static const bool **has_quiet_NaN**
- static const bool **has_signaling_NaN**
- static const bool **is_bounded**
- static const bool **is_exact**
- static const bool **is_iec559**
- static const bool **is_integer**
- static const bool **is_modulo**
- static const bool **is_signed**
- static const bool **is_specialized**
- static const int **max_digits10**
- static const int **max_exponent**
- static const int **max_exponent10**
- static const int **min_exponent**
- static const int **min_exponent10**
- static const int **radix**
- static const float_round_style **round_style**
- static const bool **tinyness_before**
- static const bool **traps**

5.614.1 Detailed Description

template<> struct std::numeric_limits< int >

numeric_limits<int> specialization.

Definition at line 861 of file limits.

The documentation for this struct was generated from the following file:

- limits

5.615 std::numeric_limits< long > Struct Template Reference

numeric_limits<long> specialization.

Static Public Member Functions

- static long **denorm_min** () throw ()
- static long **epsilon** () throw ()
- static long **infinity** () throw ()
- static long **lowest** () throw ()
- static long **max** () throw ()
- static long **min** () throw ()
- static long **quiet_NaN** () throw ()
- static long **round_error** () throw ()
- static long **signaling_NaN** () throw ()

Static Public Attributes

- static const int **digits**
- static const int **digits10**
- static const float_denorm_style **has_denorm**
- static const bool **has_denorm_loss**
- static const bool **has_infinity**
- static const bool **has_quiet_NaN**
- static const bool **has_signaling_NaN**
- static const bool **is_bounded**
- static const bool **is_exact**
- static const bool **is_iec559**
- static const bool **is_integer**
- static const bool **is_modulo**
- static const bool **is_signed**
- static const bool **is_specialized**
- static const int **max_digits10**
- static const int **max_exponent**
- static const int **max_exponent10**
- static const int **min_exponent**
- static const int **min_exponent10**
- static const int **radix**
- static const float_round_style **round_style**
- static const bool **tinyness_before**
- static const bool **traps**

5.615.1 Detailed Description

template<> struct std::numeric_limits< long >

numeric_limits<long> specialization.

Definition at line 977 of file limits.

The documentation for this struct was generated from the following file:

- limits

5.616 std::numeric_limits< long double > Struct Template Reference

numeric_limits<long double> specialization.

Static Public Member Functions

- static long double **denorm_min** () throw ()
- static long double **epsilon** () throw ()
- static long double **infinity** () throw ()
- static long double **lowest** () throw ()
- static long double **max** () throw ()
- static long double **min** () throw ()
- static long double **quiet_NaN** () throw ()
- static long double **round_error** () throw ()
- static long double **signaling_NaN** () throw ()

Static Public Attributes

- static const int **digits**
- static const int **digits10**
- static const float_denorm_style **has_denorm**
- static const bool **has_denorm_loss**
- static const bool **has_infinity**
- static const bool **has_quiet_NaN**
- static const bool **has_signaling_NaN**
- static const bool **is_bounded**
- static const bool **is_exact**
- static const bool **is_iec559**
- static const bool **is_integer**
- static const bool **is_modulo**
- static const bool **is_signed**
- static const bool **is_specialized**
- static const int **max_digits10**
- static const int **max_exponent**
- static const int **max_exponent10**
- static const int **min_exponent**
- static const int **min_exponent10**
- static const int **radix**
- static const float_round_style **round_style**
- static const bool **tinyness_before**
- static const bool **traps**

5.616.1 Detailed Description

template<> struct std::numeric_limits< long double >

numeric_limits<long double> specialization.

Definition at line 1339 of file limits.

The documentation for this struct was generated from the following file:

- limits

5.617 std::numeric_limits< long long > Struct Template Reference

numeric_limits<long long> specialization.

Static Public Member Functions

- static long long **denorm_min** () throw ()
- static long long **epsilon** () throw ()
- static long long **infinity** () throw ()
- static long long **lowest** () throw ()
- static long long **max** () throw ()
- static long long **min** () throw ()
- static long long **quiet_NaN** () throw ()
- static long long **round_error** () throw ()
- static long long **signaling_NaN** () throw ()

Static Public Attributes

- static const int **digits**
- static const int **digits10**
- static const float_denorm_style **has_denorm**
- static const bool **has_denorm_loss**
- static const bool **has_infinity**
- static const bool **has_quiet_NaN**
- static const bool **has_signaling_NaN**
- static const bool **is_bounded**
- static const bool **is_exact**
- static const bool **is_iec559**
- static const bool **is_integer**
- static const bool **is_modulo**
- static const bool **is_signed**
- static const bool **is_specialized**
- static const int **max_digits10**
- static const int **max_exponent**
- static const int **max_exponent10**
- static const int **min_exponent**
- static const int **min_exponent10**
- static const int **radix**
- static const float_round_style **round_style**
- static const bool **tinyness_before**
- static const bool **traps**

5.617.1 Detailed Description

template<> struct std::numeric_limits< long long >

numeric_limits<long long> specialization.

Definition at line 1093 of file limits.

The documentation for this struct was generated from the following file:

- limits

5.618 std::numeric_limits< short > Struct Template Reference

numeric_limits<short> specialization.

Static Public Member Functions

- static short **denorm_min** () throw ()
- static short **epsilon** () throw ()
- static short **infinity** () throw ()
- static short **lowest** () throw ()
- static short **max** () throw ()
- static short **min** () throw ()
- static short **quiet_NaN** () throw ()
- static short **round_error** () throw ()
- static short **signaling_NaN** () throw ()

Static Public Attributes

- static const int **digits**
- static const int **digits10**
- static const float_denorm_style **has_denorm**
- static const bool **has_denorm_loss**
- static const bool **has_infinity**
- static const bool **has_quiet_NaN**
- static const bool **has_signaling_NaN**
- static const bool **is_bounded**
- static const bool **is_exact**
- static const bool **is_iec559**
- static const bool **is_integer**
- static const bool **is_modulo**
- static const bool **is_signed**
- static const bool **is_specialized**
- static const int **max_digits10**
- static const int **max_exponent**
- static const int **max_exponent10**
- static const int **min_exponent**
- static const int **min_exponent10**
- static const int **radix**
- static const float_round_style **round_style**
- static const bool **tinyness_before**
- static const bool **traps**

5.618.1 Detailed Description

template<> struct std::numeric_limits< short >

numeric_limits<short> specialization.

Definition at line 745 of file limits.

The documentation for this struct was generated from the following file:

- limits

5.619 std::numeric_limits< signed char > Struct Template Reference

numeric_limits<signed char> specialization.

Static Public Member Functions

- static signed char **denorm_min** () throw ()
- static signed char **epsilon** () throw ()
- static signed char **infinity** () throw ()
- static signed char **lowest** () throw ()
- static signed char **max** () throw ()
- static signed char **min** () throw ()
- static signed char **quiet_NaN** () throw ()
- static signed char **round_error** () throw ()
- static signed char **signaling_NaN** () throw ()

Static Public Attributes

- static const int **digits**
- static const int **digits10**
- static const float_denorm_style **has_denorm**
- static const bool **has_denorm_loss**
- static const bool **has_infinity**
- static const bool **has_quiet_NaN**
- static const bool **has_signaling_NaN**
- static const bool **is_bounded**
- static const bool **is_exact**
- static const bool **is_iec559**
- static const bool **is_integer**
- static const bool **is_modulo**
- static const bool **is_signed**
- static const bool **is_specialized**
- static const int **max_digits10**
- static const int **max_exponent**
- static const int **max_exponent10**
- static const int **min_exponent**
- static const int **min_exponent10**
- static const int **radix**
- static const float_round_style **round_style**
- static const bool **tinyness_before**
- static const bool **traps**

5.619.1 Detailed Description

template<> struct std::numeric_limits< signed char >

numeric_limits<signed char> specialization.

Definition at line 453 of file limits.

The documentation for this struct was generated from the following file:

- limits

5.620 std::numeric_limits< unsigned char > Struct Template Reference

numeric_limits<unsigned char> specialization.

Static Public Member Functions

- static unsigned char **denorm_min** () throw ()
- static unsigned char **epsilon** () throw ()
- static unsigned char **infinity** () throw ()
- static unsigned char **lowest** () throw ()
- static unsigned char **max** () throw ()
- static unsigned char **min** () throw ()
- static unsigned char **quiet_NaN** () throw ()
- static unsigned char **round_error** () throw ()
- static unsigned char **signaling_NaN** () throw ()

Static Public Attributes

- static const int **digits**
- static const int **digits10**
- static const float_denorm_style **has_denorm**
- static const bool **has_denorm_loss**
- static const bool **has_infinity**
- static const bool **has_quiet_NaN**
- static const bool **has_signaling_NaN**
- static const bool **is_bounded**
- static const bool **is_exact**
- static const bool **is_iec559**
- static const bool **is_integer**
- static const bool **is_modulo**
- static const bool **is_signed**
- static const bool **is_specialized**
- static const int **max_digits10**
- static const int **max_exponent**
- static const int **max_exponent10**
- static const int **min_exponent**
- static const int **min_exponent10**
- static const int **radix**
- static const float_round_style **round_style**
- static const bool **tinyness_before**
- static const bool **traps**

5.620.1 Detailed Description

template<> struct std::numeric_limits< unsigned char >

numeric_limits<unsigned char> specialization.

Definition at line 511 of file limits.

The documentation for this struct was generated from the following file:

- limits

5.621 std::numeric_limits< unsigned int > Struct Template Reference

numeric_limits<unsigned int> specialization.

Static Public Member Functions

- static unsigned int **denorm_min** () throw ()
- static unsigned int **epsilon** () throw ()
- static unsigned int **infinity** () throw ()
- static unsigned int **lowest** () throw ()
- static unsigned int **max** () throw ()
- static unsigned int **min** () throw ()
- static unsigned int **quiet_NaN** () throw ()
- static unsigned int **round_error** () throw ()
- static unsigned int **signaling_NaN** () throw ()

Static Public Attributes

- static const int **digits**
- static const int **digits10**
- static const float_denorm_style **has_denorm**
- static const bool **has_denorm_loss**
- static const bool **has_infinity**
- static const bool **has_quiet_NaN**
- static const bool **has_signaling_NaN**
- static const bool **is_bounded**
- static const bool **is_exact**
- static const bool **is_iec559**
- static const bool **is_integer**
- static const bool **is_modulo**
- static const bool **is_signed**
- static const bool **is_specialized**
- static const int **max_digits10**
- static const int **max_exponent**
- static const int **max_exponent10**
- static const int **min_exponent**
- static const int **min_exponent10**
- static const int **radix**
- static const float_round_style **round_style**
- static const bool **tinyness_before**
- static const bool **traps**

5.621.1 Detailed Description

template<> struct std::numeric_limits< unsigned int >

numeric_limits<unsigned int> specialization.

Definition at line 919 of file limits.

The documentation for this struct was generated from the following file:

- limits

5.622 std::numeric_limits< unsigned long > Struct Template Reference

numeric_limits<unsigned long> specialization.

Static Public Member Functions

- static unsigned long **denorm_min** () throw ()
- static unsigned long **epsilon** () throw ()
- static unsigned long **infinity** () throw ()
- static unsigned long **lowest** () throw ()
- static unsigned long **max** () throw ()
- static unsigned long **min** () throw ()
- static unsigned long **quiet_NaN** () throw ()
- static unsigned long **round_error** () throw ()
- static unsigned long **signaling_NaN** () throw ()

Static Public Attributes

- static const int **digits**
- static const int **digits10**
- static const float_denorm_style **has_denorm**
- static const bool **has_denorm_loss**
- static const bool **has_infinity**
- static const bool **has_quiet_NaN**
- static const bool **has_signaling_NaN**
- static const bool **is_bounded**
- static const bool **is_exact**
- static const bool **is_iec559**
- static const bool **is_integer**
- static const bool **is_modulo**
- static const bool **is_signed**
- static const bool **is_specialized**
- static const int **max_digits10**
- static const int **max_exponent**
- static const int **max_exponent10**
- static const int **min_exponent**
- static const int **min_exponent10**
- static const int **radix**
- static const float_round_style **round_style**
- static const bool **tinyness_before**
- static const bool **traps**

5.622.1 Detailed Description

template<> struct std::numeric_limits< unsigned long >

numeric_limits<unsigned long> specialization.

Definition at line 1035 of file limits.

The documentation for this struct was generated from the following file:

- limits

5.623 std::numeric_limits< unsigned long long > Struct Template Reference

numeric_limits<unsigned long long> specialization.

Static Public Member Functions

- static unsigned long long **denorm_min** () throw ()
- static unsigned long long **epsilon** () throw ()
- static unsigned long long **infinity** () throw ()
- static unsigned long long **lowest** () throw ()
- static unsigned long long **max** () throw ()
- static unsigned long long **min** () throw ()
- static unsigned long long **quiet_NaN** () throw ()
- static unsigned long long **round_error** () throw ()
- static unsigned long long **signaling_NaN** () throw ()

Static Public Attributes

- static const int **digits**
- static const int **digits10**
- static const float_denorm_style **has_denorm**
- static const bool **has_denorm_loss**
- static const bool **has_infinity**
- static const bool **has_quiet_NaN**
- static const bool **has_signaling_NaN**
- static const bool **is_bounded**
- static const bool **is_exact**
- static const bool **is_iec559**
- static const bool **is_integer**
- static const bool **is_modulo**
- static const bool **is_signed**
- static const bool **is_specialized**
- static const int **max_digits10**
- static const int **max_exponent**
- static const int **max_exponent10**
- static const int **min_exponent**
- static const int **min_exponent10**
- static const int **radix**
- static const float_round_style **round_style**
- static const bool **tinyness_before**
- static const bool **traps**

5.623.1 Detailed Description

template<> struct std::numeric_limits< unsigned long long >

numeric_limits<unsigned long long> specialization.

Definition at line 1151 of file limits.

The documentation for this struct was generated from the following file:

- limits

5.624 std::numeric_limits< unsigned short > Struct Template Reference

numeric_limits<unsigned short> specialization.

Static Public Member Functions

- static unsigned short **denorm_min** () throw ()
- static unsigned short **epsilon** () throw ()
- static unsigned short **infinity** () throw ()
- static unsigned short **lowest** () throw ()
- static unsigned short **max** () throw ()
- static unsigned short **min** () throw ()
- static unsigned short **quiet_NaN** () throw ()
- static unsigned short **round_error** () throw ()
- static unsigned short **signaling_NaN** () throw ()

Static Public Attributes

- static const int **digits**
- static const int **digits10**
- static const float_denorm_style **has_denorm**
- static const bool **has_denorm_loss**
- static const bool **has_infinity**
- static const bool **has_quiet_NaN**
- static const bool **has_signaling_NaN**
- static const bool **is_bounded**
- static const bool **is_exact**
- static const bool **is_iec559**
- static const bool **is_integer**
- static const bool **is_modulo**
- static const bool **is_signed**
- static const bool **is_specialized**
- static const int **max_digits10**
- static const int **max_exponent**
- static const int **max_exponent10**
- static const int **min_exponent**
- static const int **min_exponent10**
- static const int **radix**
- static const float_round_style **round_style**
- static const bool **tinyness_before**
- static const bool **traps**

5.624.1 Detailed Description

template<> struct std::numeric_limits< unsigned short >

numeric_limits<unsigned short> specialization.

Definition at line 803 of file limits.

The documentation for this struct was generated from the following file:

- limits

5.625 std::numeric_limits< wchar_t > Struct Template Reference

numeric_limits<wchar_t> specialization.

Static Public Member Functions

- static wchar_t **denorm_min** () throw ()
- static wchar_t **epsilon** () throw ()
- static wchar_t **infinity** () throw ()
- static wchar_t **lowest** () throw ()
- static wchar_t **max** () throw ()
- static wchar_t **min** () throw ()
- static wchar_t **quiet_NaN** () throw ()
- static wchar_t **round_error** () throw ()
- static wchar_t **signaling_NaN** () throw ()

Static Public Attributes

- static const int **digits**
- static const int **digits10**
- static const float_denorm_style **has_denorm**
- static const bool **has_denorm_loss**
- static const bool **has_infinity**
- static const bool **has_quiet_NaN**
- static const bool **has_signaling_NaN**
- static const bool **is_bounded**
- static const bool **is_exact**
- static const bool **is_iec559**
- static const bool **is_integer**
- static const bool **is_modulo**
- static const bool **is_signed**
- static const bool **is_specialized**
- static const int **max_digits10**
- static const int **max_exponent**
- static const int **max_exponent10**
- static const int **min_exponent**
- static const int **min_exponent10**
- static const int **radix**
- static const float_round_style **round_style**
- static const bool **tinyness_before**
- static const bool **traps**

5.625.1 Detailed Description

template<> struct std::numeric_limits< wchar_t >

numeric_limits<wchar_t> specialization.

Definition at line 569 of file limits.

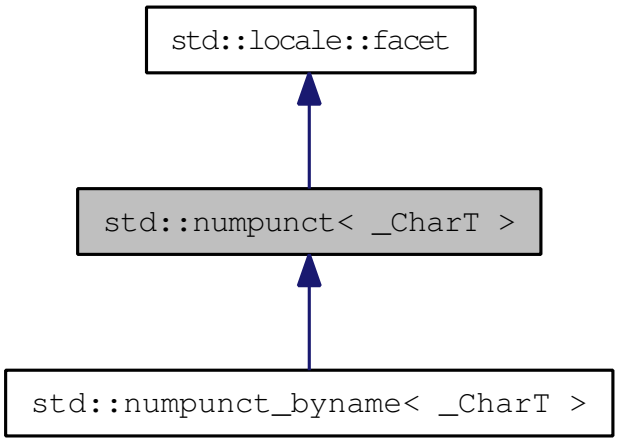
The documentation for this struct was generated from the following file:

- limits

5.626 std::numpunct< _CharT > Class Template Reference

Primary class template numpunct.

This facet stores several pieces of information related to printing and scanning numbers, such as the decimal point character. It takes a template parameter specifying the char type. The numpunct facet is used by streams for many I/O operations involving numbers. Inheritance diagram for std::numpunct< _CharT >:



Public Types

- typedef __numpunct_cache< _CharT > **__cache_type**

  - typedef _CharT char_type
  - typedef basic_string< _CharT > string_type

Public Member Functions

- numpunct (__c_locale __cloc, size_t __refs=0)
- numpunct (__cache_type *__cache, size_t __refs=0)
- numpunct (size_t __refs=0)
- template<>
  void **_M_initialize_numpunct** (__c_locale __cloc)
- template<>
  void **_M_initialize_numpunct** (__c_locale __cloc)
- char_type decimal_point () const

- string_type falsename () const
- string grouping () const
- char_type thousands_sep () const
- string_type truename () const

Static Public Attributes

- static locale::id id

Protected Member Functions

- virtual ~numpunct ()
- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()
- void **_M_initialize_numpunct** (__c_locale __cloc=NULL)
- virtual char_type do_decimal_point () const
- virtual string_type do_falsename () const
- virtual string do_grouping () const
- virtual char_type do_thousands_sep () const
- virtual string_type do_truename () const

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_locale __old=0)
- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Protected Attributes

- __cache_type * **_M_data**

Friends

- class **locale::_Impl**

5.626.1 Detailed Description

template<typename _CharT> class std::numpunct< _CharT >

Primary class template numpunct.

This facet stores several pieces of information related to printing and scanning numbers, such as the decimal point character. It takes a template parameter specifying the char type. The numpunct facet is used by streams for many I/O operations involving numbers. The numpunct template uses protected virtual functions to provide the actual results. The public accessors forward the call to the virtual functions. These virtual functions are hooks for developers to implement the behavior they require from a numpunct facet.

Definition at line 1636 of file locale_facets.h.

5.626.2 Member Typedef Documentation

5.626.2.1 template<typename _CharT > typedef _CharT std::numpunct< _CharT >::char_type

Public typedefs.

Reimplemented in std::numpunct_byname< _CharT >.

Definition at line 1642 of file locale_facets.h.

5.626.2.2 template<typename _CharT > typedef basic_string<_CharT> std::numpunct< _CharT >::string_type

Public typedefs.

Reimplemented in std::numpunct_byname< _CharT >.

Definition at line 1643 of file locale_facets.h.

5.626.3 Constructor & Destructor Documentation

5.626.3.1 template<typename _CharT > std::numpunct< _CharT >::numpunct (size_t *__refs* = 0) [inline, explicit]

Numpunct constructor.

Parameters:

refs Refcount to pass to the base class.

Definition at line 1660 of file locale_facets.h.

5.626.3.2 template<typename _CharT > std::numpunct< _CharT >::numpunct (__cache_type * *__cache*, size_t *__refs* = 0) [inline, explicit]

Internal constructor. Not for general use. This is a constructor for use by the library itself to set up the predefined locale facets.

Parameters:

cache __numpunct_cache object.

refs Refcount to pass to the base class.

Definition at line 1673 of file locale_facets.h.

5.626.3.3 template<typename _CharT > std::numpunct< _CharT >::numpunct (__c_locale *__cloc*, size_t *__refs* = 0) [inline, explicit]

Internal constructor. Not for general use. This is a constructor for use by the library itself to set up new locales.

Parameters:

cloc The C locale.

refs Refcount to pass to the base class.

Definition at line 1687 of file locale_facets.h.

5.626.3.4 template<typename _CharT > virtual std::numpunct< _CharT >::~numpunct () [protected, virtual]

Destructor.

5.626.4 Member Function Documentation

5.626.4.1 template<typename _CharT > char_type std::numpunct< _CharT >::decimal_point () const [inline]

Return decimal point character. This function returns a char_type to use as a decimal point. It does so by returning returning numpunct<char_type>::do_decimal_point().

Returns:

char_type representing a decimal point.

Definition at line 1701 of file locale_facets.h.

References std::numpunct< _CharT >::do_decimal_point().

5.626.4.2 template<typename _CharT > virtual char_type std::numpunct< _CharT >::do_decimal_point () const [inline, protected, virtual]

Return decimal point character. Returns a char_type to use as a decimal point. This function is a hook for derived classes to change the value returned.

Returns:

char_type representing a decimal point.

Definition at line 1788 of file locale_facets.h.

Referenced by std::numpunct< _CharT >::decimal_point().

5.626.4.3 template<typename _CharT > virtual string_type std::numpunct< _CharT >::do_falsename () const [inline, protected, virtual]

Return string representation of bool false. Returns a string_type containing the text representation for false bool variables. This function is a hook for derived classes to change the value returned.

Returns:

string_type representing printed form of false.

Definition at line 1839 of file locale_facets.h.

Referenced by std::numpunct< _CharT >::falsename().

5.626.4.4 template<typename _CharT > virtual string std::numpunct< _CharT >::do_grouping () const [inline, protected, virtual]

Return grouping specification. Returns a string representing groupings for the integer part of a number. This function is a hook for derived classes to change the value returned.

See also:

grouping() for details.

Returns:

String representing grouping specification.

Definition at line 1813 of file locale_facets.h.

Referenced by std::numpunct< _CharT >::grouping().

5.626.4.5 template<typename _CharT > virtual char_type std::numpunct< _CharT >::do_thousands_sep () const [inline, protected, virtual]

Return thousands separator character. Returns a char_type to use as a thousands separator. This function is a hook for derived classes to change the value returned.

Returns:

char_type representing a thousands separator.

Definition at line 1800 of file locale_facets.h.

Referenced by std::numpunct< _CharT >::thousands_sep().

5.626.4.6 template<typename _CharT > virtual string_type std::numpunct< _CharT >::do_truename () const [inline, protected, virtual]

Return string representation of bool true. Returns a string_type containing the text representation for true bool variables. This function is a hook for derived classes to change the value returned.

Returns:

string_type representing printed form of true.

Definition at line 1826 of file locale_facets.h.

Referenced by std::numpunct< _CharT >::truename().

5.626.4.7 template<typename _CharT > string_type std::numpunct< _CharT >::falsename () const [inline]

Return string representation of bool false. This function returns a string_type containing the text representation for false bool variables. It does so by calling

numpunct<char_type>::do_falsename().

Returns:

string_type representing printed form of false.

Definition at line 1771 of file locale_facets.h.

References std::numpunct< _CharT >::do_falsename().

5.626.4.8 template<typename _CharT > string std::numpunct< _CharT >::grouping () const [inline]

Return grouping specification. This function returns a string representing groupings for the integer part of a number. Groupings indicate where thousands separators should be inserted in the integer part of a number.

Each char in the return string is interpret as an integer rather than a character. These numbers represent the number of digits in a group. The first char in the string represents the number of digits in the least significant group. If a char is negative, it indicates an unlimited number of digits for the group. If more chars from the string are required to group a number, the last char is used repeatedly.

For example, if the grouping() returns "\003\002" and is applied to the number 123456789, this corresponds to 12,34,56,789. Note that if the string was "32", this would put more than 50 digits into the least significant group if the character set is ASCII.

The string is returned by calling numpunct<char_type>::do_grouping().

Returns:

string representing grouping specification.

Definition at line 1745 of file locale_facets.h.

References std::numpunct< _CharT >::do_grouping().

5.626.4.9 template<typename _CharT > char_type std::numpunct< _CharT >::thousands_sep () const [inline]

Return thousands separator character. This function returns a char_type to use as a thousands separator. It does so by returning returning numpunct<char_type>::do_thousands_sep().

Returns:

char_type representing a thousands separator.

Definition at line 1714 of file locale_facets.h.

References std::numpunct< _CharT >::do_thousands_sep().

5.626.4.10 template<typename _CharT > string_type std::numpunct< _CharT >::truename () const [inline]

Return string representation of bool true. This function returns a string_type containing the text representation for true bool variables. It does so by calling numpunct<char_type>::do_truename().

Returns:

string_type representing printed form of true.

Definition at line 1758 of file locale_facets.h.

References std::numpunct< _CharT >::do_truename().

5.626.5 Member Data Documentation

5.626.5.1 template<typename _CharT > locale::id std::numpunct< _CharT >::id [inline, static]

Numpunct facet id.

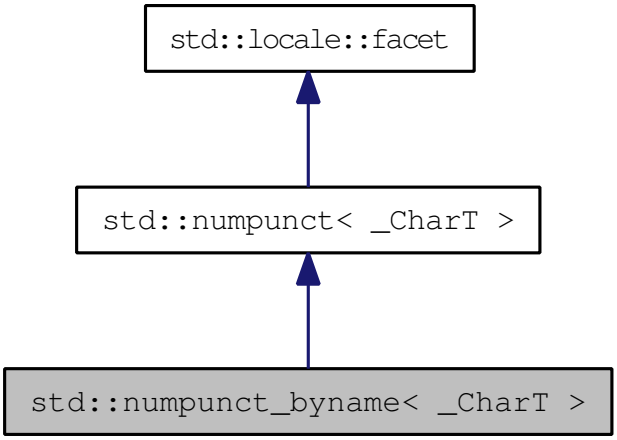
Definition at line 1652 of file locale_facets.h.

The documentation for this class was generated from the following file:

- locale_facets.h

5.627 std::numpunct_byname< _CharT > Class Template Reference

class numpunct_byname [22.2.3.2]. Inheritance diagram for std::numpunct_byname< _CharT >:



Public Types

- typedef __numpunct_cache< _CharT > **__cache_type**
- typedef _CharT char_type
- typedef basic_string< _CharT > string_type

Public Member Functions

- **numpunct_byname** (const char *__s, size_t __refs=0)
- template<>
  void **_M_initialize_numpunct** (__c_locale __cloc)
- template<>
  void **_M_initialize_numpunct** (__c_locale __cloc)
- char_type decimal_point () const
- string_type falsename () const
- string grouping () const
- char_type thousands_sep () const
- string_type truename () const

Static Public Attributes

- static locale::id id

Protected Member Functions

- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()
- void **_M_initialize_numpunct** (__c_locale __cloc=NULL)
- virtual char_type do_decimal_point () const
- virtual string_type do_falsename () const
- virtual string do_grouping () const
- virtual char_type do_thousands_sep () const
- virtual string_type do_truename () const

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_locale __old=0)
- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Protected Attributes

- __cache_type * **_M_data**

Friends

- class **locale::_Impl**

5.627.1 Detailed Description

template<typename _CharT> class std::numpunct_byname< _CharT >

class numpunct_byname [22.2.3.2].

Definition at line 1868 of file locale_facets.h.

5.627.2 Member Typedef Documentation

5.627.2.1 template<typename _CharT > typedef _CharT std::numpunct_byname< _CharT >::char_type

Public typedefs.

Reimplemented from std::numpunct< _CharT >.

Definition at line 1871 of file locale_facets.h.

5.627.2.2 template<typename _CharT > typedef basic_string<_CharT> std::numpunct_byname< _CharT >::string_type

Public typedefs.

Reimplemented from std::numpunct< _CharT >.

Definition at line 1872 of file locale_facets.h.

5.627.3 Member Function Documentation

5.627.3.1 template<typename _CharT > char_type std::numpunct< _CharT >::decimal_point () const [inline, inherited]

Return decimal point character. This function returns a char_type to use as a decimal point. It does so by returning returning numpunct<char_type>::do_decimal_point().

Returns:

char_type representing a decimal point.

Definition at line 1701 of file locale_facets.h.

References std::numpunct< _CharT >::do_decimal_point().

5.627.3.2 template<typename _CharT > virtual char_type std::numpunct< _CharT >::do_decimal_point () const [inline, protected, virtual, inherited]

Return decimal point character. Returns a char_type to use as a decimal point. This function is a hook for derived classes to change the value returned.

Returns:

char_type representing a decimal point.

Definition at line 1788 of file locale_facets.h.

Referenced by std::numpunct< _CharT >::decimal_point().

5.627.3.3 template<typename _CharT > virtual string_type std::numpunct< _CharT >::do_falsename () const [inline, protected, virtual, inherited]

Return string representation of bool false. Returns a string_type containing the text representation for false bool variables. This function is a hook for derived classes to change the value returned.

Returns:

string_type representing printed form of false.

Definition at line 1839 of file locale_facets.h.

Referenced by std::numpunct< _CharT >::falsename().

5.627.3.4 template<typename _CharT > virtual string std::numpunct< _CharT >::do_grouping () const [inline, protected, virtual, inherited]

Return grouping specification. Returns a string representing groupings for the integer part of a number. This function is a hook for derived classes to change the value returned.

See also:

grouping() for details.

Returns:

String representing grouping specification.

Definition at line 1813 of file locale_facets.h.

Referenced by std::numpunct< _CharT >::grouping().

5.627.3.5 template<typename _CharT > virtual char_type std::numpunct< _CharT >::do_thousands_sep () const [inline, protected, virtual, inherited]

Return thousands separator character. Returns a char_type to use as a thousands separator. This function is a hook for derived classes to change the value returned.

Returns:

char_type representing a thousands separator.

Definition at line 1800 of file locale_facets.h.

Referenced by std::numpunct< _CharT >::thousands_sep().

5.627.3.6 template<typename _CharT > virtual string_type std::numpunct< _CharT >::do_truename () const [inline, protected, virtual, inherited]

Return string representation of bool true. Returns a string_type containing the text representation for true bool variables. This function is a hook for derived classes to change the value returned.

Returns:

string_type representing printed form of true.

Definition at line 1826 of file locale_facets.h.

Referenced by std::numpunct< _CharT >::truename().

5.627.3.7 template<typename _CharT > string_type std::numpunct< _CharT >::falsename () const [inline, inherited]

Return string representation of bool false. This function returns a string_type containing the text representation for false bool variables. It does so by calling numpunct<char_type>::do_falsename().

Returns:

string_type representing printed form of false.

Definition at line 1771 of file locale_facets.h.

References std::numpunct< _CharT >::do_falsename().

5.627.3.8 template<typename _CharT > string std::numpunct< _CharT >::grouping () const [inline, inherited]

Return grouping specification. This function returns a string representing groupings for the integer part of a number. Groupings indicate where thousands separators should be inserted in the integer part of a number.

Each char in the return string is interpret as an integer rather than a character. These numbers represent the number of digits in a group. The first char in the string represents the number of digits in the least significant group. If a char is negative, it indicates an unlimited number of digits for the group. If more chars from the string are required to group a number, the last char is used repeatedly.

For example, if the grouping() returns "\003\002" and is applied to the number 123456789, this corresponds to 12,34,56,789. Note that if the string was "32", this would put more than 50 digits into the least significant group if the character set is ASCII.

The string is returned by calling numpunct<char_type>::do_grouping().

Returns:

string representing grouping specification.

Definition at line 1745 of file locale_facets.h.

References std::numpunct< _CharT >::do_grouping().

5.627.3.9 template<typename _CharT > char_type std::numpunct< _CharT >::thousands_sep () const [inline, inherited]

Return thousands separator character. This function returns a char_type to use as a thousands separator. It does so by returning returning numpunct<char_type>::do_thousands_sep().

Returns:

char_type representing a thousands separator.

Definition at line 1714 of file locale_facets.h.

References std::numpunct< _CharT >::do_thousands_sep().

5.627.3.10 template<typename _CharT > string_type std::numpunct< _CharT >::truename () const [inline, inherited]

Return string representation of bool true. This function returns a string_type containing the text representation for true bool variables. It does so by calling numpunct<char_type>::do_truename().

Returns:

string_type representing printed form of true.

Definition at line 1758 of file locale_facets.h.

References std::numpunct< _CharT >::do_truename().

5.627.4 Member Data Documentation

5.627.4.1 template<typename _CharT > locale::id std::numpunct< _CharT >::id [inline, static, inherited]

Numpunct facet id.

Definition at line 1652 of file locale_facets.h.

The documentation for this class was generated from the following file:

- locale_facets.h

5.628 std::once_flag Struct Reference

once_flag

Public Member Functions

- **once_flag** (const once_flag &)
- once_flag & **operator=** (const once_flag &)

Friends

- template<typename _Callable , typename... _Args>
  void **call_once** (once_flag &__once, _Callable __f, _Args &&...__args)

5.628.1 Detailed Description

once_flag

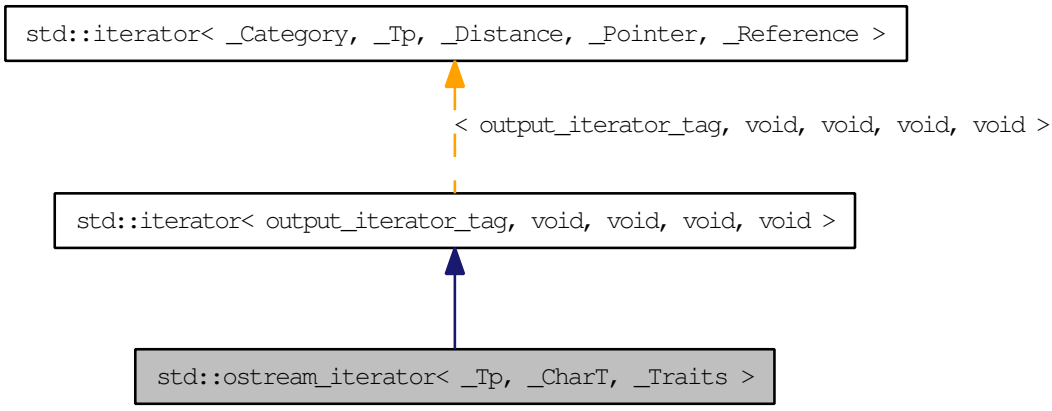
Definition at line 676 of file mutex.

The documentation for this struct was generated from the following file:

- mutex

5.629 std::ostream_iterator< _Tp, _CharT, _Traits > Class Template Reference

Provides output iterator semantics for streams. Inheritance diagram for std::ostream_iterator< _Tp, _CharT, _Traits >:



Public Types

- typedef void difference_type
- typedef output_iterator_tag iterator_category
- typedef void pointer
- typedef void reference
- typedef void value_type

- typedef _CharT char_type
- typedef basic_ostream< _CharT, _Traits > ostream_type
- typedef _Traits traits_type

Public Member Functions

- ostream_iterator (const ostream_iterator &__obj)
- ostream_iterator (ostream_type &__s, const _CharT *__c)
- ostream_iterator (ostream_type &__s)
- ostream_iterator & **operator*** ()
- ostream_iterator & **operator++** (int)
- ostream_iterator & **operator++** ()
- ostream_iterator & operator= (const _Tp &__value)

5.629.1 Detailed Description

template<typename _Tp, typename _CharT = char, typename _Traits = char_traits<_CharT>> class std::ostream_iterator< _Tp, _CharT, _Traits >

Provides output iterator semantics for streams. This class provides an iterator to write to an ostream. The type Tp is the only type written by this iterator and there must be an operator<<(Tp) defined.

Parameters:

Tp The type to write to the ostream.

CharT The ostream char_type.

Traits The ostream char_traits.

Definition at line 152 of file stream_iterator.h.

5.629.2 Member Typedef Documentation

5.629.2.1 template<typename _Tp , typename _CharT = char, typename _Traits = char_traits<_CharT>> typedef _CharT std::ostream_iterator< _Tp, _CharT, _Traits >::char_type

Public typedef.

Definition at line 158 of file stream_iterator.h.

5.629.2.2 typedef void std::iterator< output_iterator_tag , void , void , void , void >::difference_type [inherited]

Distance between iterators is represented as this type.

Definition at line 115 of file stl_iterator_base_types.h.

5.629.2.3 typedef output_iterator_tag std::iterator< output_iterator_tag , void , void , void , void >::iterator_category [inherited]

One of the tag types.

Definition at line 111 of file stl_iterator_base_types.h.

5.629.2.4 template<typename _Tp , typename _CharT = char, typename _Traits = char_traits<_CharT>> typedef basic_ostream<_CharT, _Traits> std::ostream_iterator< _Tp, _CharT, _Traits >::ostream_type

Public typedef.

Definition at line 160 of file stream_iterator.h.

5.629.2.5 typedef void std::iterator< output_iterator_tag , void , void , void , void >::pointer [inherited]

This type represents a pointer-to-value_type.

Definition at line 117 of file stl_iterator_base_types.h.

5.629.2.6 typedef void std::iterator< output_iterator_tag , void , void , void , void >::reference [inherited]

This type represents a reference-to-value_type.

Definition at line 119 of file stl_iterator_base_types.h.

5.629.2.7 template<typename _Tp , typename _CharT = char, typename _Traits = char_traits<_CharT>> typedef _Traits std::ostream_iterator< _Tp, _CharT, _Traits >::traits_type

Public typedef.

Definition at line 159 of file stream_iterator.h.

5.629.2.8 typedef void std::iterator< output_iterator_tag , void , void , void , void >::value_type [inherited]

The type "pointed to" by the iterator.

Definition at line 113 of file stl_iterator_base_types.h.

5.629.3 Constructor & Destructor Documentation

5.629.3.1 template<typename _Tp , typename _CharT = char, typename _Traits = char_traits<_CharT>> std::ostream_iterator< _Tp, _CharT, _Traits >::ostream_iterator (ostream_type & __s) [inline]

Construct from an ostream.

Definition at line 169 of file stream_iterator.h.

5.629.3.2 template<typename _Tp , typename _CharT = char, typename _Traits = char_traits<_CharT>> std::ostream_iterator< _Tp, _CharT, _Traits >::ostream_iterator (ostream_type & __s, const _CharT * __c) [inline]

Construct from an ostream.

The delimiter string *c* is written to the stream after every Tp written to the stream. The delimiter is not copied, and thus must not be destroyed while this iterator is in use.

Parameters:

- ***s*** Underlying ostream to write to.
- ***c*** CharT delimiter string to insert.

Definition at line 181 of file stream_iterator.h.

5.629.3.3 template<typename _Tp , typename _CharT = char, typename _Traits = char_traits<_CharT>> std::ostream_iterator< _Tp, _CharT, _Traits >::ostream_iterator (const ostream_iterator< _Tp, _CharT, _Traits > & __obj) [inline]

Copy constructor.

Definition at line 185 of file stream_iterator.h.

5.629.4 Member Function Documentation

5.629.4.1 template<typename _Tp , typename _CharT = char, typename _Traits = char_traits<_CharT>> ostream_iterator& std::ostream_iterator< _Tp, _CharT, _Traits >::operator= (const _Tp & __value) [inline]

Writes *value* to underlying ostream using operator<<. If constructed with delimiter string, writes delimiter to ostream.

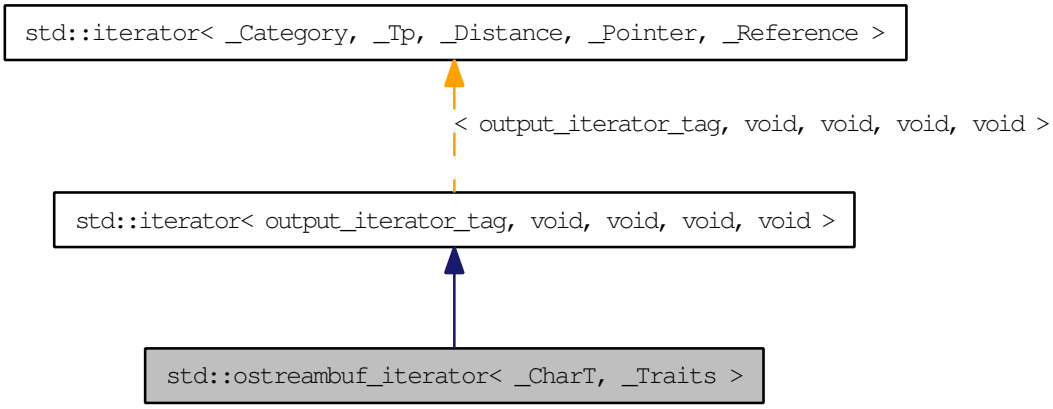
Definition at line 191 of file stream_iterator.h.

The documentation for this class was generated from the following file:

- stream_iterator.h

5.630 std::ostreambuf_iterator< _CharT, _Traits > Class Template Reference

Provides output iterator semantics for streambufs. Inheritance diagram for std::ostreambuf_iterator< _CharT, _Traits >:



Public Types

- typedef void difference_type
- typedef output_iterator_tag iterator_category
- typedef void pointer
- typedef void reference
- typedef void value_type

- typedef _CharT char_type
- typedef basic_ostream< _CharT, _Traits > ostream_type
- typedef basic_streambuf< _CharT, _Traits > streambuf_type
- typedef _Traits traits_type

Public Member Functions

- ostreambuf_iterator (streambuf_type *__s) throw ()
- ostreambuf_iterator (ostream_type &__s) throw ()
- ostreambuf_iterator & **_M_put** (const _CharT *__ws, streamsize __len)
- bool failed () const throw ()
- ostreambuf_iterator & operator* ()
- ostreambuf_iterator & operator++ ()
- ostreambuf_iterator & operator++ (int)
- ostreambuf_iterator & operator= (_CharT __c)

Friends

- template<typename _CharT2 >
  __gnu_cxx::__enable_if< __is_char< _CharT2 >::__value, ostreambuf_iterator< _CharT2 > >::__type **copy** (istreambuf_iterator< _CharT2 >, istreambuf_iterator< _CharT2 >, ostreambuf_iterator< _CharT2 >)

5.630.1 Detailed Description

template<typename _CharT, typename _Traits> class std::ostreambuf_iterator< _CharT, _Traits >

Provides output iterator semantics for streambufs.

Definition at line 204 of file streambuf_iterator.h.

5.630.2 Member Typedef Documentation

5.630.2.1 template<typename _CharT , typename _Traits > typedef _CharT std::ostreambuf_iterator< _CharT, _Traits >::char_type

Public typedefs.

Definition at line 211 of file streambuf_iterator.h.

5.630.2.2 typedef void std::iterator< output_iterator_tag , void , void , void , void >::difference_type [inherited]

Distance between iterators is represented as this type.

Definition at line 115 of file stl_iterator_base_types.h.

5.630.2.3 typedef output_iterator_tag std::iterator< output_iterator_tag , void , void , void , void >::iterator_category [inherited]

One of the tag types.

Definition at line 111 of file stl_iterator_base_types.h.

5.630.2.4 template<typename _CharT , typename _Traits > typedef basic_ostream<_CharT, _Traits> std::ostreambuf_iterator< _CharT, _Traits >::ostream_type

Public typedefs.

Definition at line 214 of file streambuf_iterator.h.

5.630.2.5 typedef void std::iterator< output_iterator_tag , void , void , void , void >::pointer [inherited]

This type represents a pointer-to-value_type.

Definition at line 117 of file stl_iterator_base_types.h.

5.630.2.6 typedef void std::iterator< output_iterator_tag , void , void , void , void >::reference [inherited]

This type represents a reference-to-value_type.

Definition at line 119 of file stl_iterator_base_types.h.

5.630.2.7 template<typename _CharT , typename _Traits > typedef basic_streambuf<_CharT, _Traits> std::ostreambuf_iterator< _CharT, _Traits >::streambuf_type

Public typedefs.

Definition at line 213 of file streambuf_iterator.h.

5.630.2.8 template<typename _CharT , typename _Traits > typedef _Traits std::ostreambuf_iterator< _CharT, _Traits >::traits_type

Public typedefs.

Definition at line 212 of file streambuf_iterator.h.

5.630.2.9 typedef void std::iterator< output_iterator_tag , void , void , void , void >::value_type [inherited]

The type "pointed to" by the iterator.

Definition at line 113 of file stl_iterator_base_types.h.

5.630.3 Constructor & Destructor Documentation

5.630.3.1 template<typename _CharT , typename _Traits > std::ostreambuf_iterator< _CharT, _Traits >::ostreambuf_iterator (ostream_type & __s) throw () [inline]

Construct output iterator from ostream.

Definition at line 229 of file streambuf_iterator.h.

5.630.3.2 template<typename _CharT , typename _Traits > std::ostreambuf_iterator< _CharT, _Traits >::ostreambuf_iterator (streambuf_type * __s) throw () [inline]

Construct output iterator from streambuf.

Definition at line 233 of file streambuf_iterator.h.

5.630.4 Member Function Documentation

5.630.4.1 template<typename _CharT , typename _Traits > bool std::ostreambuf_iterator< _CharT, _Traits >::failed () const throw () [inline]

Return true if previous operator=() failed.

Definition at line 263 of file streambuf_iterator.h.

5.630.4.2 template<typename _CharT , typename _Traits > ostreambuf_iterator& std::ostreambuf_iterator< _CharT, _Traits >::operator* () [inline]

Return *this.

Definition at line 248 of file streambuf_iterator.h.

5.630.4.3 template<typename _CharT , typename _Traits > ostreambuf_iterator& std::ostreambuf_iterator< _CharT, _Traits >::operator++ () [inline]

Return *this.

Definition at line 258 of file streambuf_iterator.h.

5.630.4.4 template<typename _CharT , typename _Traits > ostreambuf_iterator& std::ostreambuf_iterator< _CharT, _Traits >::operator++ (int) [inline]

Return ∗this.

Definition at line 253 of file streambuf_iterator.h.

5.630.4.5 template<typename _CharT , typename _Traits > ostreambuf_iterator& std::ostreambuf_iterator< _CharT, _Traits >::operator= (_CharT __c) [inline]

Write character to streambuf. Calls streambuf.sputc().

Definition at line 238 of file streambuf_iterator.h.

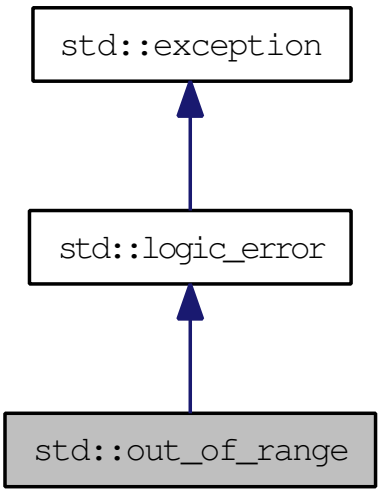
References std::basic_streambuf< _CharT, _Traits >::sputc().

The documentation for this class was generated from the following file:

- streambuf_iterator.h

5.631 std::out_of_range Class Reference

Inheritance diagram for std::out_of_range:



Public Member Functions

- **out_of_range** (const string &__arg)
- virtual const char * what () const throw ()

5.631.1 Detdetailed Description

This represents an argument whose value is not within the expected range (e.g., boundary checks in basic_string).

Definition at line 96 of file stdexcept.

5.631.2 Member Function Documentation

5.631.2.1 virtual const char* std::logic_error::what () const throw () [virtual, inherited]

Returns a C-style character string describing the general cause of the current error (the same string passed to the ctor).

Reimplemented from std::exception.

Reimplemented in std::future_error.

The documentation for this class was generated from the following file:

- stdexcept

5.632 std::output_iterator_tag Struct Reference

Marking output iterators.

5.632.1 Detailed Description

Marking output iterators.

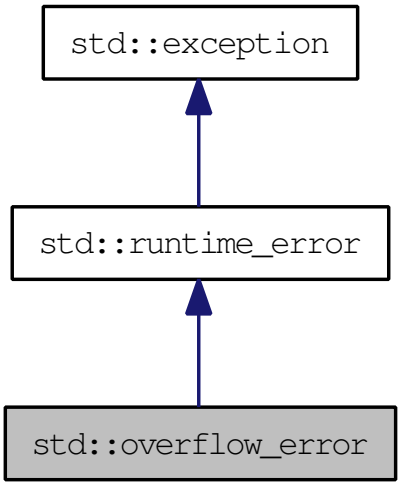
Definition at line 82 of file stl_iterator_base_types.h.

The documentation for this struct was generated from the following file:

- stl_iterator_base_types.h

5.633 std::overflow_error Class Reference

Inheritance diagram for std::overflow_error:



Public Member Functions

- **overflow_error** (const string &__arg)
- virtual const char * what () const throw ()

5.633.1 Detailed Description

Thrown to indicate arithmetic overflow.

Definition at line 133 of file stdexcept.

5.633.2 Member Function Documentation

5.633.2.1 virtual const char* std::runtime_error::what () const throw () [virtual, inherited]

Returns a C-style character string describing the general cause of the current error (the same string passed to the ctor).

Reimplemented from std::exception.

The documentation for this class was generated from the following file:

- stdexcept

5.634 std::owner_less< shared_ptr< _Tp > > Struct Template Reference

Partial specialization of owner_less for shared_ptr.

Inherits _Sp_owner_less< shared_ptr< _Tp >, weak_ptr< _Tp > >.

5.634.1 Detailed Description

template<typename _Tp> struct std::owner_less< shared_ptr< _Tp > >

Partial specialization of owner_less for shared_ptr.

Definition at line 385 of file shared_ptr.h.

The documentation for this struct was generated from the following file:

- shared_ptr.h

5.635 std::owner_less< weak_ptr< _Tp > > Struct Template Reference

Partial specialization of owner_less for weak_ptr.

Inherits _Sp_owner_less< weak_ptr< _Tp >, shared_ptr< _Tp > >.

5.635.1 Detailed Description

template<typename _Tp> struct std::owner_less< weak_ptr< _Tp > >

Partial specialization of owner_less for weak_ptr.

Definition at line 391 of file shared_ptr.h.

The documentation for this struct was generated from the following file:

- shared_ptr.h

5.636 std::packaged_task< _Res(_ArgTypes...)> Class Template Reference

packaged_task

Public Types

- typedef _Res **result_type**

Public Member Functions

- **packaged_task** (packaged_task &&__other)
- **packaged_task** (packaged_task &)
- **packaged_task** (_Res(*__fn)(_ArgTypes...))
- template<typename _Fn >
  packaged_task (_Fn &&__fn)
- template<typename _Fn >
  packaged_task (const _Fn &__fn)
- future< _Res > **get_future** ()
- **operator bool** () const
- void **operator()** (_ArgTypes...__args)
- packaged_task & **operator=** (packaged_task &&__other)
- packaged_task & **operator=** (packaged_task &)
- void **reset** ()
- void **swap** (packaged_task &__other)

5.636.1 Detailed Description

template<typename _Res, typename... _ArgTypes> class std::packaged_task< _Res(_ArgTypes...)>

packaged_task

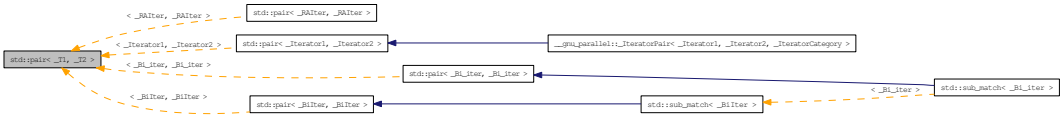
Definition at line 1183 of file future.

The documentation for this class was generated from the following file:

- future

5.637 std::pair< _T1, _T2 > Struct Template Reference

pair holds two objects of arbitrary type. Inheritance diagram for std::pair< _T1, _T2 >:



Public Types

- typedef _T1 first_type
- typedef _T2 second_type

Public Member Functions

- template<class _U1 , class _U2 >
  pair (pair< _U1, _U2 > &&__p)
- template<class _U1 , class _U2 >
  pair (const pair< _U1, _U2 > &__p)
- **pair** (pair &&__p)
- template<class _U1 , class _U2 , class = typename std::enable_if<std::is_convertible<_U1, _T1>::value && std::is_convertible<_U2, _T2>::value>::type>
  pair (_U1 &&__x, _U2 &&__y)
- template<class _U2 , class = typename std::enable_if<std::is_convertible<_U2, _T2>::value>::type>
  pair (const _T1 &__x, _U2 &&__y)
- template<class _U1 , class = typename std::enable_if<std::is_convertible<_U1, _T1>::value>::type>
  pair (_U1 &&__x, const _T2 &__y)
- pair (const _T1 &__a, const _T2 &__b)
- pair ()
- template<class _U1 , class _U2 >
  pair & **operator=** (pair< _U1, _U2 > &&__p)
- pair & **operator=** (pair &&__p)
- void **swap** (pair &__p)

Public Attributes

- _T1 first
- _T2 second

5.637.1 Detailed Description

template<class _T1, class _T2> struct std::pair< _T1, _T2 >

pair holds two objects of arbitrary type.

Definition at line 71 of file stl_pair.h.

5.637.2 Member Typedef Documentation

5.637.2.1 template<class _T1, class _T2> typedef _T1 std::pair< _T1, _T2 >::first_type

`first_type` is the first bound type

Definition at line 73 of file stl_pair.h.

5.637.2.2 template<class _T1, class _T2> typedef _T2 std::pair< _T1, _T2 >::second_type

`second_type` is the second bound type

Definition at line 74 of file stl_pair.h.

5.637.3 Constructor & Destructor Documentation

5.637.3.1 template<class _T1, class _T2> std::pair< _T1, _T2 >::pair () [inline]

The default constructor creates `first` and `second` using their respective default constructors.

Definition at line 83 of file stl_pair.h.

5.637.3.2 template<class _T1, class _T2> std::pair< _T1, _T2 >::pair (const _T1 & *__a*, const _T2 & *__b*) [inline]

Two objects may be passed to a `pair` constructor to be copied.

Definition at line 87 of file stl_pair.h.

5.637.3.3 template<class _T1, class _T2> template<class _U1 , class _U2 > std::pair< _T1, _T2 >::pair (const pair< _U1, _U2 > & *__p*) [inline]

There is also a templated copy ctor for the `pair` class itself.

Definition at line 118 of file stl_pair.h.

5.637.4 Member Data Documentation

5.637.4.1 template<class _T1, class _T2> _T1 std::pair< _T1, _T2 >::first

`first` is a copy of the first object

Definition at line 76 of file stl_pair.h.

Referenced by std::_Temporary_buffer< _ForwardIterator, _Tp >::_Temporary_buffer(), std::set< _Key, _Compare, _Alloc >::insert(), and std::operator==().

5.637.4.2 template<class _T1, class _T2> _T2 std::pair< _T1, _T2 >::second

`second` is a copy of the second object

Definition at line 77 of file stl_pair.h.

Referenced by std::_Temporary_buffer< _ForwardIterator, _Tp >::_Temporary_buffer(), std::set< _Key, _Compare, _Alloc >::insert(), and std::operator==().

The documentation for this struct was generated from the following file:

- stl_pair.h

5.638 std::piecewise_constant_distribution< _RealType > Class Template Reference

A piecewise_constant_distribution random number distribution.

Classes

- struct param_type

Public Types

- typedef _RealType result_type

Public Member Functions

- **piecewise_constant_distribution** (const param_type &__p)
- template<typename _Func >
  piecewise_constant_distribution (size_t __nw, _RealType __xmin, _RealType __xmax, _Func __fw)
- template<typename _Func >
  piecewise_constant_distribution (initializer_list< _RealType > __bl, _Func __fw)
- template<typename _InputIteratorB , typename _InputIteratorW >
  piecewise_constant_distribution (_InputIteratorB __bfirst, _InputIteratorB __bend, _InputIteratorW __wbegin)
- std::vector< double > densities () const
- std::vector< _RealType > intervals () const
- result_type max () const
- result_type min () const
- template<typename _UniformRandomNumberGenerator >
  result_type **operator()** (_UniformRandomNumberGenerator &__urng, const param_type &__p)
- template<typename _UniformRandomNumberGenerator >
  result_type **operator()** (_UniformRandomNumberGenerator &__urng)
- void param (const param_type &__param)
- param_type param () const
- void reset ()

Friends

- template<typename _RealType1 , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & operator<< (std::basic_ostream< _CharT, _Traits > &, const std::piecewise_constant_distribution< _RealType1 > &)
- template<typename _RealType1 , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & operator>> (std::basic_istream< _CharT, _Traits > &, std::piecewise_constant_distribution< _RealType1 > &)

5.638.1 Detailed Description

template<typename _RealType = double> class std::piecewise_constant_distribution< _RealType >

A piecewise_constant_distribution random number distribution. The formula for the piecewise constant probability mass function is

Definition at line 4254 of file random.h.

5.638.2 Member Typedef Documentation

5.638.2.1 template<typename _RealType = double> typedef _RealType std::piecewise_constant_distribution< _RealType >::result_type

The type of the range of the distribution.

Definition at line 4261 of file random.h.

5.638.3 Member Function Documentation

5.638.3.1 template<typename _RealType = double> std::vector<double> std::piecewise_constant_distribution< _RealType >::densities () const [inline]

Returns a vector of the probability densities.

Definition at line 4349 of file random.h.

5.638.3.2 template<typename _RealType = double> std::vector<_RealType> std::piecewise_constant_distribution< _RealType >::intervals () const [inline]

Returns a vector of the intervals.

Definition at line 4342 of file random.h.

5.638.3.3 template<typename _RealType = double> result_type std::piecewise_constant_distribution< _RealType >::max () const [inline]

Returns the least upper bound value of the distribution.

Definition at line 4378 of file random.h.

References std::vector< _Tp, _Alloc >::back().

5.638.3.4 template<typename _RealType = double> result_type std::piecewise_constant_distribution< _RealType >::min () const [inline]

Returns the greatest lower bound value of the distribution.

Definition at line 4371 of file random.h.

References std::vector< _Tp, _Alloc >::front().

5.638.3.5 template<typename _RealType = double> void std::piecewise_constant_distribution< _RealType >::param (const param_type & *__param*) [inline]

Sets the parameter set of the distribution.

Parameters:

__param The new parameter set of the distribution.

Definition at line 4364 of file random.h.

5.638.3.6 template<typename _RealType = double> param_type std::piecewise_constant_distribution< _RealType >::param () const [inline]

Returns the parameter set of the distribution.

Definition at line 4356 of file random.h.

5.638.3.7 template<typename _RealType = double> void std::piecewise_constant_distribution< _RealType >::reset () [inline]

Resets the distribution state.

Definition at line 4335 of file random.h.

5.638.4 Friends And Related Function Documentation

5.638.4.1 template<typename _RealType = double> template<typename _RealType1 , typename _CharT , typename _Traits > std::basic_ostream<_CharT, _Traits>& operator<< (std::basic_ostream< _CharT, _Traits > &, const std::piecewise_constant_distribution< _RealType1 > &) [friend]

Inserts a piecewise_constan_distribution random number distribution __x into the output stream __os.

Parameters:

__os An output stream.

__x A piecewise_constan_distribution random number distribution.

Returns:

The output stream with the state of __x inserted or in an error state.

5.638.4.2 template<typename _RealType = double> template<typename _RealType1 , typename _CharT , typename _Traits > std::basic_istream<_CharT, _Traits>& operator>> (std::basic_istream< _CharT, _Traits > &, std::piecewise_constant_distribution< _RealType1 > &) [friend]

Extracts a piecewise_constan_distribution random number distribution __x from the input stream __is.

Parameters:

__is An input stream.

__x A piecewise_constan_distribution random number generator engine.

Returns:

The input stream with __x extracted or in an error state.

The documentation for this class was generated from the following files:

- random.h
- random.tcc

5.639 std::piecewise_constant_distribution< _RealType >::param_type Struct Reference

Public Types

- typedef piecewise_constant_distribution< _RealType > **distribution_type**

Public Member Functions

- template<typename _Func >
  param_type (size_t __nw, _RealType __xmin, _RealType __xmax, _Func __fw)
- template<typename _Func >
  param_type (initializer_list< _RealType > __bi, _Func __fw)
- template<typename _InputIteratorB , typename _InputIteratorW >
  param_type (_InputIteratorB __bfirst, _InputIteratorB __bend, _InputIteratorW __wbegin)
- std::vector< double > **densities** () const
- std::vector< _RealType > **intervals** () const

Friends

- class **piecewise_constant_distribution**< **_RealType** >

5.639.1 Detailed Description

template<typename _RealType = double> struct std::piecewise_constant_distribution< _RealType >::param_type

Parameter type.

Definition at line 4263 of file random.h.

The documentation for this struct was generated from the following files:

- random.h
- random.tcc

5.640 std::piecewise_linear_distribution< _RealType > Class Template Reference

A piecewise_linear_distribution random number distribution.

Classes

- struct param_type

Public Types

- typedef _RealType result_type

Public Member Functions

- **piecewise_linear_distribution** (const param_type &__p)
- template<typename _Func >
  piecewise_linear_distribution (size_t __nw, _RealType __xmin, _RealType __xmax, _Func __fw)
- template<typename _Func >
  piecewise_linear_distribution (initializer_list< _RealType > __bl, _Func __fw)
- template<typename _InputIteratorB , typename _InputIteratorW >
  piecewise_linear_distribution (_InputIteratorB __bfirst, _InputIteratorB __bend, _InputIteratorW __wbegin)
- std::vector< double > densities () const
- std::vector< _RealType > intervals () const
- result_type max () const
- result_type min () const
- template<typename _UniformRandomNumberGenerator >
  result_type **operator()** (_UniformRandomNumberGenerator &__urng, const param_type &__p)
- template<typename _UniformRandomNumberGenerator >
  result_type **operator()** (_UniformRandomNumberGenerator &__urng)
- void param (const param_type &__param)
- param_type param () const
- void reset ()

Friends

- template<typename _RealType1 , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & operator<< (std::basic_ostream< _CharT, _Traits > &, const std::piecewise_linear_distribution< _RealType1 > &)
- template<typename _RealType1 , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & operator>> (std::basic_istream< _CharT, _Traits > &, std::piecewise_linear_distribution< _RealType1 > &)

5.640.1 Detailed Description

template<typename _RealType = double> class std::piecewise_linear_distribution< _RealType >

A piecewise_linear_distribution random number distribution. The formula for the piecewise linear probability mass function is

Definition at line 4435 of file random.h.

5.640.2 Member Typedef Documentation

5.640.2.1 template<typename _RealType = double> typedef _RealType std::piecewise_linear_distribution< _RealType >::result_type

The type of the range of the distribution.

Definition at line 4442 of file random.h.

5.640.3 Member Function Documentation

5.640.3.1 template<typename _RealType = double> std::vector<double> std::piecewise_linear_distribution< _RealType >::densities () const [inline]

Return a vector of the probability densities of the distribution.

Definition at line 4532 of file random.h.

5.640.3.2 template<typename _RealType = double> std::vector<_RealType> std::piecewise_linear_distribution< _RealType >::intervals () const [inline]

Return the intervals of the distribution.

Definition at line 4524 of file random.h.

5.640.3.3 template<typename _RealType = double> result_type std::piecewise_linear_distribution< _RealType >::max () const [inline]

Returns the least upper bound value of the distribution.

Definition at line 4561 of file random.h.

References std::vector< _Tp, _Alloc >::back().

5.640.3.4 template<typename _RealType = double> result_type std::piecewise_linear_distribution< _RealType >::min () const [inline]

Returns the greatest lower bound value of the distribution.

Definition at line 4554 of file random.h.

References std::vector< _Tp, _Alloc >::front().

5.640.3.5 template<typename _RealType = double> void std::piecewise_linear_distribution< _RealType >::param (const param_type & *__param*) [inline]

Sets the parameter set of the distribution.

Parameters:

__param The new parameter set of the distribution.

Definition at line 4547 of file random.h.

5.640.3.6 template<typename _RealType = double> param_type std::piecewise_linear_distribution< _RealType >::param () const [inline]

Returns the parameter set of the distribution.

Definition at line 4539 of file random.h.

5.640.3.7 template<typename _RealType = double> void std::piecewise_linear_distribution< _RealType >::reset () [inline]

Resets the distribution state.

Definition at line 4517 of file random.h.

5.640.4 Friends And Related Function Documentation

5.640.4.1 template<typename _RealType = double> template<typename _RealType1 , typename _CharT , typename _Traits > std::basic_ostream<_CharT, _Traits>& operator<< (std::basic_ostream< _CharT, _Traits > &, const std::piecewise_linear_distribution< _RealType1 > &) [friend]

Inserts a piecewise_linear_distribution random number distribution __x into the output stream __os.

Parameters:

__os An output stream.

__x A piecewise_linear_distribution random number distribution.

Returns:

The output stream with the state of __x inserted or in an error state.

5.640.4.2 template<typename _RealType = double> template<typename _RealType1 , typename _CharT , typename _Traits > std::basic_istream<_CharT, _Traits>& operator>> (std::basic_istream< _CharT, _Traits > &, std::piecewise_linear_distribution< _RealType1 > &) [friend]

Extracts a piecewise_linear_distribution random number distribution __x from the input stream __is.

Parameters:

__is An input stream.

__x A piecewise_linear_distribution random number generator engine.

Returns:

The input stream with __x extracted or in an error state.

The documentation for this class was generated from the following files:

- random.h
- random.tcc

5.641 std::piecewise_linear_distribution< _RealType >::param_type Struct Reference

Public Types

- typedef piecewise_linear_distribution< _RealType > **distribution_type**

Public Member Functions

- template<typename _Func >
  param_type (size_t __nw, _RealType __xmin, _RealType __xmax, _Func __fw)
- template<typename _Func >
  param_type (initializer_list< _RealType > __bl, _Func __fw)
- template<typename _InputIteratorB , typename _InputIteratorW >
  param_type (_InputIteratorB __bfirst, _InputIteratorB __bend, _InputIteratorW __wbegin)
- std::vector< double > **densities** () const
- std::vector< _RealType > **intervals** () const

Friends

- class **piecewise_linear_distribution< _RealType >**

5.641.1 Detailed Description

template<typename _RealType = double> struct std::piecewise_linear_distribution< _RealType >::param_type

Parameter type.

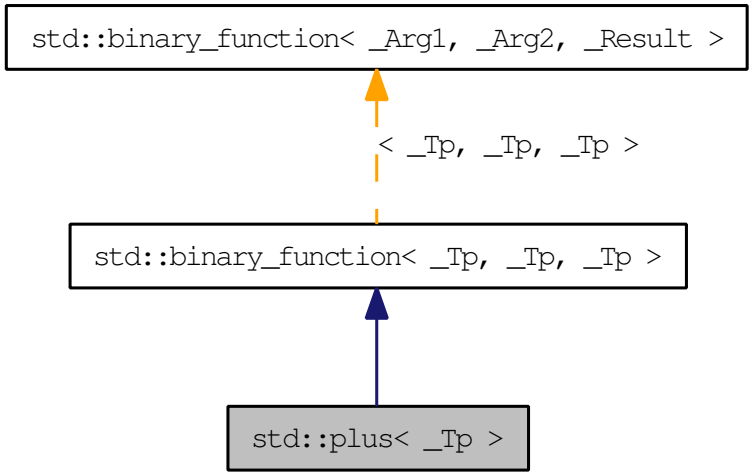
Definition at line 4444 of file random.h.

The documentation for this struct was generated from the following files:

- random.h
- random.tcc

5.642 std::plus< _Tp > Struct Template Reference

One of the math functors. Inheritance diagram for std::plus< _Tp >:



Public Types

- typedef _Tp first_argument_type
- typedef _Tp result_type
- typedef _Tp second_argument_type

Public Member Functions

- _Tp **operator()** (const _Tp &__x, const _Tp &__y) const

5.642.1 Detailed Description

template<typename _Tp> struct std::plus< _Tp >

One of the math functors.

Definition at line 135 of file stl_function.h.

5.642.2 Member Typedef Documentation

5.642.2.1 typedef _Tp std::binary_function< _Tp , _Tp , _Tp >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.642.2.2 typedef _Tp std::binary_function< _Tp , _Tp , _Tp >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.642.2.3 typedef _Tp std::binary_function< _Tp , _Tp , _Tp >::second_argument_type [inherited]

the type of the second argument

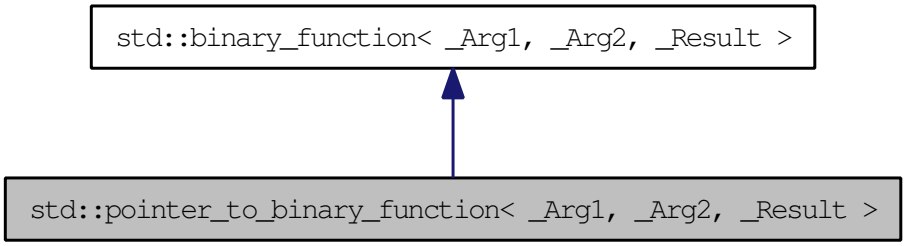
Definition at line 117 of file stl_function.h.

The documentation for this struct was generated from the following file:

- stl_function.h

5.643 std::pointer_to_binary_function< _Arg1, _Arg2, _Result > Class Template Reference

One of the adaptors for function pointers. Inheritance diagram for std::pointer_to_binary_function< _Arg1, _Arg2, _Result >:



Public Types

- typedef _Arg1 first_argument_type
- typedef _Result result_type
- typedef _Arg2 second_argument_type

Public Member Functions

- **pointer_to_binary_function** (_Result(∗__x)(_Arg1, _Arg2))
- _Result **operator()** (_Arg1 __x, _Arg2 __y) const

Protected Attributes

- _Result(∗ **_M_ptr**)(_Arg1, _Arg2)

5.643.1 Detailed Description

template<typename _Arg1, typename _Arg2, typename _Result> class std::pointer_to_binary_function< _Arg1, _Arg2, _Result >

One of the adaptors for function pointers.

Definition at line 442 of file stl_function.h.

5.643.2 Member Typedef Documentation

5.643.2.1 template<typename _Arg1, typename _Arg2, typename _Result> typedef _Arg1 std::binary_function< _Arg1, _Arg2, _Result >::first_argument_type [inherited]

the type of the first argument (no surprises here)

Definition at line 114 of file stl_function.h.

5.643.2.2 template<typename _Arg1, typename _Arg2, typename _Result> typedef _Result std::binary_function< _Arg1, _Arg2, _Result >::result_type [inherited]

type of the return type

Definition at line 118 of file stl_function.h.

5.643.2.3 template<typename _Arg1, typename _Arg2, typename _Result> typedef _Arg2 std::binary_function< _Arg1, _Arg2, _Result >::second_argument_type [inherited]

the type of the second argument

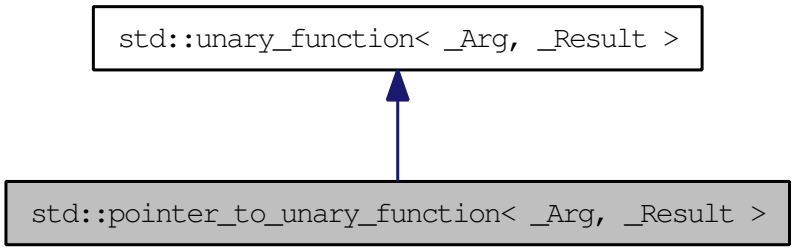
Definition at line 117 of file stl_function.h.

The documentation for this class was generated from the following file:

- stl_function.h

5.644 std::pointer_to_unary_function< _Arg, _Result > Class Template Reference

One of the adaptors for function pointers. Inheritance diagram for std::pointer_to_unary_function< _Arg, _Result >:



Public Types

- typedef _Arg argument_type
- typedef _Result result_type

Public Member Functions

- **pointer_to_unary_function** (_Result(*__x)(_Arg))
- _Result **operator()** (_Arg __x) const

Protected Attributes

- _Result(* **_M_ptr**)(_Arg)

5.644.1 Detailed Description

template<typename _Arg, typename _Result> class std::pointer_to_unary_function< _Arg, _Result >

One of the adaptors for function pointers.

Definition at line 417 of file stl_function.h.

5.644.2 Member Typedef Documentation

5.644.2.1 template<typename _Arg, typename _Result> typedef _Arg std::unary_function< _Arg, _Result >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.644.2.2 template<typename _Arg, typename _Result> typedef _Result std::unary_function< _Arg, _Result >::result_type [inherited]

`result_type` is the return type

Definition at line 105 of file stl_function.h.

The documentation for this class was generated from the following file:

- stl_function.h

5.645 std::poisson_distribution< _IntType > Class Template Reference

A discrete Poisson random number distribution.

Classes

- struct param_type

Public Types

- typedef _IntType result_type

Public Member Functions

- **poisson_distribution** (const param_type &__p)
- **poisson_distribution** (double __mean=1.0)
- result_type max () const
- double mean () const
- result_type min () const
- template<typename _UniformRandomNumberGenerator >
  result_type operator() (_UniformRandomNumberGenerator &__urng, const param_type &__p)
- template<typename _UniformRandomNumberGenerator >
  result_type **operator()** (_UniformRandomNumberGenerator &__urng)
- void param (const param_type &__param)
- param_type param () const
- void reset ()

Friends

- template<typename _IntType1 , typename _CharT , typename _Traits >
  std::basic_ostream< _CharT, _Traits > & operator<< (std::basic_ostream< _CharT, _Traits > &, const std::poisson_distribution< _IntType1 > &)
- template<typename _IntType1 , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & operator>> (std::basic_istream< _CharT, _Traits > &, std::poisson_distribution< _IntType1 > &)

5.645.1 Detailed Description

template<typename _IntType = int> class std::poisson_distribution< _IntType >

A discrete Poisson random number distribution. The formula for the Poisson probability density function is $p(i|\mu) = \frac{\mu^i}{i!}e^{-\mu}$ where μ is the parameter of the distribution.

Definition at line 3493 of file random.h.

5.645.2 Member Typedef Documentation

5.645.2.1 template<typename _IntType = int> typedef _IntType std::poisson_distribution< _IntType >::result_type

The type of the range of the distribution.

Definition at line 3500 of file random.h.

5.645.3 Member Function Documentation

5.645.3.1 template<typename _IntType = int> result_type std::poisson_distribution< _IntType >::max () const [inline]

Returns the least upper bound value of the distribution.

Definition at line 3583 of file random.h.

Referenced by std::poisson_distribution< _IntType >::operator()().

5.645.3.2 template<typename _IntType = int> double std::poisson_distribution< _IntType >::mean () const [inline]

Returns the distribution parameter `mean`.

Definition at line 3554 of file random.h.

5.645.3.3 template<typename _IntType = int> result_type std::poisson_distribution< _IntType >::min () const [inline]

Returns the greatest lower bound value of the distribution.

Definition at line 3576 of file random.h.

5.645.3.4 template<typename _IntType > template<typename _UniformRandomNumberGenerator > poisson_distribution< _IntType >::result_type std::poisson_distribution< _IntType >::operator() (_UniformRandomNumberGenerator & *__urng*, const param_type & *__param*) [inline]

A rejection algorithm when mean >= 12 and a simple method based upon the multiplication of uniform random variates otherwise. NB: The former is available only if _GLIBCXX_USE_C99_MATH_TR1 is defined.

Reference: Devroye, L. Non-Uniform Random Variates Generation. Springer-Verlag, New York, 1986, Ch. X, Sects. 3.3 & 3.4 (+ Errata!).

Definition at line 1148 of file random.tcc.

References std::abs(), std::log(), and std::poisson_distribution< _IntType >::max().

5.645.3.5 template<typename _IntType = int> void std::poisson_distribution< _IntType >::param (const param_type & *__param*) [inline]

Sets the parameter set of the distribution.

Parameters:

__param The new parameter set of the distribution.

Definition at line 3569 of file random.h.

5.645.3.6 template<typename _IntType = int> param_type std::poisson_distribution< _IntType >::param () const [inline]

Returns the parameter set of the distribution.

Definition at line 3561 of file random.h.

5.645.3.7 template<typename _IntType = int> void std::poisson_distribution< _IntType >::reset () [inline]

Resets the distribution state.

Definition at line 3547 of file random.h.

References std::normal_distribution< _RealType >::reset().

5.645.4 Friends And Related Function Documentation

5.645.4.1 template<typename _IntType = int> template<typename _IntType1 , typename _CharT , typename _Traits > std::basic_ostream<_CharT, _Traits>& operator<< (std::basic_ostream< _CharT, _Traits > &, const std::poisson_distribution< _IntType1 > &) [friend]

Inserts a poisson_distribution random number distribution __x into the output stream __os.

Parameters:

__os An output stream.

__x A poisson_distribution random number distribution.

Returns:

The output stream with the state of __x inserted or in an error state.

5.645.4.2 template<typename _IntType = int> template<typename _IntType1 , typename _CharT , typename _Traits > std::basic_istream<_CharT, _Traits>& operator>> (std::basic_istream< _CharT, _Traits > &, std::poisson_distribution< _IntType1 > &) [friend]

Extracts a poisson_distribution random number distribution __x from the input stream __is.

Parameters:

__is An input stream.

__x A poisson_distribution random number generator engine.

Returns:

The input stream with __x extracted or in an error state.

The documentation for this class was generated from the following files:

- random.h
- random.tcc

5.646 std::poisson_distribution< _IntType >::param_type Struct Reference

Public Types

- typedef poisson_distribution< _IntType > **distribution_type**

Public Member Functions

- **param_type** (double __mean=1.0)
- double **mean** () const

Friends

- class **poisson_distribution< _IntType >**

5.646.1 Detailed Description

template<typename _IntType = int> struct std::poisson_distribution< _IntType >::param_type

Parameter type.

Definition at line 3502 of file random.h.

The documentation for this struct was generated from the following files:

- random.h
- random.tcc

5.647 std::priority_queue< _Tp, _Sequence, _Compare > Class Template Reference

A standard container automatically sorting its contents.

Public Types

- typedef _Sequence::const_reference **const_reference**
- typedef _Sequence **container_type**
- typedef _Sequence::reference **reference**
- typedef _Sequence::size_type **size_type**
- typedef _Sequence::value_type **value_type**

Public Member Functions

- **priority_queue** (priority_queue &&__pq)
- template<typename _InputIterator >
  priority_queue (_InputIterator __first, _InputIterator __last, const _Compare &__x=_Compare(), _Sequence &&__s=_Sequence())
- template<typename _InputIterator >
  priority_queue (_InputIterator __first, _InputIterator __last, const _Compare &__x, const _Sequence &__s)
- **priority_queue** (const _Compare &__x=_Compare(), _Sequence &&__s=_Sequence())
- priority_queue (const _Compare &__x, const _Sequence &__s)
- template<typename... _Args>
  void **emplace** (_Args &&...__args)
- bool empty () const
- priority_queue & **operator=** (priority_queue &&__pq)
- void pop ()
- void **push** (value_type &&__x)
- void push (const value_type &__x)
- size_type size () const
- void **swap** (priority_queue &__pq)
- const_reference top () const

Protected Attributes

- _Sequence **c**
- _Compare **comp**

5.647.1 Detailed Description

template<typename _Tp, typename _Sequence = vector<_Tp>, typename _Compare = less<typename _Sequence::value_type>> class std::priority_queue< _Tp, _Sequence, _Compare >

A standard container automatically sorting its contents. This is not a true container, but an *adaptor*. It holds another container, and provides a wrapper interface to that container. The wrapper is what enforces priority-based sorting and queue behavior. Very few of the standard container/sequence interface requirements are met (e.g., iterators).

The second template parameter defines the type of the underlying sequence/container. It defaults to std::vector, but it can be any type that supports `front()`, `push_back`, `pop_back`, and random-access iterators, such as std::deque or an appropriate user-defined type.

The third template parameter supplies the means of making priority comparisons. It defaults to `less<value_type>` but can be anything defining a strict weak ordering.

Members not found in *normal* containers are `container_type`, which is a typedef for the second Sequence parameter, and `push`, `pop`, and `top`, which are standard queue operations.

Note:

No equality/comparison operators are provided for priority_queue.
Sorting of the elements takes place as they are added to, and removed from, the priority_queue using the priority_queue's member functions. If you access the elements by other means, and change their data such that the sorting order would be different, the priority_queue will not re-sort the elements for you. (How could it know to do so?)

Definition at line 359 of file stl_queue.h.

5.647.2 Constructor & Destructor Documentation

5.647.2.1 template<typename _Tp, typename _Sequence = vector<_Tp>, typename _Compare = less<typename _Sequence::value_type>> std::priority_queue< _Tp, _Sequence, _Compare >::priority_queue (const _Compare & __x, const _Sequence & __s) [inline, explicit]

Default constructor creates no elements.

Definition at line 394 of file stl_queue.h.

References std::make_heap().

5.647.2.2 template<typename _Tp, typename _Sequence = vector<_Tp>, typename _Compare = less<typename _Sequence::value_type>> template<typename _InputIterator > std::priority_queue< _Tp, _Sequence, _Compare >::priority_queue (_InputIterator *__first*, _InputIterator *__last*, const _Compare & *__x*, const _Sequence & *__s*) [inline]

Builds a queue from a range.

Parameters:

first An input iterator.

last An input iterator.

x A comparison functor describing a strict weak ordering.

s An initial sequence with which to start.

Begins by copying *s*, inserting a copy of the elements from [first,last) into the copy of *s*, then ordering the copy according to *x*.

For more information on function objects, see the documentation on functor base classes.

Definition at line 434 of file stl_queue.h.

References std::make_heap().

5.647.3 Member Function Documentation

5.647.3.1 template<typename _Tp, typename _Sequence = vector<_Tp>, typename _Compare = less<typename _Sequence::value_type>> bool std::priority_queue< _Tp, _Sequence, _Compare >::empty () const [inline]

Returns true if the queue is empty.

Definition at line 471 of file stl_queue.h.

Referenced by __gnu_parallel::multiseq_partition(), and __gnu_parallel::multiseq_selection().

5.647.3.2 template<typename _Tp, typename _Sequence = vector<_Tp>, typename _Compare = less<typename _Sequence::value_type>> void std::priority_queue< _Tp, _Sequence, _Compare >::pop () [inline]

Removes first element. This is a typical queue operation. It shrinks the queue by one. The time complexity of the operation depends on the underlying sequence.

Note that no data is returned, and if the first element's data is needed, it should be retrieved before pop() is called.

Definition at line 534 of file stl_queue.h.

References std::pop_heap().

Referenced by __gnu_parallel::multiseq_partition(), and __gnu_parallel::multiseq_-selection().

5.647.3.3 template<typename _Tp, typename _Sequence = vector<_Tp>, typename _Compare = less<typename _Sequence::value_type>> void std::priority_queue< _Tp, _Sequence, _Compare >::push (const value_type & __x) [inline]

Add data to the queue.

Parameters:

x Data to be added.

This is a typical queue operation. The time complexity of the operation depends on the underlying sequence.

Definition at line 499 of file stl_queue.h.

References std::push_heap().

Referenced by __gnu_parallel::multiseq_partition(), and __gnu_parallel::multiseq_-selection().

5.647.3.4 template<typename _Tp, typename _Sequence = vector<_Tp>, typename _Compare = less<typename _Sequence::value_type>> size_type std::priority_queue< _Tp, _Sequence, _Compare >::size () const [inline]

Returns the number of elements in the queue.

Definition at line 476 of file stl_queue.h.

5.647.3.5 template<typename _Tp, typename _Sequence = vector<_Tp>, typename _Compare = less<typename _Sequence::value_type>> const_reference std::priority_queue< _Tp, _Sequence, _Compare >::top () const [inline]

Returns a read-only (constant) reference to the data at the first element of the queue.

Definition at line 484 of file stl_queue.h.

Referenced by __gnu_parallel::multiseq_partition(), and __gnu_parallel::multiseq_selection().

The documentation for this class was generated from the following file:

- stl_queue.h

5.648 std::promise< _Res > Class Template Reference

Primary template for promise.

Public Member Functions

- **promise** (const promise &)
- **promise** (promise &&__rhs)
- future< _Res > **get_future** ()
- promise & **operator=** (const promise &)
- promise & **operator=** (promise &&__rhs)
- void **set_exception** (exception_ptr __p)
- void **set_value** (_Res &&__r)
- void **set_value** (const _Res &__r)
- void **swap** (promise &__rhs)

Friends

- class **_State::_Setter**

5.648.1 Detailed Description

template<typename _Res> class std::promise< _Res >

Primary template for promise.

Definition at line 825 of file future.

The documentation for this class was generated from the following file:

- future

5.649 std::promise< _Res & > Class Template Reference

Partial specialization for promise<R&>.

Public Member Functions

- **promise** (const promise &)
- **promise** (promise &&__rhs)
- future< _Res & > **get_future** ()
- promise & **operator=** (const promise &)
- promise & **operator=** (promise &&__rhs)
- void **set_exception** (exception_ptr __p)
- void **set_value** (_Res &__r)
- void **swap** (promise &__rhs)

Friends

- class **_State::_Setter**

5.649.1 Detailed Description

template<typename _Res> class std::promise< _Res & >

Partial specialization for promise<R&>.

Definition at line 915 of file future.

The documentation for this class was generated from the following file:

- future

5.650 std::promise< void > Class Template Reference

Explicit specialization for promise<void>.

Public Member Functions

- **promise** (const promise &)
- **promise** (promise &&__rhs)
- future< void > **get_future** ()
- promise & **operator=** (const promise &)
- promise & **operator=** (promise &&__rhs)
- void **set_exception** (exception_ptr __p)
- void **set_value** ()
- void **swap** (promise &__rhs)

Friends

- class **_State::_Setter**

5.650.1 Detailed Description

template<> class std::promise< void >

Explicit specialization for promise<void>.

Definition at line 993 of file future.

The documentation for this class was generated from the following file:

- future

5.651 std::queue< _Tp, _Sequence > Class Template Reference

A standard container giving FIFO behavior.

Public Types

- typedef _Sequence::const_reference **const_reference**
- typedef _Sequence **container_type**
- typedef _Sequence::reference **reference**
- typedef _Sequence::size_type **size_type**
- typedef _Sequence::value_type **value_type**

Public Member Functions

- **queue** (queue &&__q)
- **queue** (_Sequence &&__c=_Sequence())
- queue (const _Sequence &__c)
- const_reference back () const
- reference back ()
- template<typename... _Args>
  void **emplace** (_Args &&...__args)
- bool empty () const
- const_reference front () const
- reference front ()
- queue & **operator=** (queue &&__q)
- void pop ()
- void **push** (value_type &&__x)
- void push (const value_type &__x)
- size_type size () const
- void **swap** (queue &__q)

Protected Attributes

- _Sequence c

Friends

- template<typename _Tp1 , typename _Seq1 >
  bool **operator**< (const queue< _Tp1, _Seq1 > &, const queue< _Tp1, _Seq1 > &)
- template<typename _Tp1 , typename _Seq1 >
  bool **operator==** (const queue< _Tp1, _Seq1 > &, const queue< _Tp1, _Seq1 > &)

5.651.1 Detailed Description

template<typename _Tp, typename _Sequence = deque<_Tp>> class std::queue< _Tp, _Sequence >

A standard container giving FIFO behavior. Meets many of the requirements of a `container`, but does not define anything to do with iterators. Very few of the other standard container interfaces are defined.

This is not a true container, but an *adaptor*. It holds another container, and provides a wrapper interface to that container. The wrapper is what enforces strict first-in-first-out queue behavior.

The second template parameter defines the type of the underlying sequence/container. It defaults to std::deque, but it can be any type that supports `front`, `back`, `push_back`, and `pop_front`, such as std::list or an appropriate user-defined type.

Members not found in *normal* containers are `container_type`, which is a typedef for the second Sequence parameter, and `push` and `pop`, which are standard queue/FIFO operations.

Definition at line 89 of file stl_queue.h.

5.651.2 Constructor & Destructor Documentation

5.651.2.1 template<typename _Tp, typename _Sequence = deque<_Tp>> std::queue< _Tp, _Sequence >::queue (const _Sequence & __c) [inline, explicit]

Default constructor creates no elements.

Definition at line 134 of file stl_queue.h.

5.651.3 Member Function Documentation

5.651.3.1 template<typename _Tp, typename _Sequence = deque<_Tp>> const_reference std::queue< _Tp, _Sequence >::back () const [inline]

Returns a read-only (constant) reference to the data at the last element of the queue.

Definition at line 202 of file stl_queue.h.

5.651.3.2 template<typename _Tp, typename _Sequence = deque<_Tp>> reference std::queue< _Tp, _Sequence >::back () [inline]

Returns a read/write reference to the data at the last element of the queue.

Definition at line 191 of file stl_queue.h.

5.651.3.3 template<typename _Tp, typename _Sequence = deque<_Tp>> bool std::queue< _Tp, _Sequence >::empty () const [inline]

Returns true if the queue is empty.

Definition at line 156 of file stl_queue.h.

5.651.3.4 template<typename _Tp, typename _Sequence = deque<_Tp>> const_reference std::queue< _Tp, _Sequence >::front () const [inline]

Returns a read-only (constant) reference to the data at the first element of the queue.

Definition at line 180 of file stl_queue.h.

5.651.3.5 template<typename _Tp, typename _Sequence = deque<_Tp>> reference std::queue< _Tp, _Sequence >::front () [inline]

Returns a read/write reference to the data at the first element of the queue.

Definition at line 169 of file stl_queue.h.

5.651.3.6 template<typename _Tp, typename _Sequence = deque<_Tp>> void std::queue< _Tp, _Sequence >::pop () [inline]

Removes first element. This is a typical queue operation. It shrinks the queue by one. The time complexity of the operation depends on the underlying sequence.

Note that no data is returned, and if the first element's data is needed, it should be retrieved before pop() is called.

Definition at line 244 of file stl_queue.h.

5.651.3.7 template<typename _Tp, typename _Sequence = deque<_Tp>> void std::queue< _Tp, _Sequence >::push (const value_type & __x) [inline]

Add data to the end of the queue.

Parameters:

x Data to be added.

This is a typical queue operation. The function creates an element at the end of the queue and assigns the given data to it. The time complexity of the operation depends on the underlying sequence.

Definition at line 218 of file stl_queue.h.

5.651.3.8 template<typename _Tp, typename _Sequence = deque<_Tp>> size_type std::queue< _Tp, _Sequence >::size () const [inline]

Returns the number of elements in the queue.

Definition at line 161 of file stl_queue.h.

5.651.4 Member Data Documentation

5.651.4.1 template<typename _Tp, typename _Sequence = deque<_Tp>> _Sequence std::queue< _Tp, _Sequence >::c [protected]

'c' is the underlying container. Maintainers wondering why this isn't uglified as per style guidelines should note that this name is specified in the standard, [23.2.3.1]. (Why? Presumably for the same reason that it's protected instead of private: to allow derivation. But none of the other containers allow for derivation. Odd.)

Definition at line 122 of file stl_queue.h.

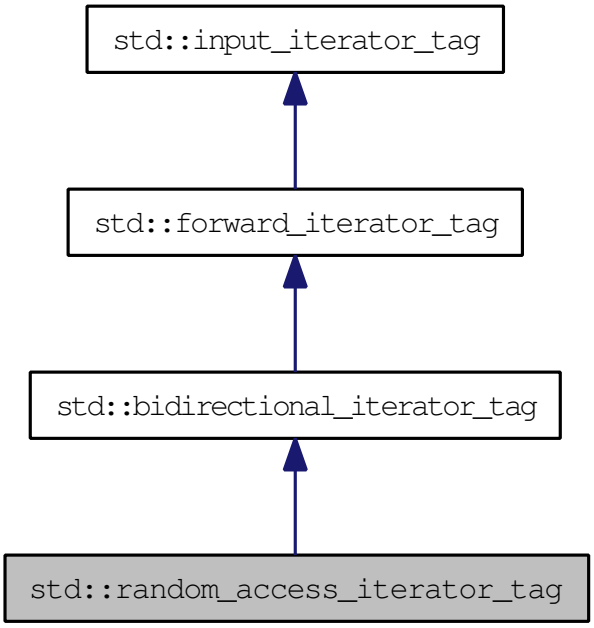
Referenced by std::operator==().

The documentation for this class was generated from the following file:

- stl_queue.h

5.652 std::random_access_iterator_tag Struct Reference

Random-access iterators support a superset of bidirectional iterator operations. Inheritance diagram for std::random_access_iterator_tag:



5.652.1 Detailed Description

Random-access iterators support a superset of bidirectional iterator operations.

Definition at line 93 of file stl_iterator_base_types.h.

The documentation for this struct was generated from the following file:

- stl_iterator_base_types.h

5.653 std::random_device Class Reference

Public Types

- typedef unsigned int result_type

Public Member Functions

- **random_device** (const random_device &)
- **random_device** (const std::string &__token="/dev/urandom")
- double **entropy** () const
- result_type **max** () const
- result_type **min** () const
- result_type **operator()** ()
- void **operator=** (const random_device &)

5.653.1 Detailed Description

A standard interface to a platform-specific non-deterministic random number generator (if any are available).

Definition at line 1389 of file random.h.

5.653.2 Member Typedef Documentation

5.653.2.1 typedef unsigned int std::random_device::result_type

The type of the generated random value.

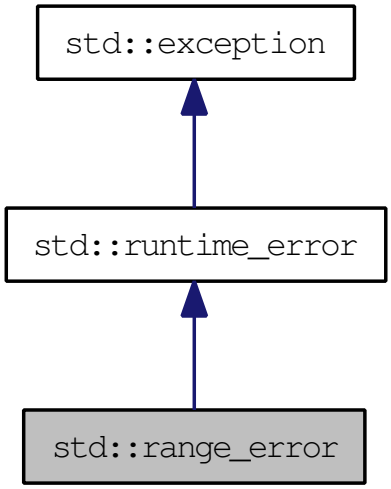
Definition at line 1393 of file random.h.

The documentation for this class was generated from the following file:

- random.h

5.654 std::range_error Class Reference

Inheritance diagram for std::range_error:



Public Member Functions

- **range_error** (const string &__arg)
- virtual const char * what () const throw ()

5.654.1 Detailed Description

Thrown to indicate range errors in internal computations.

Definition at line 126 of file stdexcept.

5.654.2 Member Function Documentation

5.654.2.1 virtual const char* std::runtime_error::what () const throw () [virtual, inherited]

Returns a C-style character string describing the general cause of the current error (the same string passed to the ctor).

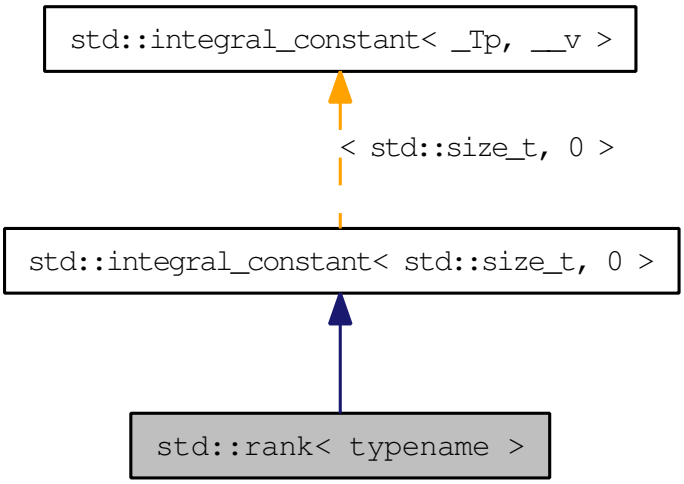
Reimplemented from std::exception.

The documentation for this class was generated from the following file:

- stdexcept

5.655 std::rank< typename > Struct Template Reference

rank Inheritance diagram for std::rank< typename >:



Public Types

- typedef integral_constant< std::size_t, __v > **type**
- typedef std::size_t **value_type**

Static Public Attributes

- static const std::size_t **value**

5.655.1 Detailed Description

template<typename> struct std::rank< typename >

rank

Definition at line 355 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.656 std::ratio< _Num, _Den > Struct Template Reference

Provides compile-time rational arithmetic.

Public Member Functions

- **static_assert** (_Num >=-__INTMAX_MAX__ &&_Den >=-__INTMAX_-MAX__,"out of range")
- **static_assert** (_Den!=0,"denominator cannot be zero")

Static Public Attributes

- static const intmax_t **den**
- static const intmax_t **num**

5.656.1 Detailed Description

template<intmax_t _Num, intmax_t _Den = 1> struct std::ratio< _Num, _Den >

Provides compile-time rational arithmetic. This class template represents any finite rational number with a numerator and denominator representable by compile-time constants of type intmax_t. The ratio is simplified when instantiated.

For example:

```
std::ratio<7,-21>::num == -1;
std::ratio<7,-21>::den == 3;
```

Definition at line 151 of file ratio.

The documentation for this struct was generated from the following file:

- ratio

5.657 std::ratio_add< _R1, _R2 > Struct Template Reference

ratio_add

Public Types

- typedef ratio< __safe_add< __safe_multiply< _R1::num,(_R2::den/__gcd)>::value, __safe_multiply< _R2::num,(_R1::den/__gcd)>::value >::value, __safe_multiply< _R1::den,(_R2::den/__gcd)>::value > **type**

5.657.1 Detailed Description

template<typename _R1, typename _R2> struct std::ratio_add< _R1, _R2 >

ratio_add

Definition at line 173 of file ratio.

The documentation for this struct was generated from the following file:

- ratio

5.658 std::ratio_divide< _R1, _R2 > Struct Template Reference

ratio_divide

Public Types

- typedef ratio_multiply< _R1, ratio< _R2::den, _R2::num > >::type **type**

Public Member Functions

- **static_assert** (_R2::num!=0,"division by 0")

5.658.1 Detailed Description

template<typename _R1, typename _R2> struct std::ratio_divide< _R1, _R2 >

ratio_divide

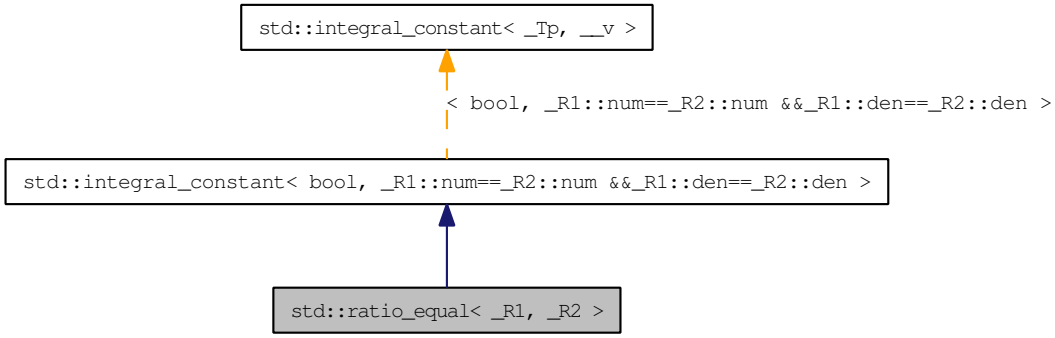
Definition at line 216 of file ratio.

The documentation for this struct was generated from the following file:

- ratio

5.659 std::ratio_equal< _R1, _R2 > Struct Template Reference

ratio_equal Inheritance diagram for std::ratio_equal< _R1, _R2 >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.659.1 Detailed Description

template<typename _R1, typename _R2> struct std::ratio_equal< _R1, _R2 >

ratio_equal

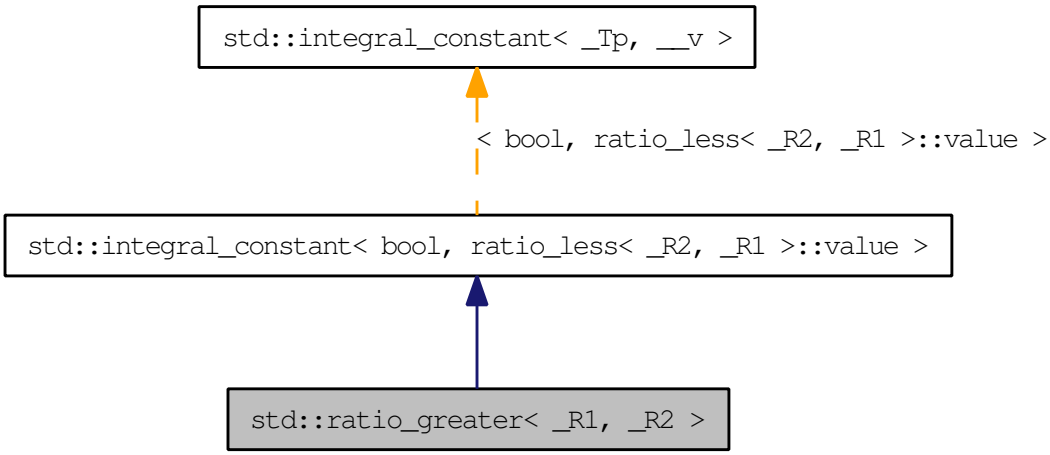
Definition at line 227 of file ratio.

The documentation for this struct was generated from the following file:

- ratio

5.660 std::ratio_greater< _R1, _R2 > Struct Template Reference

ratio_greater Inheritance diagram for std::ratio_greater< _R1, _R2 >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.660.1 Detailed Description

template<typename _R1, typename _R2> struct std::ratio_greater< _R1, _R2 >

ratio_greater

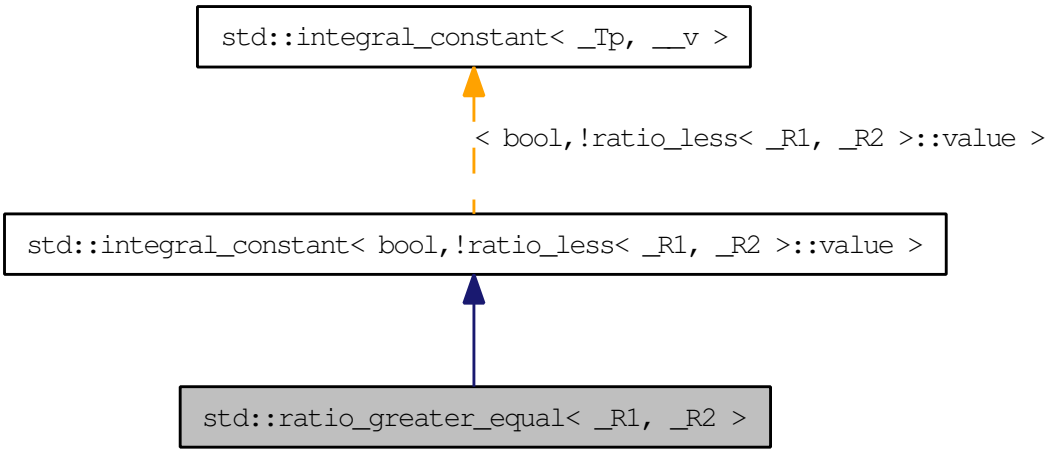
Definition at line 269 of file ratio.

The documentation for this struct was generated from the following file:

- ratio

5.661 std::ratio_greater_equal< _R1, _R2 > Struct Template Reference

ratio_greater_equal Inheritance diagram for std::ratio_greater_equal< _R1, _R2 >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.661.1 Detailed Description

template<typename _R1, typename _R2> struct std::ratio_greater_equal< _R1, _R2 >

ratio_greater_equal

Definition at line 275 of file ratio.

The documentation for this struct was generated from the following file:

- ratio

5.662 std::ratio_less< _R1, _R2 > Struct Template Reference

ratio_less

Inherits __ratio_less_impl::type< _R1, _R2 >.

5.662.1 Detailed Description

template<typename _R1, typename _R2> struct std::ratio_less< _R1, _R2 >

ratio_less

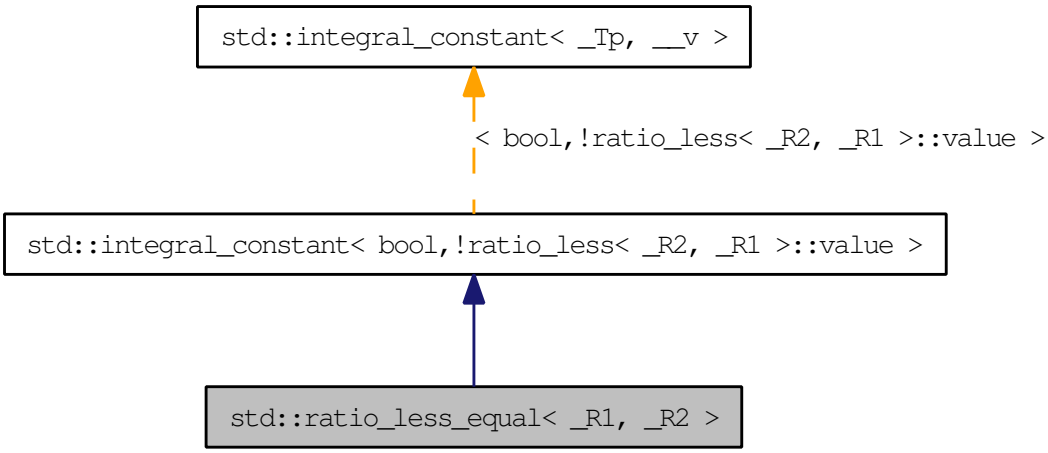
Definition at line 257 of file ratio.

The documentation for this struct was generated from the following file:

- ratio

5.663 std::ratio_less_equal< _R1, _R2 > Struct Template Reference

ratio_less_equal Inheritance diagram for std::ratio_less_equal< _R1, _R2 >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.663.1 Detailed Description

template<typename _R1, typename _R2> struct std::ratio_less_equal< _R1, _R2 >

ratio_less_equal

Definition at line 263 of file ratio.

The documentation for this struct was generated from the following file:

- ratio

5.664 std::ratio_multiply< _R1, _R2 > Struct Template Reference

ratio_multiply

Public Types

- typedef ratio< __safe_multiply<(_R1::num/__gcd1),(_R2::num/__gcd2)>::value, __safe_multiply<(_R1::den/__gcd2),(_R2::den/__gcd1)>::value > **type**

5.664.1 Detailed Description

template<typename _R1, typename _R2> struct std::ratio_multiply< _R1, _R2 >

ratio_multiply

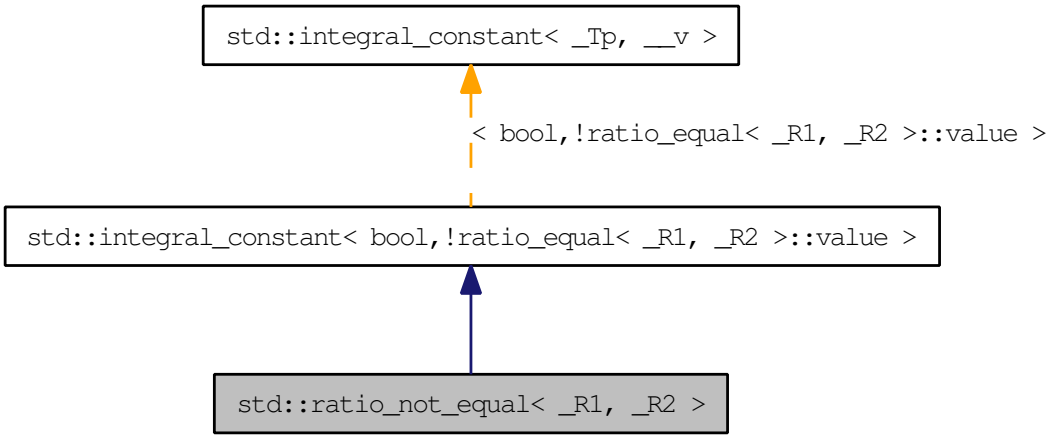
Definition at line 198 of file ratio.

The documentation for this struct was generated from the following file:

- ratio

5.665 std::ratio_not_equal< _R1, _R2 > Struct Template Reference

ratio_not_equal Inheritance diagram for std::ratio_not_equal< _R1, _R2 >:



Public Types

- typedef integral_constant< bool, __v > **type**
- typedef bool **value_type**

Static Public Attributes

- static const bool **value**

5.665.1 Detailed Description

template<typename _R1, typename _R2> struct std::ratio_not_equal< _R1, _R2 >

ratio_not_equal

Definition at line 233 of file ratio.

The documentation for this struct was generated from the following file:

- ratio

5.666 std::ratio_subtract< _R1, _R2 > Struct Template Reference

ratio_subtract

Public Types

- typedef ratio_add< _R1, ratio<-_R2::num, _R2::den > >::type **type**

5.666.1 Detailed Description

template<typename _R1, typename _R2> struct std::ratio_subtract< _R1, _R2 >

ratio_subtract

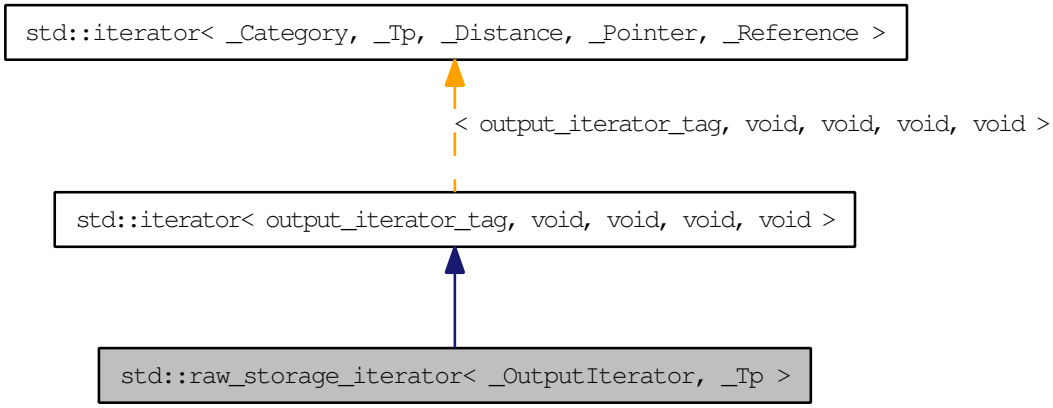
Definition at line 189 of file ratio.

The documentation for this struct was generated from the following file:

- ratio

5.667 std::raw_storage_iterator< _OutputIterator, _Tp > Class Template Reference

Inheritance diagram for std::raw_storage_iterator< _OutputIterator, _Tp >:



Public Types

- typedef void difference_type
- typedef output_iterator_tag iterator_category
- typedef void pointer
- typedef void reference
- typedef void value_type

Public Member Functions

- **raw_storage_iterator** (_OutputIterator __x)
- raw_storage_iterator & **operator*** ()
- raw_storage_iterator< _OutputIterator, _Tp > **operator++** (int)
- raw_storage_iterator< _OutputIterator, _Tp > & **operator++** ()
- raw_storage_iterator & **operator=** (const _Tp &__element)

Protected Attributes

- _OutputIterator **_M_iter**

5.667.1 Detailed Description

template<class _OutputIterator, class _Tp> class std::raw_storage_iterator< _-OutputIterator, _Tp >

This iterator class lets algorithms store their results into uninitialized memory.

Definition at line 67 of file stl_raw_storage_iter.h.

5.667.2 Member Typedef Documentation

5.667.2.1 typedef void std::iterator< output_iterator_tag , void , void , void , void >::difference_type [inherited]

Distance between iterators is represented as this type.

Definition at line 115 of file stl_iterator_base_types.h.

5.667.2.2 typedef output_iterator_tag std::iterator< output_iterator_tag , void , void , void , void >::iterator_category [inherited]

One of the tag types.

Definition at line 111 of file stl_iterator_base_types.h.

5.667.2.3 typedef void std::iterator< output_iterator_tag , void , void , void , void >::pointer [inherited]

This type represents a pointer-to-value_type.

Definition at line 117 of file stl_iterator_base_types.h.

5.667.2.4 typedef void std::iterator< output_iterator_tag , void , void , void , void >::reference [inherited]

This type represents a reference-to-value_type.

Definition at line 119 of file stl_iterator_base_types.h.

5.667.2.5 typedef void std::iterator< output_iterator_tag , void , void , void , void >::value_type [inherited]

The type "pointed to" by the iterator.

Definition at line 113 of file stl_iterator_base_types.h.

The documentation for this class was generated from the following file:

- stl_raw_storage_iter.h

5.668 std::recursive_mutex Class Reference

recursive_mutex

Public Types

- typedef __native_type * **native_handle_type**

Public Member Functions

- **recursive_mutex** (const recursive_mutex &)
- void **lock** ()
- native_handle_type **native_handle** ()
- recursive_mutex & **operator=** (const recursive_mutex &)
- bool **try_lock** ()
- void **unlock** ()

5.668.1 Detailed Description

recursive_mutex

Definition at line 115 of file mutex.

The documentation for this class was generated from the following file:

- mutex

5.669 std::recursive_timed_mutex Class Reference

recursive_timed_mutex

Public Types

- typedef __native_type * **native_handle_type**

Public Member Functions

- **recursive_timed_mutex** (const recursive_timed_mutex &)
- void **lock** ()
- native_handle_type **native_handle** ()
- recursive_timed_mutex & **operator=** (const recursive_timed_mutex &)
- bool **try_lock** ()
- template<class _Rep , class _Period >
  bool **try_lock_for** (const chrono::duration< _Rep, _Period > &__rtime)
- template<class _Clock , class _Duration >
  bool **try_lock_until** (const chrono::time_point< _Clock, _Duration > &__atime)
- void **unlock** ()

5.669.1 Detailed Description

recursive_timed_mutex

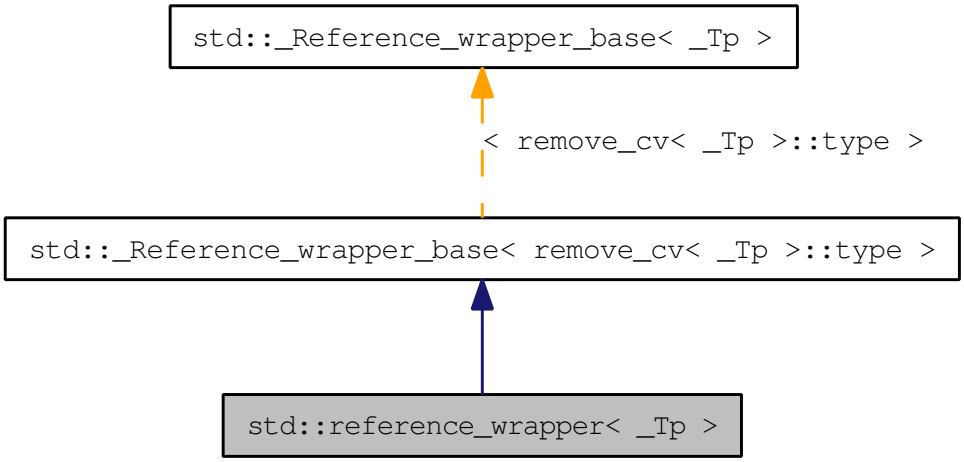
Definition at line 271 of file mutex.

The documentation for this class was generated from the following file:

- mutex

5.670 std::reference_wrapper< _Tp > Class Template Reference

Primary class template for reference_wrapper. Inheritance diagram for std::reference_wrapper< _Tp >:



Public Types

- typedef _Tp **type**

Public Member Functions

- **reference_wrapper** (const reference_wrapper< _Tp > &__inref)
- **reference_wrapper** (_Tp &&)
- **reference_wrapper** (_Tp &__indata)
- _Tp & **get** () const
- **operator _Tp &** () const
- template<typename... _Args>
  result_of< _M_func_type(_Args...)>::type **operator()** (_Args &&...__args) const
- reference_wrapper & **operator=** (const reference_wrapper< _Tp > &__inref)

5.670.1 Detailed Description

template<typename _Tp> class std::reference_wrapper< _Tp >

Primary class template for reference_wrapper.

Definition at line 392 of file functional.

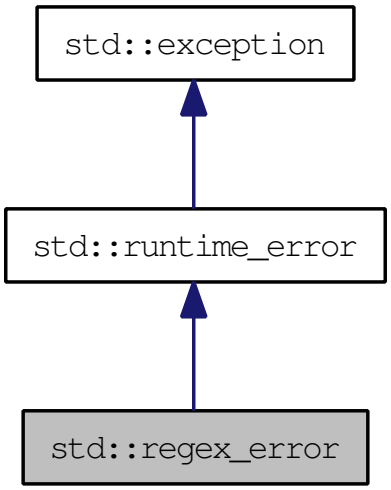
The documentation for this class was generated from the following file:

- functional

5.671 std::regex_error Class Reference

A regular expression exception class.

The regular expression library throws objects of this class on error. Inheritance diagram for std::regex_error:



Public Member Functions

- regex_error (regex_constants::error_type __ecode)
- regex_constants::error_type code () const
- virtual const char * what () const throw ()

Protected Attributes

- regex_constants::error_type **_M_code**

5.671.1 Detailed Description

A regular expression exception class.

The regular expression library throws objects of this class on error.

Definition at line 395 of file tr1_impl/regex.

5.671.2 Constructor & Destructor Documentation

5.671.2.1 std::regex_error::regex_error (regex_constants::error_type *__ecode*) [inline, explicit]

Constructs a regex_error object.

Parameters:

ecode the regex error code.

Definition at line 405 of file tr1_impl/regex.

5.671.3 Member Function Documentation

5.671.3.1 regex_constants::error_type std::regex_error::code () const [inline]

Gets the regex error code.

Returns:

the regex error code.

Definition at line 415 of file tr1_impl/regex.

5.671.3.2 virtual const char* std::runtime_error::what () const throw () [virtual, inherited]

Returns a C-style character string describing the general cause of the current error (the same string passed to the ctor).

Reimplemented from std::exception.

The documentation for this class was generated from the following file:

- tr1_impl/regex

5.672 std::regex_iterator< _Bi_iter, _Ch_type, _Rx_traits > Class Template Reference

Public Types

- typedef std::ptrdiff_t **difference_type**
- typedef std::forward_iterator_tag **iterator_category**
- typedef const value_type * **pointer**
- typedef const value_type & **reference**
- typedef basic_regex< _Ch_type, _Rx_traits > **regex_type**
- typedef match_results< _Bi_iter > **value_type**

Public Member Functions

- regex_iterator (const regex_iterator &__rhs)
- regex_iterator (_Bi_iter __a, _Bi_iter __b, const regex_type &__re, regex_constants::match_flag_type __m=regex_constants::match_default)
- regex_iterator ()
- bool operator!= (const regex_iterator &__rhs)
- const value_type & operator* ()
- regex_iterator operator++ (int)
- regex_iterator & operator++ ()
- const value_type * operator-> ()
- regex_iterator & operator= (const regex_iterator &__rhs)
- bool operator== (const regex_iterator &__rhs)

5.672.1 Detailed Description

template<typename _Bi_iter, typename _Ch_type = typename iterator_traits<_Bi_iter>::value_type, typename _Rx_traits = regex_traits<_Ch_type>> class std::regex_iterator< _Bi_iter, _Ch_type, _Rx_traits >

An iterator adaptor that will provide repeated calls of regex_search over a range until no more matches remain.

Definition at line 2431 of file tr1_impl/regex.

5.672.2 Constructor & Destructor Documentation

5.672.2.1 template<typename _Bi_iter , typename _Ch_type = typename iterator_traits<_Bi_iter>::value_type, typename _Rx_traits = regex_traits<_Ch_type>> std::regex_iterator< _Bi_iter, _Ch_type, _Rx_traits >::regex_iterator ()

Provides a singular iterator, useful for indicating one-past-the-end of a range.

Todo

Implement this function.
Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

5.672.2.2 template<typename _Bi_iter , typename _Ch_type = typename iterator_traits<_Bi_iter>::value_type, typename _Rx_traits = regex_traits<_Ch_type>> std::regex_iterator< _Bi_iter, _Ch_type, _Rx_traits >::regex_iterator (_Bi_iter __*a*, _Bi_iter __*b*, const regex_type & __*re*, regex_constants::match_flag_type __*m* = regex_constants::match_default)

Constructs a regex_iterator...

Parameters:

a [IN] The start of a text range to search.

b [IN] One-past-the-end of the text range to search.

re [IN] The regular expression to match.

m [IN] Policy flags for match rules.

Todo

Implement this function.
Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

5.672.2.3 template<typename _Bi_iter , typename _Ch_type = typename iterator_traits<_Bi_iter>::value_type, typename _Rx_traits = regex_traits<_Ch_type>> std::regex_iterator< _Bi_iter, _Ch_type, _Rx_traits >::regex_iterator (const regex_iterator< _Bi_iter, _Ch_type, _Rx_traits > & __*rhs*)

Copy constructs a regex_iterator.

Todo

Implement this function.
Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg0000 for more.

5.672.3 Member Function Documentation

5.672.3.1 template<typename _Bi_iter , typename _Ch_type = typename iterator_traits<_Bi_iter>::value_type, typename _Rx_traits = regex_traits<_Ch_type>> bool std::regex_iterator< _Bi_iter, _Ch_type, _Rx_traits >::operator!= (const regex_iterator< _Bi_iter, _Ch_type, _Rx_traits > & *__rhs*)

Todo

Implement this function.
Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg0000 for more.

5.672.3.2 template<typename _Bi_iter , typename _Ch_type = typename iterator_traits<_Bi_iter>::value_type, typename _Rx_traits = regex_traits<_Ch_type>> const value_type& std::regex_iterator< _Bi_iter, _Ch_type, _Rx_traits >::operator* ()

Todo

Implement this function.
Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg0000 for more.

5.672.3.3 template<typename _Bi_iter , typename _Ch_type = typename iterator_traits<_Bi_iter>::value_type, typename _Rx_traits = regex_traits<_Ch_type>> regex_iterator std::regex_iterator< _Bi_iter, _Ch_type, _Rx_traits >::operator++ (int)

Todo

Implement this function.
Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg0000 for more.

5.672.3.4 template<typename _Bi_iter , typename _Ch_type = typename iterator_traits<_Bi_iter>::value_type, typename _Rx_traits = regex_traits<_Ch_type>> regex_iterator& std::regex_iterator< _Bi_iter, _Ch_type, _Rx_traits >::operator++ ()

Todo

Implement this function.
Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

5.672.3.5 template<typename _Bi_iter , typename _Ch_type = typename iterator_traits<_Bi_iter>::value_type, typename _Rx_traits = regex_traits<_Ch_type>> const value_type* std::regex_iterator< _Bi_iter, _Ch_type, _Rx_traits >::operator-> ()

Todo

Implement this function.
Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

5.672.3.6 template<typename _Bi_iter , typename _Ch_type = typename iterator_traits<_Bi_iter>::value_type, typename _Rx_traits = regex_traits<_Ch_type>> regex_iterator& std::regex_iterator< _Bi_iter, _Ch_type, _Rx_traits >::operator= (const regex_iterator< _Bi_iter, _Ch_type, _Rx_traits > & *__rhs*)

Todo

Implement this function.
Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

5.672.3.7 template<typename _Bi_iter , typename _Ch_type = typename iterator_traits<_Bi_iter>::value_type, typename _Rx_traits = regex_traits<_Ch_type>> bool std::regex_iterator< _Bi_iter, _Ch_type, _Rx_traits >::operator== (const regex_iterator< _Bi_iter, _Ch_type, _Rx_traits > & *__rhs*)

Todo

Implement this function.
Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

The documentation for this class was generated from the following file:

- tr1_impl/regex

5.673 std::regex_token_iterator< _Bi_iter, _Ch_type, _Rx_traits > Class Template Reference

Public Types

- typedef std::ptrdiff_t **difference_type**
- typedef std::forward_iterator_tag **iterator_category**
- typedef const value_type * **pointer**
- typedef const value_type & **reference**
- typedef basic_regex< _Ch_type, _Rx_traits > **regex_type**
- typedef sub_match< _Bi_iter > **value_type**

Public Member Functions

- regex_token_iterator (const regex_token_iterator &__rhs)
- template<std::size_t _Nm>
  regex_token_iterator (_Bi_iter __a, _Bi_iter __b, const regex_type &__re, const int(&__submatches)[_Nm], regex_constants::match_flag_type __m=regex_constants::match_default)
- regex_token_iterator (_Bi_iter __a, _Bi_iter __b, const regex_type &__re, const std::vector< int > &__submatches, regex_constants::match_flag_type __m=regex_constants::match_default)
- regex_token_iterator (_Bi_iter __a, _Bi_iter __b, const regex_type &&__re, int __submatch=0, regex_constants::match_flag_type __m=regex_constants::match_default)
- regex_token_iterator ()
- bool operator!= (const regex_token_iterator &__rhs)
- const value_type & operator* ()
- regex_token_iterator operator++ (int)
- regex_token_iterator & operator++ ()
- const value_type * operator-> ()
- regex_token_iterator & operator= (const regex_token_iterator &__rhs)
- bool operator== (const regex_token_iterator &__rhs)

5.673.1 Detailed Description

template<typename _Bi_iter, typename _Ch_type = typename iterator_traits<_Bi_iter>::value_type, typename _Rx_traits = regex_traits<_Ch_type>> class std::regex_token_iterator< _Bi_iter, _Ch_type, _Rx_traits >

Iterates over submatches in a range (or *splits* a text string).

The purpose of this iterator is to enumerate all, or all specified, matches of a regular expression within a text range. The dereferenced value of an iterator of this class is a std::tr1::sub_match object.

Definition at line 2546 of file tr1_impl/regex.

5.673.2 Constructor & Destructor Documentation

5.673.2.1 template<typename _Bi_iter , typename _Ch_type = typename iterator_traits<_Bi_iter>::value_type, typename _Rx_traits = regex_traits<_Ch_type>> std::regex_token_iterator< _Bi_iter, _Ch_type, _Rx_traits >::regex_token_iterator ()

Default constructs a regex_token_iterator.

Todo

Implement this function.

A default-constructed regex_token_iterator is a singular iterator that will compare equal to the one-past-the-end value for any iterator of the same type.

5.673.2.2 template<typename _Bi_iter , typename _Ch_type = typename iterator_traits<_Bi_iter>::value_type, typename _Rx_traits = regex_traits<_Ch_type>> std::regex_token_iterator< _Bi_iter, _Ch_type, _Rx_traits >::regex_token_iterator (_Bi_iter *__a*, _Bi_iter *__b*, const regex_type & *__re*, int *__submatch* = 0, regex_constants::match_flag_type *__m* = regex_constants::match_default)

Constructs a regex_token_iterator...

Parameters:

a [IN] The start of the text to search.

b [IN] One-past-the-end of the text to search.

re [IN] The regular expression to search for.

submatch [IN] Which submatch to return. There are some special values for this parameter:

- -1 each enumerated subexpression does NOT match the regular expression (aka field splitting)
- 0 the entire string matching the subexpression is returned for each match within the text.
- >0 enumerates only the indicated subexpression from a match within the text.

m [IN] Policy flags for match rules.

Todo

Implement this function.
Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

5.673.2.3 template<typename _Bi_iter , typename _Ch_type = typename iterator_traits<_Bi_iter>::value_type, typename _Rx_traits = regex_traits<_Ch_type>> std::regex_token_iterator< _Bi_iter, _Ch_type, _Rx_traits >::regex_token_iterator (_Bi_iter *__a*, _Bi_iter *__b*, const regex_type & *__re*, const std::vector< int > & *__submatches*, regex_constants::match_flag_type *__m* = regex_constants::match_default)

Constructs a regex_token_iterator...

Parameters:

a [IN] The start of the text to search.

b [IN] One-past-the-end of the text to search.

re [IN] The regular expression to search for.

submatches [IN] A list of subexpressions to return for each regular expression match within the text.

m [IN] Policy flags for match rules.

Todo

Implement this function.
Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

5.673.2.4 template<typename _Bi_iter , typename _Ch_type = typename iterator_traits<_Bi_iter>::value_type, typename _Rx_traits = regex_traits<_Ch_type>> template<std::size_t _Nm> std::regex_token_iterator< _Bi_iter, _Ch_type, _Rx_traits >::regex_token_iterator (_Bi_iter *__a*, _Bi_iter *__b*, const regex_type & *__re*, const int(&) *__submatches*[_Nm], regex_constants::match_flag_type *__m* = regex_constants::match_default) `[inline]`

Constructs a regex_token_iterator...

Parameters:

a [IN] The start of the text to search.

b [IN] One-past-the-end of the text to search.

re [IN] The regular expression to search for.

submatches [IN] A list of subexpressions to return for each regular expression match within the text.

m [IN] Policy flags for match rules.

Todo

Implement this function.
Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg0000 for more.

5.673.2.5 template<typename _Bi_iter , typename _Ch_type = typename iterator_traits<_Bi_iter>::value_type, typename _Rx_traits = regex_traits<_Ch_type>> std::regex_token_iterator< _Bi_iter, _Ch_type, _Rx_traits >::regex_token_iterator (const regex_token_iterator< _Bi_iter, _Ch_type, _Rx_traits > & *__rhs*)

Copy constructs a regex_token_iterator.

Parameters:

rhs [IN] A regex_token_iterator to copy.

Todo

Implement this function.

5.673.3 Member Function Documentation

5.673.3.1 template<typename _Bi_iter , typename _Ch_type = typename iterator_traits<_Bi_iter>::value_type, typename _Rx_traits = regex_traits<_Ch_type>> bool std::regex_token_iterator< _Bi_iter, _Ch_type, _Rx_traits >::operator!= (const regex_token_iterator< _Bi_iter, _Ch_type, _Rx_traits > & *__rhs*)

Compares a regex_token_iterator to another for inequality.

Todo

Implement this function.

5.673.3.2 template<typename _Bi_iter , typename _Ch_type = typename iterator_traits<_Bi_iter>::value_type, typename _Rx_traits = regex_traits<_Ch_type>> const value_type& std::regex_token_iterator< _Bi_iter, _Ch_type, _Rx_traits >::operator∗ ()

Dereferences a regex_token_iterator.

Todo

Implement this function.

5.673.3.3 template<typename _Bi_iter , typename _Ch_type = typename iterator_traits<_Bi_iter>::value_type, typename _Rx_traits = regex_traits<_Ch_type>> regex_token_iterator std::regex_token_iterator< _Bi_iter, _Ch_type, _Rx_traits >::operator++ (int)

Postincrements a regex_token_iterator.

Todo

Implement this function.

5.673.3.4 template<typename _Bi_iter , typename _Ch_type = typename iterator_traits<_Bi_iter>::value_type, typename _Rx_traits = regex_traits<_Ch_type>> regex_token_iterator& std::regex_token_iterator< _Bi_iter, _Ch_type, _Rx_traits >::operator++ ()

Increments a regex_token_iterator.

Todo

Implement this function.

5.673.3.5 template<typename _Bi_iter , typename _Ch_type = typename iterator_traits<_Bi_iter>::value_type, typename _Rx_traits = regex_traits<_Ch_type>> const value_type∗ std::regex_token_iterator< _Bi_iter, _Ch_type, _Rx_traits >::operator-> ()

Selects a regex_token_iterator member.

Todo

Implement this function.

5.673.3.6 template<typename _Bi_iter , typename _Ch_type = typename iterator_traits<_Bi_iter>::value_type, typename _Rx_traits = regex_traits<_Ch_type>> regex_token_iterator& std::regex_token_iterator< _Bi_iter, _Ch_type, _Rx_traits >::operator= (const regex_token_iterator< _Bi_iter, _Ch_type, _Rx_traits > & *__rhs*)

Assigns a regex_token_iterator to another.

Parameters:

rhs [IN] A regex_token_iterator to copy.

Todo

Implement this function.

5.673.3.7 template<typename _Bi_iter , typename _Ch_type = typename iterator_traits<_Bi_iter>::value_type, typename _Rx_traits = regex_traits<_Ch_type>> bool std::regex_token_iterator< _Bi_iter, _Ch_type, _Rx_traits >::operator== (const regex_token_iterator< _Bi_iter, _Ch_type, _Rx_traits > & *__rhs*)

Compares a regex_token_iterator to another for equality.

Todo

Implement this function.

The documentation for this class was generated from the following file:

- tr1_impl/regex

5.674 std::regex_traits< _Ch_type > Struct Template Reference

Describes aspects of a regular expression.

Public Types

- typedef std::ctype_base::mask **char_class_type**
- typedef _Ch_type **char_type**
- typedef std::locale **locale_type**
- typedef std::basic_string< char_type > **string_type**

Public Member Functions

- regex_traits ()
- locale_type getloc () const
- locale_type imbue (locale_type __loc)
- bool isctype (_Ch_type __c, char_class_type __f) const
- template<typename _Fwd_iter >
  char_class_type lookup_classname (_Fwd_iter __first, _Fwd_iter __last) const
- template<typename _Fwd_iter >
  string_type lookup_collatename (_Fwd_iter __first, _Fwd_iter __last) const
- template<typename _Fwd_iter >
  string_type transform (_Fwd_iter __first, _Fwd_iter __last) const
- template<typename _Fwd_iter >
  string_type transform_primary (_Fwd_iter __first, _Fwd_iter __last) const
- char_type translate (char_type __c) const
- char_type translate_nocase (char_type __c) const
- int value (_Ch_type __ch, int __radix) const

Static Public Member Functions

- static std::size_t length (const char_type *__p)

Protected Attributes

- locale_type **_M_locale**

5.674.1 Detailed Description

template<typename _Ch_type> struct std::regex_traits< _Ch_type >

Describes aspects of a regular expression. A regular expression traits class that satisfies the requirements of tr1 section [7.2].

The class regex is parameterized around a set of related types and functions used to complete the definition of its semantics. This class satisfies the requirements of such a traits class.

Definition at line 434 of file tr1_impl/regex.

5.674.2 Constructor & Destructor Documentation

5.674.2.1 template<typename _Ch_type > std::regex_traits< _Ch_type >::regex_traits () [inline]

Constructs a default traits object.

Definition at line 446 of file tr1_impl/regex.

5.674.3 Member Function Documentation

5.674.3.1 template<typename _Ch_type > locale_type std::regex_traits< _Ch_type >::getloc () const [inline]

Gets a copy of the current locale in use by the regex_traits object.

Definition at line 646 of file tr1_impl/regex.

5.674.3.2 template<typename _Ch_type > locale_type std::regex_traits< _Ch_type >::imbue (locale_type *__loc*) [inline]

Imbues the regex_traits object with a copy of a new locale.

Parameters:

loc A locale.

Returns:

a copy of the previous locale in use by the regex_traits object.

Note:

Calling imbue with a different locale than the one currently in use invalidates all cached data held by *this.

Definition at line 635 of file tr1_impl/regex.

References std::swap().

5.674.3.3 template<typename _Ch_type > static std::size_t std::regex_traits< _Ch_type >::length (const char_type * __p) [inline, static]

Gives the length of a C-style string starting at __p.

Parameters:

__p a pointer to the start of a character sequence.

Returns:

the number of characters between *__p and the first default-initialized value of type char_type. In other words, uses the C-string algorithm for determining the length of a sequence of characters.

Definition at line 460 of file tr1_impl/regex.

References std::basic_string< _CharT, _Traits, _Alloc >::length().

5.674.3.4 template<typename _Ch_type > template<typename _Fwd_iter > char_class_type std::regex_traits< _Ch_type >::lookup_classname (_Fwd_iter *__first*, _Fwd_iter *__last*) const [inline]

Maps one or more characters to a named character classification.

Parameters:

first beginning of the character sequence.

last one-past-the-end of the character sequence.

Returns:

an unspecified value that represents the character classification named by the character sequence designated by the iterator range [first, last). The value returned shall be independent of the case of the characters in the character sequence. If the name is not recognized then returns a value that compares equal to 0.

At least the following names (or their wide-character equivalent) are supported.

- d
- w

- s
- alnum
- alpha
- blank
- cntrl
- digit
- graph
- lower
- print
- punct
- space
- upper
- xdigit

Todo

Implement this function.

Referenced by std::regex_traits< _Ch_type >::isctype().

5.674.3.5 template<typename _Ch_type > template<typename _Fwd_iter > string_type std::regex_traits< _Ch_type >::lookup_collatename (_Fwd_iter __*first*, _Fwd_iter __*last*) const [inline]

Gets a collation element by name.

Parameters:

first beginning of the collation element name.

last one-past-the-end of the collation element name.

Returns:

a sequence of one or more characters that represents the collating element consisting of the character sequence designated by the iterator range [first, last). Returns an empty string if the character sequence is not a valid collating element.

Todo

Implement this function.

5.674.3.6 template<typename _Ch_type > template<typename _Fwd_iter > string_type std::regex_traits< _Ch_type >::transform (_Fwd_iter __*first*, _Fwd_iter __*last*) const [inline]

Gets a sort key for a character sequence.

Parameters:

first beginning of the character sequence.

last one-past-the-end of the character sequence.

Returns a sort key for the character sequence designated by the iterator range [F1, F2) such that if the character sequence [G1, G2) sorts before the character sequence [H1, H2) then v.transform(G1, G2) < v.transform(H1, H2).

What this really does is provide a more efficient way to compare a string to multiple other strings in locales with fancy collation rules and equivalence classes.

Returns:

a locale-specific sort key equivalent to the input range.

Exceptions:

std::bad_cast if the current locale does not have a collate facet.

Definition at line 513 of file tr1_impl/regex.

References std::basic_string< _CharT, _Traits, _Alloc >::data(), std::basic_string< _CharT, _Traits, _Alloc >::size(), std::collate< _CharT >::transform(), and std::use_facet().

5.674.3.7 template<typename _Ch_type > template<typename _Fwd_iter > string_type std::regex_traits< _Ch_type >::transform_primary (_Fwd_iter __*first*, _Fwd_iter __*last*) const [inline]

Dunno.

Parameters:

first beginning of the character sequence.

last one-past-the-end of the character sequence.

Effects: if typeid(use_facet<collate<_Ch_type> >) == typeid(collate_byname<_Ch_type>) and the form of the sort key returned by collate_byname<_Ch_type>::transform(first, last) is known and can be converted into a primary sort key then returns that key, otherwise returns an empty string. WTF??

Todo

Implement this function.

5.674.3.8 template<typename _Ch_type > char_type std::regex_traits< _Ch_type >::translate (char_type __c) const [inline]

Performs the identity translation.

Parameters:

c A character to the locale-specific character set.

Returns:

c.

Definition at line 471 of file tr1_impl/regex.

5.674.3.9 template<typename _Ch_type > char_type std::regex_traits< _Ch_type >::translate_nocase (char_type __c) const [inline]

Translates a character into a case-insensitive equivalent.

Parameters:

c A character to the locale-specific character set.

Returns:

the locale-specific lower-case equivalent of c.

Exceptions:

std::bad_cast if the imbued locale does not support the ctype facet.

Definition at line 484 of file tr1_impl/regex.

References std::tolower(), and std::use_facet().

The documentation for this struct was generated from the following file:

- tr1_impl/regex

5.675 std::remove_all_extents< _Tp > Struct Template Reference

remove_all_extents

Public Types

- typedef _Tp **type**

5.675.1 Detailed Description

template<typename _Tp> struct std::remove_all_extents< _Tp >

remove_all_extents

Definition at line 459 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.676 std::remove_const< _Tp > Struct Template Reference

remove_const

Public Types

- typedef _Tp **type**

5.676.1 Detailed Description

template<typename _Tp> struct std::remove_const< _Tp >

remove_const

Definition at line 400 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.677 std::remove_cv< _Tp > Struct Template Reference

remove_cv

Public Types

- typedef remove_const< typename remove_volatile< _Tp >::type >::type **type**

5.677.1 Detailed Description

template<typename _Tp> struct std::remove_cv< _Tp >

remove_cv

Definition at line 418 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.678 std::remove_extent< _Tp > Struct Template Reference

remove_extent

Public Types

- typedef _Tp **type**

5.678.1 Detailed Description

template<typename _Tp> struct std::remove_extent< _Tp >

remove_extent

Definition at line 446 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.679 std::remove_pointer< _Tp > Struct Template Reference

remove_pointer

Inherits std::__remove_pointer_helper< _Tp, remove_cv< _Tp >::type >.

Public Types

- typedef _Tp **type**

5.679.1 Detailed Description

template<typename _Tp> struct std::remove_pointer< _Tp >

remove_pointer

Definition at line 482 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.680 std::remove_reference< _Tp > Struct Template Reference

remove_reference

Public Types

- typedef _Tp **type**

5.680.1 Detailed Description

template<typename _Tp> struct std::remove_reference< _Tp >

remove_reference

Definition at line 98 of file type_traits.

The documentation for this struct was generated from the following file:

- type_traits

5.681 std::remove_volatile< _Tp > Struct Template Reference

remove_volatile

Public Types

- typedef _Tp **type**

5.681.1 Detailed Description

template<typename _Tp> struct std::remove_volatile< _Tp >

remove_volatile

Definition at line 409 of file tr1_impl/type_traits.

The documentation for this struct was generated from the following file:

- tr1_impl/type_traits

5.682 std::reverse_iterator< _Iterator > Class Template Reference

Inheritance diagram for std::reverse_iterator< _Iterator >:

Public Types

- typedef __traits_type::difference_type difference_type
- typedef iterator_traits< _Iterator >::iterator_category iterator_category
- typedef _Iterator **iterator_type**
- typedef __traits_type::pointer pointer
- typedef __traits_type::reference reference
- typedef iterator_traits< _Iterator >::value_type value_type

Public Member Functions

- template<typename _Iter >
  reverse_iterator (const reverse_iterator< _Iter > &__x)
- reverse_iterator (const reverse_iterator &__x)
- reverse_iterator (iterator_type __x)
- reverse_iterator ()
- iterator_type base () const
- reference operator* () const
- reverse_iterator operator+ (difference_type __n) const
- reverse_iterator operator++ (int)
- reverse_iterator & operator++ ()
- reverse_iterator & operator+= (difference_type __n)
- reverse_iterator operator- (difference_type __n) const
- reverse_iterator operator-- (int)
- reverse_iterator & operator-- ()
- reverse_iterator & operator-= (difference_type __n)
- pointer operator-> () const
- reference operator[ ] (difference_type __n) const

Protected Types

- typedef iterator_traits< _Iterator > **__traits_type**

Protected Attributes

- _Iterator **current**

5.682.1 Detailed Description

template<typename _Iterator> class std::reverse_iterator< _Iterator >

Bidirectional and random access iterators have corresponding reverse iterator adaptors that iterate through the data structure in the opposite direction. They have the same signatures as the corresponding iterators. The fundamental relation between a reverse iterator and its corresponding iterator `i` is established by the identity:

```
&*(reverse_iterator(i)) == &*(i - 1)
```

This mapping is dictated by the fact that while there is always a pointer past the end of an array, there might not be a valid pointer before the beginning of an array. [24.4.1]/1,2

Reverse iterators can be tricky and surprising at first. Their semantics make sense, however, and the trickiness is a side effect of the requirement that the iterators must be safe.

Definition at line 95 of file stl_iterator.h.

5.682.2 Member Typedef Documentation

5.682.2.1 template<typename _Iterator> typedef __traits_-type::difference_type std::reverse_iterator< _Iterator >::difference_type

Distance between iterators is represented as this type.

Reimplemented from std::iterator< iterator_traits< _Iterator >::iterator_category, iterator_traits< _Iterator >::value_type, iterator_traits< _Iterator >::difference_type, iterator_traits< _Iterator >::pointer, iterator_traits< _Iterator >::reference >.

Definition at line 109 of file stl_iterator.h.

5.682.2.2 typedef iterator_traits< _Iterator >::iterator_category std::iterator< iterator_traits< _Iterator >::iterator_category , iterator_traits< _Iterator >::value_type , iterator_traits< _Iterator >::difference_type , iterator_traits< _Iterator >::pointer , iterator_traits< _Iterator >::reference >::iterator_category [inherited]

One of the tag types.

Definition at line 111 of file stl_iterator_base_types.h.

5.682.2.3 template<typename _Iterator> typedef __traits_type::pointer std::reverse_iterator< _Iterator >::pointer

This type represents a pointer-to-value_type.

Reimplemented from std::iterator< iterator_traits< _Iterator >::iterator_category, iterator_traits< _Iterator >::value_type, iterator_traits< _Iterator >::difference_type, iterator_traits< _Iterator >::pointer, iterator_traits< _Iterator >::reference >.

Definition at line 110 of file stl_iterator.h.

5.682.2.4 template<typename _Iterator> typedef __traits_type::reference std::reverse_iterator< _Iterator >::reference

This type represents a reference-to-value_type.

Reimplemented from std::iterator< iterator_traits< _Iterator >::iterator_category, iterator_traits< _Iterator >::value_type, iterator_traits< _Iterator >::difference_type, iterator_traits< _Iterator >::pointer, iterator_traits< _Iterator >::reference >.

Definition at line 111 of file stl_iterator.h.

5.682.2.5 typedef iterator_traits< _Iterator >::value_type std::iterator< iterator_traits< _Iterator >::iterator_category , iterator_traits< _Iterator >::value_type , iterator_traits< _Iterator >::difference_type , iterator_traits< _Iterator >::pointer , iterator_traits< _Iterator >::reference >::value_type [inherited]

The type "pointed to" by the iterator.

Definition at line 113 of file stl_iterator_base_types.h.

5.682.3 Constructor & Destructor Documentation

5.682.3.1 template<typename _Iterator> std::reverse_iterator< _Iterator >::reverse_iterator () [inline]

The default constructor default-initializes member `current`. If it is a pointer, that means it is zero-initialized.

Definition at line 119 of file stl_iterator.h.

5.682.3.2 template<typename _Iterator> std::reverse_iterator< _Iterator >::reverse_iterator (iterator_type __x) [inline, explicit]

This iterator will move in the opposite direction that x does.

Definition at line 125 of file stl_iterator.h.

5.682.3.3 template<typename _Iterator> std::reverse_iterator< _Iterator >::reverse_iterator (const reverse_iterator< _Iterator > & __x) [inline]

The copy constructor is normal.

Definition at line 130 of file stl_iterator.h.

5.682.3.4 template<typename _Iterator> template<typename _Iter > std::reverse_iterator< _Iterator >::reverse_iterator (const reverse_iterator< _Iter > & __x) [inline]

A reverse_iterator across other types can be copied in the normal fashion.

Definition at line 138 of file stl_iterator.h.

5.682.4 Member Function Documentation

5.682.4.1 template<typename _Iterator> iterator_type std::reverse_iterator< _Iterator >::base () const [inline]

Returns:

`current`, the iterator used for underlying work.

Definition at line 145 of file stl_iterator.h.

Referenced by std::operator==().

5.682.4.2 template<typename _Iterator> reference std::reverse_iterator< _Iterator >::operator* () const [inline]

Returns:

TODO

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Definition at line 154 of file stl_iterator.h.

5.682.4.3 template<typename _Iterator> reverse_iterator std::reverse_iterator< _Iterator >::operator+ (difference_type __n) const [inline]

Returns:

TODO

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg0000 for more.

Definition at line 225 of file stl_iterator.h.

5.682.4.4 template<typename _Iterator> reverse_iterator std::reverse_iterator< _Iterator >::operator++ (int) [inline]

Returns:

TODO

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg0000 for more.

Definition at line 187 of file stl_iterator.h.

5.682.4.5 template<typename _Iterator> reverse_iterator& std::reverse_iterator< _Iterator >::operator++ () [inline]

Returns:

TODO

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg0000 for more.

Definition at line 175 of file stl_iterator.h.

5.682.4.6 template<typename _Iterator> reverse_iterator& std::reverse_iterator< _Iterator >::operator+= (difference_type __n) [inline]

Returns:

TODO

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Definition at line 234 of file stl_iterator.h.

5.682.4.7 template<typename _Iterator> reverse_iterator std::reverse_iterator< _Iterator >::operator- (difference_type __n) const [inline]

Returns:

TODO

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Definition at line 246 of file stl_iterator.h.

5.682.4.8 template<typename _Iterator> reverse_iterator std::reverse_iterator< _Iterator >::operator-- (int) [inline]

Returns:

TODO

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

Definition at line 212 of file stl_iterator.h.

5.682.4.9 template<typename _Iterator> reverse_iterator& std::reverse_iterator< _Iterator >::operator-- () [inline]

Returns:

TODO

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg0000 for more.

Definition at line 200 of file stl_iterator.h.

5.682.4.10 template<typename _Iterator> reverse_iterator& std::reverse_iterator< _Iterator >::operator-= (difference_type __n) [inline]

Returns:

TODO

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg0000 for more.

Definition at line 255 of file stl_iterator.h.

5.682.4.11 template<typename _Iterator> pointer std::reverse_iterator< _Iterator >::operator-> () const [inline]

Returns:

TODO

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg0000 for more.

Definition at line 166 of file stl_iterator.h.

5.682.4.12 template<typename _Iterator> reference std::reverse_iterator< _Iterator >::operator[ ] (difference_type __n) const [inline]

Returns:

TODO

Todo

Doc me! See doc/doxygen/TODO and http://gcc.gnu.org/ml/libstdc++/2002-02/msg00003.html for more.

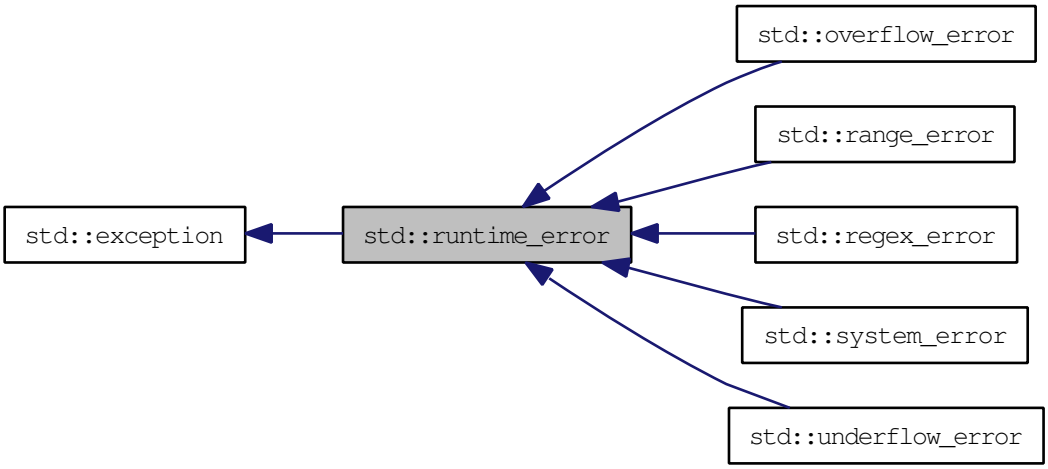
Definition at line 267 of file stl_iterator.h.

The documentation for this class was generated from the following file:

- stl_iterator.h

5.683 std::runtime_error Class Reference

One of two subclasses of exception. Inheritance diagram for std::runtime_error:



Public Member Functions

- runtime_error (const string &__arg)
- virtual const char * what () const throw ()

5.683.1 Detailed Description

One of two subclasses of exception. Runtime errors represent problems outside the scope of a program; they cannot be easily predicted and can generally only be caught as the program executes.

Definition at line 107 of file stdexcept.

5.683.2 Constructor & Destructor Documentation

5.683.2.1 std::runtime_error::runtime_error (const string & *__arg*) [explicit]

Takes a character string describing the error.

5.683.3 Member Function Documentation

5.683.3.1 virtual const char* std::runtime_error::what () const throw () [virtual]

Returns a C-style character string describing the general cause of the current error (the same string passed to the ctor).

Reimplemented from std::exception.

The documentation for this class was generated from the following file:

- stdexcept

5.684 std::seed_seq Class Reference

The seed_seq class generates sequences of seeds for random number generators.

Public Types

- typedef uint_least32_t result_type

Public Member Functions

- template<typename _InputIterator >
  seed_seq (_InputIterator __begin, _InputIterator __end)
- template<typename _IntType >
  seed_seq (std::initializer_list< _IntType > il)
- seed_seq ()
- template<typename _RandomAccessIterator >
  void **generate** (_RandomAccessIterator __begin, _RandomAccessIterator __end)
- template<typename OutputIterator >
  void **param** (OutputIterator __dest) const
- size_t **size** () const

5.684.1 Detailed Description

The seed_seq class generates sequences of seeds for random number generators.

Definition at line 4625 of file random.h.

5.684.2 Member Typedef Documentation

5.684.2.1 typedef uint_least32_t std::seed_seq::result_type

The type of the seed vales.

Definition at line 4630 of file random.h.

5.684.3 Constructor & Destructor Documentation

5.684.3.1 std::seed_seq::seed_seq () [inline]

Default constructor.

Definition at line 4633 of file random.h.

The documentation for this class was generated from the following files:

- random.h
- random.tcc

5.685 std::set< _Key, _Compare, _Alloc > Class Template Reference

A standard container made up of unique keys, which can be retrieved in logarithmic time.

Public Member Functions

- set (initializer_list< value_type > __l, const _Compare &__comp=_Compare(), const allocator_type &__a=allocator_type())
- set (set &&__x)
- set (const set &__x)
- template<typename _InputIterator >
  set (_InputIterator __first, _InputIterator __last, const _Compare &__comp, const allocator_type &__a=allocator_type())
- template<typename _InputIterator >
  set (_InputIterator __first, _InputIterator __last)
- set (const _Compare &__comp, const allocator_type &__a=allocator_type())
- set ()
- iterator begin () const
- iterator cbegin () const
- iterator cend () const
- void clear ()
- size_type count (const key_type &__x) const
- reverse_iterator crbegin () const
- reverse_iterator crend () const
- bool empty () const
- iterator end () const
- iterator erase (iterator __first, iterator __last)
- size_type erase (const key_type &__x)
- iterator erase (iterator __position)
- allocator_type get_allocator () const
- void insert (initializer_list< value_type > __l)
- template<typename _InputIterator >
  void insert (_InputIterator __first, _InputIterator __last)
- iterator insert (iterator __position, const value_type &__x)
- std::pair< iterator, bool > insert (const value_type &__x)
- key_compare key_comp () const
- size_type max_size () const
- set & operator= (initializer_list< value_type > __l)
- set & operator= (set &&__x)
- set & operator= (const set &__x)

- reverse_iterator rbegin () const
- reverse_iterator rend () const
- size_type size () const
- void swap (set &__x)
- value_compare value_comp () const

Friends

- template<typename _K1 , typename _C1 , typename _A1 >
  bool **operator**< (const set< _K1, _C1, _A1 > &, const set< _K1, _C1, _A1 > &)
- template<typename _K1 , typename _C1 , typename _A1 >
  bool **operator==** (const set< _K1, _C1, _A1 > &, const set< _K1, _C1, _A1 > &)

- typedef _Alloc allocator_type
- typedef _Rep_type::const_iterator const_iterator
- typedef _Key_alloc_type::const_pointer const_pointer
- typedef _Key_alloc_type::const_reference const_reference
- typedef _Rep_type::const_reverse_iterator const_reverse_iterator
- typedef _Rep_type::difference_type difference_type
- typedef _Rep_type::const_iterator iterator
- typedef _Compare key_compare
- typedef _Key key_type
- typedef _Key_alloc_type::pointer pointer
- typedef _Key_alloc_type::reference reference
- typedef _Rep_type::const_reverse_iterator reverse_iterator
- typedef _Rep_type::size_type size_type
- typedef _Compare value_compare
- typedef _Key value_type
- std::pair< const_iterator, const_iterator > equal_range (const key_type &__x) const
- std::pair< iterator, iterator > equal_range (const key_type &__x)
- const_iterator find (const key_type &__x) const
- iterator find (const key_type &__x)
- const_iterator lower_bound (const key_type &__x) const
- iterator lower_bound (const key_type &__x)
- const_iterator upper_bound (const key_type &__x) const
- iterator upper_bound (const key_type &__x)

5.685.1 Detailed Description

template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> class std::set< _Key, _Compare, _Alloc >

A standard container made up of unique keys, which can be retrieved in logarithmic time. Meets the requirements of a `container`, a `reversible container`, and an `associative container` (using unique keys).

Sets support bidirectional iterators.

Parameters:

Key Type of key objects.

Compare Comparison function object type, defaults to less<Key>.

Alloc Allocator type, defaults to allocator<Key>.

The private tree data is declared exactly the same way for set and multiset; the distinction is made entirely in how the tree functions are called (*_unique versus *_equal, same as the standard).

Definition at line 87 of file stl_set.h.

5.685.2 Member Typedef Documentation

5.685.2.1 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> typedef _Alloc std::set< _Key, _Compare, _Alloc >::allocator_type

Public typedefs.

Definition at line 104 of file stl_set.h.

5.685.2.2 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> typedef _Rep_type::const_iterator std::set< _Key, _Compare, _Alloc >::const_iterator

Public typedefs.

Definition at line 125 of file stl_set.h.

5.685.2.3 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> typedef _Key_alloc_type::const_pointer std::set< _Key, _Compare, _Alloc >::const_pointer

Public typedefs.

Definition at line 118 of file stl_set.h.

5.685.2.4 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> typedef _Key_alloc_type::const_reference std::set< _Key, _Compare, _Alloc >::const_reference

Public typedefs.

Definition at line 120 of file stl_set.h.

5.685.2.5 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> typedef _Rep_type::const_reverse_iterator std::set< _Key, _Compare, _Alloc >::const_reverse_iterator

Public typedefs.

Definition at line 127 of file stl_set.h.

5.685.2.6 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> typedef _Rep_type::difference_type std::set< _Key, _Compare, _Alloc >::difference_type

Public typedefs.

Definition at line 129 of file stl_set.h.

5.685.2.7 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> typedef _Rep_type::const_iterator std::set< _Key, _Compare, _Alloc >::iterator

Public typedefs.

Definition at line 124 of file stl_set.h.

5.685.2.8 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> typedef _Compare std::set< _Key, _Compare, _Alloc >::key_compare

Public typedefs.

Definition at line 102 of file stl_set.h.

5.685.2.9 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> typedef _Key std::set< _Key, _Compare, _Alloc >::key_type

Public typedefs.

Definition at line 100 of file stl_set.h.

5.685.2.10 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> typedef _Key_alloc_type::pointer std::set< _Key, _Compare, _Alloc >::pointer

Iterator-related typedefs.

Definition at line 117 of file stl_set.h.

5.685.2.11 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> typedef _Key_alloc_type::reference std::set< _Key, _Compare, _Alloc >::reference

Public typedefs.

Definition at line 119 of file stl_set.h.

5.685.2.12 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> typedef _Rep_type::const_reverse_iterator std::set< _Key, _Compare, _Alloc >::reverse_iterator

Public typedefs.

Definition at line 126 of file stl_set.h.

5.685.2.13 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> typedef _Rep_type::size_type std::set< _Key, _Compare, _Alloc >::size_type

Public typedefs.

Definition at line 128 of file stl_set.h.

5.685.2.14 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> typedef _Compare std::set< _Key, _Compare, _Alloc >::value_compare

Public typedefs.

Definition at line 103 of file stl_set.h.

5.685.2.15 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> typedef _Key std::set< _Key, _Compare, _Alloc >::value_type

Public typedefs.

Definition at line 101 of file stl_set.h.

5.685.3 Constructor & Destructor Documentation

5.685.3.1 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> std::set< _Key, _Compare, _Alloc >::set () [inline]

Default constructor creates no elements.

Definition at line 136 of file stl_set.h.

5.685.3.2 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> std::set< _Key, _Compare, _Alloc >::set (const _Compare & *__comp*, const allocator_type & *__a* = allocator_type()) [inline, explicit]

Creates a set with no elements.

Parameters:

comp Comparator to use.

a An allocator object.

Definition at line 145 of file stl_set.h.

5.685.3.3 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> template<typename _InputIterator > std::set< _Key, _Compare, _Alloc >::set (_InputIterator *__first*, _InputIterator *__last*) [inline]

Builds a set from a range.

Parameters:

first An input iterator.

last An input iterator.

Create a set consisting of copies of the elements from [first,last). This is linear in N if the range is already sorted, and NlogN otherwise (where N is distance(first,last)).

Definition at line 159 of file stl_set.h.

5.685.3.4 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> template<typename _InputIterator > std::set< _Key, _Compare, _Alloc >::set (_InputIterator *__first*, _InputIterator *__last*, const _Compare & *__comp*, const allocator_type & *__a* = allocator_type()) [inline]

Builds a set from a range.

Parameters:

first An input iterator.

last An input iterator.

comp A comparison functor.

a An allocator object.

Create a set consisting of copies of the elements from [first,last). This is linear in N if the range is already sorted, and NlogN otherwise (where N is distance(first,last)).

Definition at line 175 of file stl_set.h.

5.685.3.5 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> std::set< _Key, _Compare, _Alloc >::set (const set< _Key, _Compare, _Alloc > & __x) [inline]

Set copy constructor.

Parameters:

x A set of identical element and allocator types.

The newly-created set uses a copy of the allocation object used by *x*.

Definition at line 188 of file stl_set.h.

5.685.3.6 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> std::set< _Key, _Compare, _Alloc >::set (set< _Key, _Compare, _Alloc > && __x) [inline]

Set move constructor

Parameters:

x A set of identical element and allocator types.

The newly-created set contains the exact contents of *x*. The contents of *x* are a valid, but unspecified set.

Definition at line 199 of file stl_set.h.

5.685.3.7 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> std::set< _Key, _Compare, _Alloc >::set (initializer_list< value_type > __l, const _Compare & __comp = _Compare(), const allocator_type & __a = allocator_type()) [inline]

Builds a set from an initializer_list.

Parameters:

l An initializer_list.

comp A comparison functor.

a An allocator object.

Create a set consisting of copies of the elements in the list. This is linear in N if the list is already sorted, and NlogN otherwise (where N is *l.size()*).

Definition at line 212 of file stl_set.h.

5.685.4 Member Function Documentation

5.685.4.1 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> iterator std::set< _Key, _Compare, _Alloc >::begin () const [inline]

Returns a read-only (constant) iterator that points to the first element in the set. Iteration is done in ascending order according to the keys.

Definition at line 292 of file stl_set.h.

5.685.4.2 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> iterator std::set< _Key, _Compare, _Alloc >::cbegin () const [inline]

Returns a read-only (constant) iterator that points to the first element in the set. Iteration is done in ascending order according to the keys.

Definition at line 329 of file stl_set.h.

5.685.4.3 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> iterator std::set< _Key, _Compare, _Alloc >::cend () const [inline]

Returns a read-only (constant) iterator that points one past the last element in the set. Iteration is done in ascending order according to the keys.

Definition at line 338 of file stl_set.h.

5.685.4.4 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> void std::set< _Key, _Compare, _Alloc >::clear () [inline]

Erases all elements in a set. Note that this function only erases the elements, and that if the elements themselves are pointers, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 552 of file stl_set.h.

5.685.4.5 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> size_type std::set< _Key, _Compare, _Alloc >::count (const key_type & __*x*) const [inline]

Finds the number of elements.

Parameters:

x Element to located.

Returns:

Number of elements with specified key.

This function only makes sense for multisets; for set the result will either be 0 (not present) or 1 (present).

Definition at line 566 of file stl_set.h.

5.685.4.6 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> reverse_iterator std::set< _Key, _Compare, _Alloc >::crbegin () const [inline]

Returns a read-only (constant) iterator that points to the last element in the set. Iteration is done in descending order according to the keys.

Definition at line 347 of file stl_set.h.

5.685.4.7 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> reverse_iterator std::set< _Key, _Compare, _Alloc >::crend () const [inline]

Returns a read-only (constant) reverse iterator that points to the last pair in the set. Iteration is done in descending order according to the keys.

Definition at line 356 of file stl_set.h.

5.685.4.8 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> bool std::set< _Key, _Compare, _Alloc >::empty () const [inline]

Returns true if the set is empty.

Definition at line 362 of file stl_set.h.

5.685.4.9 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> iterator std::set< _Key, _Compare, _Alloc >::end () const [inline]

Returns a read-only (constant) iterator that points one past the last element in the set. Iteration is done in ascending order according to the keys.

Definition at line 301 of file stl_set.h.

5.685.4.10 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> std::pair<const_iterator, const_iterator> std::set< _Key, _Compare, _Alloc >::equal_range (const key_type & __x) const [inline]

Public typedefs.

Definition at line 650 of file stl_set.h.

5.685.4.11 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> std::pair<iterator, iterator> std::set< _Key, _Compare, _Alloc >::equal_range (const key_type & __x) [inline]

Finds a subsequence matching given key.

Parameters:

x Key to be located.

Returns:

Pair of iterators that possibly points to the subsequence matching given key.

This function is equivalent to

```
std::make_pair(c.lower_bound(val),
               c.upper_bound(val))
```

(but is faster than making the calls separately).

This function probably only makes sense for multisets.

Definition at line 646 of file stl_set.h.

5.685.4.12 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> iterator std::set< _Key, _Compare, _Alloc >::erase (iterator *__first*, iterator *__last*) [inline]

Erases a [first,last) range of elements from a set.

Parameters:

first Iterator pointing to the start of the range to be erased.

last Iterator pointing to the end of the range to be erased.

Returns:

The iterator *last*.

This function erases a sequence of elements from a set. Note that this function only erases the element, and that if the element is itself a pointer, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 526 of file stl_set.h.

5.685.4.13 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> size_type std::set< _Key, _Compare, _Alloc >::erase (const key_type & __x) [inline]

Erases elements according to the provided key.

Parameters:

x Key of element to be erased.

Returns:

The number of elements erased.

This function erases all the elements located by the given key from a set. Note that this function only erases the element, and that if the element is itself a pointer, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 507 of file stl_set.h.

5.685.4.14 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> iterator std::set< _Key, _Compare, _Alloc >::erase (iterator *__position*) [inline]

Erases an element from a set.

Parameters:

position An iterator pointing to the element to be erased.

Returns:

An iterator pointing to the element immediately following *position* prior to the element being erased. If no such element exists, end() is returned.

This function erases an element, pointed to by the given iterator, from a set. Note that this function only erases the element, and that if the element is itself a pointer,

the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 478 of file stl_set.h.

5.685.4.15 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> const_iterator std::set< _Key, _Compare, _Alloc >::find (const key_type & __x) const [inline]

Public typedefs.

Definition at line 588 of file stl_set.h.

5.685.4.16 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> iterator std::set< _Key, _Compare, _Alloc >::find (const key_type & __x) [inline]

Tries to locate an element in a set.

Parameters:

x Element to be located.

Returns:

Iterator pointing to sought-after element, or end() if not found.

This function takes a key and tries to locate the element with which the key matches. If successful the function returns an iterator pointing to the sought after element. If unsuccessful it returns the past-the-end (`end()`) iterator.

Definition at line 584 of file stl_set.h.

5.685.4.17 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> allocator_type std::set< _Key, _Compare, _Alloc >::get_allocator () const [inline]

Returns the allocator object with which the set was constructed.

Definition at line 283 of file stl_set.h.

5.685.4.18 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> void std::set< _Key, _Compare, _Alloc >::insert (initializer_list< value_type > __l) [inline]

Attempts to insert a list of elements into the set.

Parameters:

list A std::initializer_list<value_type> of elements to be inserted.

Complexity similar to that of the range constructor.

Definition at line 458 of file stl_set.h.

References std::set< _Key, _Compare, _Alloc >::insert().

Referenced by std::set< _Key, _Compare, _Alloc >::insert().

5.685.4.19 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> template<typename _InputIterator > void std::set< _Key, _Compare, _Alloc >::insert (_InputIterator __*first*, _InputIterator __*last*) [inline]

A template function that attempts to insert a range of elements.

Parameters:

first Iterator pointing to the start of the range to be inserted.

last Iterator pointing to the end of the range.

Complexity similar to that of the range constructor.

Definition at line 446 of file stl_set.h.

5.685.4.20 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> iterator std::set< _Key, _Compare, _Alloc >::insert (iterator __*position*, const value_type & __*x*) [inline]

Attempts to insert an element into the set.

Parameters:

position An iterator that serves as a hint as to where the element should be inserted.

x Element to be inserted.

Returns:

An iterator that points to the element with key of *x* (may or may not be the element passed in).

This function is not concerned about whether the insertion took place, and thus does not return a boolean like the single-argument insert() does. Note that the first parameter is only a hint and can potentially improve the performance of the insertion process. A bad hint would cause no gains in efficiency.

For more on *hinting*, see: http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt07ch17

Insertion requires logarithmic time (if the hint is not taken).

Definition at line 432 of file stl_set.h.

5.685.4.21 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> std::pair<iterator, bool> std::set< _Key, _Compare, _Alloc >::insert (const value_type & __x) [inline]

Attempts to insert an element into the set.

Parameters:

x Element to be inserted.

Returns:

A pair, of which the first element is an iterator that points to the possibly inserted element, and the second is a bool that is true if the element was actually inserted.

This function attempts to insert an element into the set. A set relies on unique keys and thus an element is only inserted if it is not already present in the set.

Insertion requires logarithmic time.

Definition at line 405 of file stl_set.h.

References std::pair< _T1, _T2 >::first, and std::pair< _T1, _T2 >::second.

5.685.4.22 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> key_compare std::set< _Key, _Compare, _Alloc >::key_comp () const [inline]

Returns the comparison object with which the set was constructed.

Definition at line 275 of file stl_set.h.

5.685.4.23 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> const_iterator std::set< _Key, _Compare, _Alloc >::lower_bound (const key_type & __x) const [inline]

Public typedefs.

Definition at line 609 of file stl_set.h.

5.685.4.24 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> iterator std::set< _Key, _Compare, _Alloc >::lower_bound (const key_type & __x) [inline]

Finds the beginning of a subsequence matching given key.

Parameters:

x Key to be located.

Returns:

Iterator pointing to first element equal to or greater than key, or end().

This function returns the first element of a subsequence of elements that matches the given key. If unsuccessful it returns an iterator pointing to the first element that has a greater value than given key or end() if no such element exists.

Definition at line 605 of file stl_set.h.

5.685.4.25 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> size_type std::set< _Key, _Compare, _Alloc >::max_size () const [inline]

Returns the maximum size of the set.

Definition at line 372 of file stl_set.h.

5.685.4.26 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> set& std::set< _Key, _Compare, _Alloc >::operator= (initializer_list< value_type > __l) [inline]

Set list assignment operator.

Parameters:

l An initializer_list.

This function fills a set with copies of the elements in the initializer list *l*.

Note that the assignment completely changes the set and that the resulting set's size is the same as the number of elements assigned. Old data may be lost.

Definition at line 263 of file stl_set.h.

5.685.4.27 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> set& std::set< _Key, _Compare, _Alloc >::operator= (set< _Key, _Compare, _Alloc > && __x) [inline]

Set move assignment operator.

Parameters:

x A set of identical element and allocator types.

The contents of *x* are moved into this set (without copying). *x* is a valid, but unspecified set.

Definition at line 242 of file stl_set.h.

References std::swap().

5.685.4.28 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> set& std::set< _Key, _Compare, _Alloc >::operator= (const set< _Key, _Compare, _Alloc > & __x) [inline]

Set assignment operator.

Parameters:

x A set of identical element and allocator types.

All the elements of *x* are copied, but unlike the copy constructor, the allocator object is not copied.

Definition at line 227 of file stl_set.h.

5.685.4.29 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> reverse_iterator std::set< _Key, _Compare, _Alloc >::rbegin () const [inline]

Returns a read-only (constant) iterator that points to the last element in the set. Iteration is done in descending order according to the keys.

Definition at line 310 of file stl_set.h.

5.685.4.30 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> reverse_iterator std::set< _Key, _Compare, _Alloc >::rend () const [inline]

Returns a read-only (constant) reverse iterator that points to the last pair in the set. Iteration is done in descending order according to the keys.

Definition at line 319 of file stl_set.h.

5.685.4.31 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> size_type std::set< _Key, _Compare, _Alloc >::size () const [inline]

Returns the size of the set.

Definition at line 367 of file stl_set.h.

5.685.4.32 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> void std::set< _Key, _Compare, _Alloc >::swap (set< _Key, _Compare, _Alloc > & __x) [inline]

Swaps data with another set.

Parameters:

x A set of the same element and allocator types.

This exchanges the elements between two sets in constant time. (It is only swapping a pointer, an integer, and an instance of the `Compare` type (which itself is often stateless and empty), so it should be quite fast.) Note that the global std::swap() function is specialized such that std::swap(s1,s2) will feed to this function.

Definition at line 387 of file stl_set.h.

Referenced by std::swap().

5.685.4.33 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> const_iterator std::set< _Key, _Compare, _Alloc >::upper_bound (const key_type & __x) const [inline]

Public typedefs.

Definition at line 625 of file stl_set.h.

5.685.4.34 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> iterator std::set< _Key, _Compare, _Alloc >::upper_bound (const key_type & __x) [inline]

Finds the end of a subsequence matching given key.

Parameters:

x Key to be located.

Returns:

Iterator pointing to the first element greater than key, or end().

Definition at line 621 of file stl_set.h.

5.685.4.35 template<typename _Key, typename _Compare = std::less<_Key>, typename _Alloc = std::allocator<_Key>> value_compare std::set< _Key, _Compare, _Alloc >::value_comp () const [inline]

Returns the comparison object with which the set was constructed.

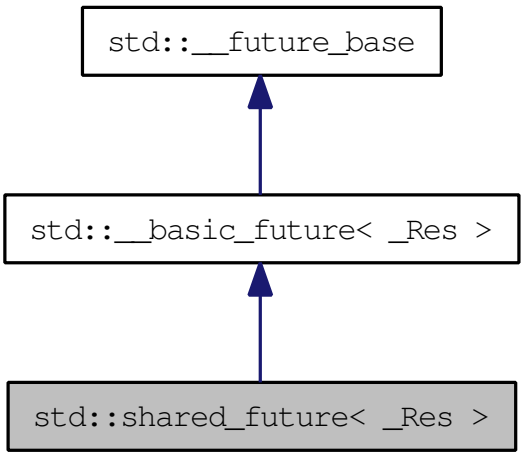
Definition at line 279 of file stl_set.h.

The documentation for this class was generated from the following file:

- stl_set.h

5.686 std::shared_future< _Res > Class Template Reference

Primary template for shared_future. Inheritance diagram for std::shared_future< _Res >:



Public Member Functions

- shared_future (shared_future &&__sf)
- shared_future (future< _Res > &&__uf)
- shared_future (const shared_future &__sf)
- const _Res & get ()
- shared_future & **operator=** (shared_future &&__sf)
- shared_future & **operator=** (const shared_future &__sf)
- bool **valid** () const
- void **wait** () const
- template<typename _Rep , typename _Period >
  bool **wait_for** (const chrono::duration< _Rep, _Period > &__rel) const
- template<typename _Clock , typename _Duration >
  bool **wait_until** (const chrono::time_point< _Clock, _Duration > &__abs) const

Protected Types

- typedef __future_base::_Result< _Res > & **__result_type**
- typedef shared_ptr< _State > **__state_type**

Protected Member Functions

- __result_type _M_get_result ()
- void **_M_swap** (__basic_future &__that)

5.686.1 Detailed Description

template<typename _Res> class std::shared_future< _Res >

Primary template for shared_future.

Definition at line 683 of file future.

5.686.2 Constructor & Destructor Documentation

5.686.2.1 template<typename _Res > std::shared_future< _Res >::shared_future (const shared_future< _Res > & *__sf*) [inline]

Copy constructor.

Definition at line 691 of file future.

5.686.2.2 template<typename _Res > std::shared_future< _Res >::shared_future (future< _Res > && *__uf*) [inline]

Construct from a future rvalue.

Definition at line 694 of file future.

5.686.2.3 template<typename _Res > std::shared_future< _Res >::shared_future (shared_future< _Res > && *__sf*) [inline]

Construct from a shared_future rvalue.

Definition at line 699 of file future.

5.686.3 Member Function Documentation

5.686.3.1 template<typename _Res> __result_type std::__basic_future< _Res >::_M_get_result () [inline, protected, inherited]

Wait for the state to be ready and rethrow any stored exception.

Definition at line 513 of file future.

Referenced by std::shared_future< _Res >::get(), std::future< void >::get(), and std::future< _Res >::get().

5.686.3.2 template<typename _Res > const _Res& std::shared_future< _Res >::get () [inline]

Retrieving the value.

Definition at line 717 of file future.

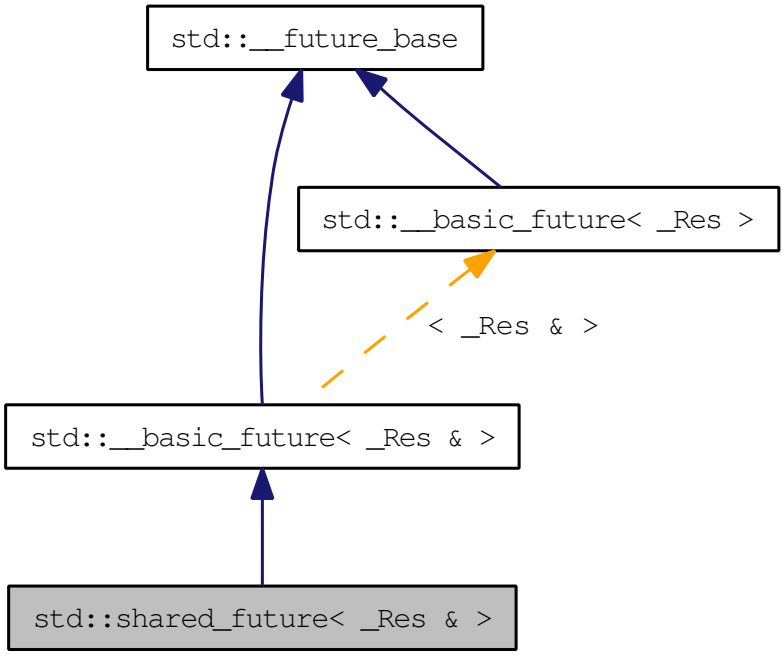
References std::__basic_future< _Res >::_M_get_result().

The documentation for this class was generated from the following file:

- future

5.687 std::shared_future< _Res & > Class Template Reference

Partial specialization for shared_future<R&>. Inheritance diagram for std::shared_future< _Res & >:



Public Member Functions

- shared_future (shared_future &&__sf)
- shared_future (future< _Res & > &&__uf)
- shared_future (const shared_future &__sf)
- _Res & get ()
- shared_future & **operator=** (shared_future &&__sf)
- shared_future & **operator=** (const shared_future &__sf)
- bool **valid** () const
- void **wait** () const
- bool **wait_for** (const chrono::duration< _Rep, _Period > &__rel) const
- bool **wait_until** (const chrono::time_point< _Clock, _Duration > &__abs) const

Protected Types

- typedef __future_base::_Result< _Res & > & **__result_type**
- typedef shared_ptr< _State > **__state_type**

Protected Member Functions

- __result_type _M_get_result ()
- void **_M_swap** (__basic_future &__that)

5.687.1 Detailed Description

template<typename _Res> class std::shared_future< _Res & >

Partial specialization for shared_future<R&>.

Definition at line 727 of file future.

5.687.2 Constructor & Destructor Documentation

5.687.2.1 template<typename _Res > std::shared_future< _Res & >::shared_future (const shared_future< _Res & > & *__sf*) [inline]

Copy constructor.

Definition at line 735 of file future.

5.687.2.2 template<typename _Res > std::shared_future< _Res & >::shared_future (future< _Res & > && *__uf*) [inline]

Construct from a future rvalue.

Definition at line 738 of file future.

5.687.2.3 template<typename _Res > std::shared_future< _Res & >::shared_future (shared_future< _Res & > && *__sf*) [inline]

Construct from a shared_future rvalue.

Definition at line 743 of file future.

5.687.3 Member Function Documentation

5.687.3.1 __result_type std::__basic_future< _Res & >::_M_get_result () [inline, protected, inherited]

Wait for the state to be ready and rethrow any stored exception.

Definition at line 513 of file future.

References std::rethrow_exception().

5.687.3.2 template<typename _Res > _Res& std::shared_future< _Res & >::get () [inline]

Retrieving the value.

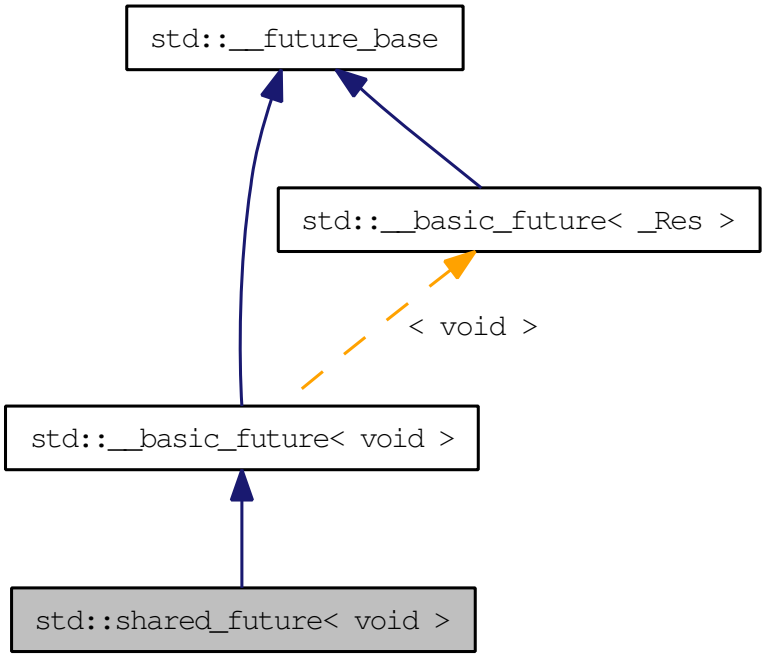
Definition at line 761 of file future.

The documentation for this class was generated from the following file:

- future

5.688 std::shared_future< void > Class Template Reference

Explicit specialization for shared_future<void>. Inheritance diagram for std::shared_future< void >:



Public Member Functions

- shared_future (shared_future &&__sf)
- shared_future (future< void > &&__uf)
- shared_future (const shared_future &__sf)
- void **get** ()
- shared_future & **operator=** (shared_future &&__sf)
- shared_future & **operator=** (const shared_future &__sf)
- bool **valid** () const
- void **wait** () const
- bool **wait_for** (const chrono::duration< _Rep, _Period > &__rel) const
- bool **wait_until** (const chrono::time_point< _Clock, _Duration > &__abs) const

Protected Types

- typedef __future_base::_Result< void > & **__result_type**
- typedef shared_ptr< _State > **__state_type**

Protected Member Functions

- __result_type _M_get_result ()
- void **_M_swap** (__basic_future &__that)

5.688.1 Detailed Description

template<> class std::shared_future< void >

Explicit specialization for shared_future<void>.

Definition at line 766 of file future.

5.688.2 Constructor & Destructor Documentation

5.688.2.1 std::shared_future< void >::shared_future (const shared_future< void > & *__sf*) [inline]

Copy constructor.

Definition at line 774 of file future.

5.688.2.2 std::shared_future< void >::shared_future (future< void > && *__uf*) [inline]

Construct from a future rvalue.

Definition at line 777 of file future.

5.688.2.3 std::shared_future< void >::shared_future (shared_future< void > && *__sf*) [inline]

Construct from a shared_future rvalue.

Definition at line 782 of file future.

5.688.3 Member Function Documentation

5.688.3.1 __result_type std::__basic_future< void >::_M_get_result () [inline, protected, inherited]

Wait for the state to be ready and rethrow any stored exception.

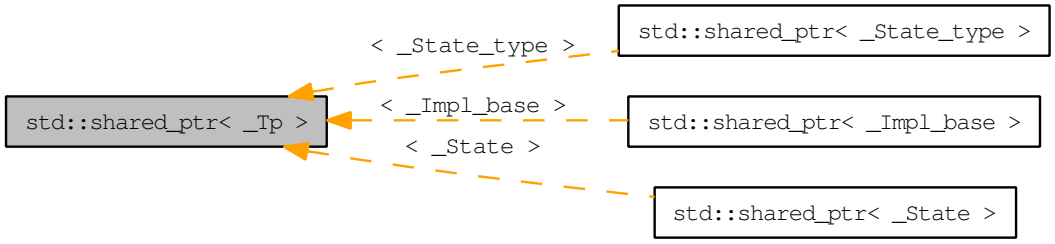
Definition at line 513 of file future.

The documentation for this class was generated from the following file:

- future

5.689 std::shared_ptr< _Tp > Class Template Reference

A smart pointer with reference-counted copy semantics. Inheritance diagram for std::shared_ptr< _Tp >:



Public Member Functions

- template<typename _Tp1 , typename _Del >
  shared_ptr (std::unique_ptr< _Tp1, _Del > &&__r)
- template<typename _Tp1 >
  shared_ptr (std::auto_ptr< _Tp1 > &&__r)
- template<typename _Tp1 >
  shared_ptr (const weak_ptr< _Tp1 > &__r)
- template<typename _Tp1 >
  shared_ptr (shared_ptr< _Tp1 > &&__r)
- shared_ptr (shared_ptr &&__r)
- template<typename _Tp1 >
  shared_ptr (const shared_ptr< _Tp1 > &__r)
- template<typename _Tp1 >
  shared_ptr (const shared_ptr< _Tp1 > &__r, _Tp *__p)
- template<typename _Tp1 , typename _Deleter , typename _Alloc >
  shared_ptr (_Tp1 *__p, _Deleter __d, const _Alloc &__a)
- template<typename _Tp1 , typename _Deleter >
  shared_ptr (_Tp1 *__p, _Deleter __d)
- template<typename _Tp1 >
  shared_ptr (_Tp1 *__p)
- shared_ptr ()
- template<typename _Tp1 , typename _Del >
  shared_ptr & **operator=** (std::unique_ptr< _Tp1, _Del > &&__r)
- template<class _Tp1 >
  shared_ptr & **operator=** (shared_ptr< _Tp1 > &&__r)
- shared_ptr & **operator=** (shared_ptr &&__r)

- template<typename _Tp1 >
  shared_ptr & **operator=** (std::auto_ptr< _Tp1 > &&__r)
- template<typename _Tp1 >
  shared_ptr & **operator=** (const shared_ptr< _Tp1 > &__r)

Friends

- template<typename _Tp1 , typename _Alloc , typename... _Args>
  shared_ptr< _Tp1 > allocate_shared (_Alloc __a, _Args &&...__args)

5.689.1 Detailed Description

template<typename _Tp> class std::shared_ptr< _Tp >

A smart pointer with reference-counted copy semantics. The object pointed to is deleted when the last shared_ptr pointing to it is destroyed or reset.

Definition at line 91 of file shared_ptr.h.

5.689.2 Constructor & Destructor Documentation

5.689.2.1 template<typename _Tp> std::shared_ptr< _Tp >::shared_ptr () [inline]

Construct an empty shared_ptr.

Postcondition:

use_count()==0 && get()==0

Definition at line 98 of file shared_ptr.h.

5.689.2.2 template<typename _Tp> template<typename _Tp1 > std::shared_ptr< _Tp >::shared_ptr (_Tp1 * __p) [inline, explicit]

Construct a shared_ptr that owns the pointer *__p*.

Parameters:

__p A pointer that is convertible to element_type*.

Postcondition:

use_count() == 1 && get() == __p

Exceptions:

std::bad_alloc*,*in which case `delete` *__p* is called.

Definition at line 107 of file shared_ptr.h.

5.689.2.3 template<typename _Tp> template<typename _Tp1 , typename _Deleter > std::shared_ptr< _Tp >::shared_ptr (_Tp1 * __p, _Deleter __d) [inline]

Construct a shared_ptr that owns the pointer *__p* and the deleter *__d*.

Parameters:

__p A pointer.

__d A deleter.

Postcondition:

use_count() == 1 && get() == __p

Exceptions:

std::bad_alloc*,*in which case *__d(__p)* is called.

Requirements: _Deleter's copy constructor and destructor must not throw

__shared_ptr will release __p by calling __d(__p)

Definition at line 123 of file shared_ptr.h.

5.689.2.4 template<typename _Tp> template<typename _Tp1 , typename _Deleter , typename _Alloc > std::shared_ptr< _Tp >::shared_ptr (_Tp1 * __p, _Deleter __d, const _Alloc & __a) [inline]

Construct a shared_ptr that owns the pointer *__p* and the deleter *__d*.

Parameters:

__p A pointer.

__d A deleter.

__a An allocator.

Postcondition:

use_count() == 1 && get() == __p

Exceptions:

std::bad_alloc*,*in which case *__d(__p)* is called.

Requirements: _Deleter's copy constructor and destructor must not throw _Alloc's copy constructor and destructor must not throw.

__shared_ptr will release __p by calling __d(__p)

Definition at line 141 of file shared_ptr.h.

5.689.2.5 template<typename _Tp> template<typename _Tp1 > std::shared_ptr< _Tp >::shared_ptr (const shared_ptr< _Tp1 > & *__r*, _Tp * *__p*) [inline]

Constructs a shared_ptr instance that stores *__p* and shares ownership with *__r*.

Parameters:

__r A shared_ptr.

__p A pointer that will remain valid while *__r is valid.

Postcondition:

get() == __p && use_count() == __r.use_count()

This can be used to construct a `shared_ptr` to a sub-object of an object managed by an existing `shared_ptr`.

```
shared_ptr< pair<int,int> > pii(new pair<int,int>());
shared_ptr<int> pi(pii, &pii->first);
assert(pii.use_count() == 2);
```

Definition at line 163 of file shared_ptr.h.

5.689.2.6 template<typename _Tp> template<typename _Tp1 > std::shared_ptr< _Tp >::shared_ptr (const shared_ptr< _Tp1 > & *__r*) [inline]

If *__r* is empty, constructs an empty shared_ptr; otherwise construct a shared_ptr that shares ownership with *__r*.

Parameters:

__r A shared_ptr.

Postcondition:

get() == __r.get() && use_count() == __r.use_count()

Definition at line 174 of file shared_ptr.h.

5.689.2.7 template<typename _Tp> std::shared_ptr< _Tp >::shared_ptr (shared_ptr< _Tp > && __r) [inline]

Move-constructs a shared_ptr instance from *__r*.

Parameters:

__r A shared_ptr rvalue.

Postcondition:

∗this contains the old value of *__r*, *__r* is empty.

Definition at line 181 of file shared_ptr.h.

5.689.2.8 template<typename _Tp> template<typename _Tp1 > std::shared_ptr< _Tp >::shared_ptr (shared_ptr< _Tp1 > && __r) [inline]

Move-constructs a shared_ptr instance from *__r*.

Parameters:

__r A shared_ptr rvalue.

Postcondition:

∗this contains the old value of *__r*, *__r* is empty.

Definition at line 190 of file shared_ptr.h.

5.689.2.9 template<typename _Tp> template<typename _Tp1 > std::shared_ptr< _Tp >::shared_ptr (const weak_ptr< _Tp1 > & __r) [inline, explicit]

Constructs a shared_ptr that shares ownership with *__r* and stores a copy of the pointer stored in *__r*.

Parameters:

__r A weak_ptr.

Postcondition:

use_count() == __r.use_count()

Exceptions:

bad_weak_ptr when __r.expired(), in which case the constructor has no effect.

Definition at line 202 of file shared_ptr.h.

5.689.3 Friends And Related Function Documentation

5.689.3.1 template<typename _Tp> template<typename _Tp1 , typename _Alloc , typename... _Args> shared_ptr<_Tp1> allocate_shared (_Alloc __a, _Args &&... __args) [friend]

Create an object that is owned by a shared_ptr.

Parameters:

__a An allocator.

__args Arguments for the *_Tp* object's constructor.

Returns:

A shared_ptr that owns the newly created object.

Exceptions:

An exception thrown from *_Alloc::allocate* or from the constructor of *_Tp*.

A copy of *__a* will be used to allocate memory for the shared_ptr and the new object.

Definition at line 453 of file shared_ptr.h.

The documentation for this class was generated from the following file:

- shared_ptr.h

5.690 std::shuffle_order_engine< _RandomNumberEngine, __k > Class Template Reference

Produces random numbers by combining random numbers from some base engine to produce random numbers with a specifies number of bits __w.

Public Types

- typedef _RandomNumberEngine::result_type result_type

Public Member Functions

- template<typename _Sseq , typename = typename std::enable_if<!std::is_same<_Sseq, shuffle_order_engine>::value && !std::is_same<_Sseq, _RandomNumberEngine>::value> ::type> shuffle_order_engine (_Sseq &__q)
- shuffle_order_engine (result_type __s)
- shuffle_order_engine (_RandomNumberEngine &&__rne)
- shuffle_order_engine (const _RandomNumberEngine &__rne)
- shuffle_order_engine ()
- const _RandomNumberEngine & base () const
- void discard (unsigned long long __z)
- result_type max () const
- result_type min () const
- result_type operator() ()
- template<typename _Sseq > void seed (_Sseq &__q)
- void seed (result_type __s)
- void seed ()

Static Public Attributes

- static const size_t **table_size**

Friends

- template<typename _RandomNumberEngine1 , size_t __k1, typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & operator<< (std::basic_ostream< _CharT, _Traits > &, const std::shuffle_order_engine< _RandomNumberEngine1, __k1 > &)

- bool operator== (const shuffle_order_engine &__lhs, const shuffle_order_engine &__rhs)
- template<typename _RandomNumberEngine1 , size_t __k1, typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & operator>> (std::basic_istream< _CharT, _Traits > &, std::shuffle_order_engine< _RandomNumberEngine1, __k1 > &)

5.690.1 Detailed Description

template<typename _RandomNumberEngine, size_t __k> class std::shuffle_order_engine< _RandomNumberEngine, __k >

Produces random numbers by combining random numbers from some base engine to produce random numbers with a specifies number of bits __w.

Definition at line 1123 of file random.h.

5.690.2 Member Typedef Documentation

5.690.2.1 template<typename _RandomNumberEngine, size_t __k> typedef _RandomNumberEngine::result_type std::shuffle_order_engine< _RandomNumberEngine, __k >::result_type

The type of the generated random value.

Definition at line 1130 of file random.h.

5.690.3 Constructor & Destructor Documentation

5.690.3.1 template<typename _RandomNumberEngine, size_t __k> std::shuffle_order_engine< _RandomNumberEngine, __k >::shuffle_order_engine () [inline]

Constructs a default shuffle_order_engine engine. The underlying engine is default constructed as well.

Definition at line 1139 of file random.h.

5.690.3.2 template<typename _RandomNumberEngine, size_t __k> std::shuffle_order_engine< _RandomNumberEngine, __k >::shuffle_order_engine (const _RandomNumberEngine & *__rne*) [inline, explicit]

Copy constructs a shuffle_order_engine engine. Copies an existing base class random number generator.

Parameters:

rng An existing (base class) engine object.

Definition at line 1150 of file random.h.

5.690.3.3 template<typename _RandomNumberEngine, size_t __k> std::shuffle_order_engine< _RandomNumberEngine, __k >::shuffle_order_engine (_RandomNumberEngine && *__rne*) [inline, explicit]

Move constructs a shuffle_order_engine engine. Copies an existing base class random number generator.

Parameters:

rng An existing (base class) engine object.

Definition at line 1161 of file random.h.

5.690.3.4 template<typename _RandomNumberEngine, size_t __k> std::shuffle_order_engine< _RandomNumberEngine, __k >::shuffle_order_engine (result_type *__s*) [inline, explicit]

Seed constructs a shuffle_order_engine engine. Constructs the underlying generator engine seeded with __s.

Parameters:

__s A seed value for the base class engine.

Definition at line 1172 of file random.h.

5.690.3.5 template<typename _RandomNumberEngine, size_t __k> template<typename _Sseq , typename = typename std::enable_if<!std::is_same<_Sseq, shuffle_order_engine>::value && !std::is_same<_Sseq, _RandomNumberEngine>::value> ::type> std::shuffle_order_engine< _RandomNumberEngine, __k >::shuffle_order_engine (_Sseq & __q) [inline, explicit]

Generator construct a shuffle_order_engine engine.

Parameters:

__q A seed sequence.

Definition at line 1186 of file random.h.

5.690.4 Member Function Documentation

5.690.4.1 template<typename _RandomNumberEngine, size_t __k> const _RandomNumberEngine& std::shuffle_order_engine< _RandomNumberEngine, __k >::base () const [inline]

Gets a const reference to the underlying generator engine object.

Definition at line 1229 of file random.h.

5.690.4.2 template<typename _RandomNumberEngine, size_t __k> void std::shuffle_order_engine< _RandomNumberEngine, __k >::discard (unsigned long long __z) [inline]

Discard a sequence of random numbers.

Todo

Look for a faster way to do discard.

Definition at line 1256 of file random.h.

5.690.4.3 template<typename _RandomNumberEngine, size_t __k> result_type std::shuffle_order_engine< _RandomNumberEngine, __k >::max () const [inline]

Gets the maximum value in the generated random number range.

Todo

This should be constexpr.

Definition at line 1247 of file random.h.

5.690.4.4 template<typename _RandomNumberEngine, size_t __k> result_type std::shuffle_order_engine< _RandomNumberEngine, __k >::min () const [inline]

Gets the minimum value in the generated random number range.

Todo

This should be constexpr.

Definition at line 1238 of file random.h.

5.690.4.5 template<typename _RandomNumberEngine , size_t __k> shuffle_order_engine< _RandomNumberEngine, __k >::result_type std::shuffle_order_engine< _RandomNumberEngine, __k >::operator() () [inline]

Gets the next value in the generated random number sequence.

Definition at line 757 of file random.tcc.

5.690.4.6 template<typename _RandomNumberEngine, size_t __k> template<typename _Sseq > void std::shuffle_order_engine< _RandomNumberEngine, __k >::seed (_Sseq & __q) [inline]

Reseeds the shuffle_order_engine object with the given seed sequence.

Parameters:

__q A seed generator function.

Definition at line 1219 of file random.h.

5.690.4.7 template<typename _RandomNumberEngine, size_t __k> void std::shuffle_order_engine< _RandomNumberEngine, __k >::seed (result_type __s) [inline]

Reseeds the shuffle_order_engine object with the default seed for the underlying base class generator engine.

Definition at line 1206 of file random.h.

5.690.4.8 template<typename _RandomNumberEngine, size_t __k> void std::shuffle_order_engine< _RandomNumberEngine, __k >::seed () [inline]

Reseeds the shuffle_order_engine object with the default seed for the underlying base class generator engine.

Definition at line 1195 of file random.h.

5.690.5 Friends And Related Function Documentation

5.690.5.1 template<typename _RandomNumberEngine, size_t __k> template<typename _RandomNumberEngine1 , size_t __k1, typename _CharT , typename _Traits > std::basic_ostream<_CharT, _Traits>& operator<< (std::basic_ostream< _CharT, _Traits > &, const std::shuffle_order_engine< _RandomNumberEngine1, __k1 > &) [friend]

Inserts the current state of a shuffle_order_engine random number generator engine __x into the output stream __os.

Parameters:

__os An output stream.

__x A shuffle_order_engine random number generator engine.

Returns:

The output stream with the state of __x inserted or in an error state.

5.690.5.2 template<typename _RandomNumberEngine, size_t __k> bool operator== (const shuffle_order_engine< _RandomNumberEngine, __k > & *__lhs*, const shuffle_order_engine< _RandomNumberEngine, __k > & *__rhs*) [friend]

Compares two shuffle_order_engine random number generator objects of the same type for equality.

Parameters:

__lhs A shuffle_order_engine random number generator object.

__rhs Another shuffle_order_engine random number generator object.

Returns:

true if the two objects are equal, false otherwise.

Definition at line 1279 of file random.h.

5.690.5.3 template<typename _RandomNumberEngine, size_t __k> template<typename _RandomNumberEngine1 , size_t __k1, typename _CharT , typename _Traits > std::basic_istream<_CharT, _Traits>& operator>> (std::basic_istream< _CharT, _Traits > &, std::shuffle_order_engine< _RandomNumberEngine1, __k1 > &) [friend]

Extracts the current state of a % subtract_with_carry_engine random number generator engine `__x` from the input stream `__is`.

Parameters:

__is An input stream.

__x A shuffle_order_engine random number generator engine.

Returns:

The input stream with the state of `__x` extracted or in an error state.

The documentation for this class was generated from the following files:

- random.h
- random.tcc

5.691 std::slice Class Reference

Class defining one-dimensional subset of an array.

Public Member Functions

- slice (size_t, size_t, size_t)
- slice ()
- size_t size () const
- size_t start () const
- size_t stride () const

5.691.1 Detailed Description

Class defining one-dimensional subset of an array. The slice class represents a one-dimensional subset of an array, specified by three parameters: start offset, size, and stride. The start offset is the index of the first element of the array that is part of the subset. The size is the total number of elements in the subset. Stride is the distance between each successive array element to include in the subset.

For example, with an array of size 10, and a slice with offset 1, size 3 and stride 2, the subset consists of array elements 1, 3, and 5.

Definition at line 58 of file slice_array.h.

The documentation for this class was generated from the following file:

- slice_array.h

5.692 std::slice_array< _Tp > Class Template Reference

Reference to one-dimensional subset of an array.

Public Types

- typedef _Tp **value_type**

Public Member Functions

- slice_array (const slice_array &)
- template<class _Dom >
  void **operator%=** (const _Expr< _Dom, _Tp > &) const
- void operator%= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator&=** (const _Expr< _Dom, _Tp > &) const
- void operator&= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator*=** (const _Expr< _Dom, _Tp > &) const
- void operator*= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator+=** (const _Expr< _Dom, _Tp > &) const
- void operator+= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator-=** (const _Expr< _Dom, _Tp > &) const
- void operator-= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator/=** (const _Expr< _Dom, _Tp > &) const
- void operator/= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator<<=** (const _Expr< _Dom, _Tp > &) const
- void operator<<= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator=** (const _Expr< _Dom, _Tp > &) const
- void operator= (const _Tp &) const
- void operator= (const valarray< _Tp > &) const
- slice_array & operator= (const slice_array &)
- template<class _Dom >
  void **operator>>=** (const _Expr< _Dom, _Tp > &) const
- void operator>>= (const valarray< _Tp > &) const

- template<class _Dom >
  void **operator^=** (const _Expr< _Dom, _Tp > &) const
- void operator^= (const valarray< _Tp > &) const
- template<class _Dom >
  void **operator|=** (const _Expr< _Dom, _Tp > &) const
- void operator|= (const valarray< _Tp > &) const

Friends

- class **valarray**< **_Tp** >

5.692.1 Detailed Description

template<typename _Tp> class std::slice_array< _Tp >

Reference to one-dimensional subset of an array. A slice_array is a reference to the actual elements of an array specified by a slice. The way to get a slice_array is to call operator[ ](slice) on a valarray. The returned slice_array then permits carrying operations out on the referenced subset of elements in the original valarray. For example, operator+=(valarray) will add values to the subset of elements in the underlying valarray this slice_array refers to.

Parameters:

Tp Element type.

Definition at line 122 of file slice_array.h.

The documentation for this class was generated from the following file:

- slice_array.h

5.693 std::stack< _Tp, _Sequence > Class Template Reference

A standard container giving FILO behavior.

Public Types

- typedef _Sequence::const_reference **const_reference**
- typedef _Sequence **container_type**
- typedef _Sequence::reference **reference**
- typedef _Sequence::size_type **size_type**
- typedef _Sequence::value_type **value_type**

Public Member Functions

- **stack** (_Sequence &&__c=_Sequence())
- stack (const _Sequence &__c)
- template<typename... _Args>
  void **emplace** (_Args &&...__args)
- bool empty () const
- void pop ()
- void **push** (value_type &&__x)
- void push (const value_type &__x)
- size_type size () const
- void **swap** (stack &__s)
- const_reference top () const
- reference top ()

Protected Attributes

- _Sequence **c**

Friends

- template<typename _Tp1 , typename _Seq1 >
  bool **operator**< (const stack< _Tp1, _Seq1 > &, const stack< _Tp1, _Seq1 > &)
- template<typename _Tp1 , typename _Seq1 >
  bool **operator==** (const stack< _Tp1, _Seq1 > &, const stack< _Tp1, _Seq1 > &)

5.693.1 Detailed Description

template<typename _Tp, typename _Sequence = deque<_Tp>> class std::stack< _Tp, _Sequence >

A standard container giving FILO behavior. Meets many of the requirements of a `container`, but does not define anything to do with iterators. Very few of the other standard container interfaces are defined.

This is not a true container, but an *adaptor*. It holds another container, and provides a wrapper interface to that container. The wrapper is what enforces strict first-in-last-out stack behavior.

The second template parameter defines the type of the underlying sequence/container. It defaults to std::deque, but it can be any type that supports `back`, `push_back`, and `pop_front`, such as std::list, std::vector, or an appropriate user-defined type.

Members not found in *normal* containers are `container_type`, which is a typedef for the second Sequence parameter, and `push`, `pop`, and `top`, which are standard stack/FILO operations.

Definition at line 92 of file stl_stack.h.

5.693.2 Constructor & Destructor Documentation

5.693.2.1 template<typename _Tp, typename _Sequence = deque<_Tp>> std::stack< _Tp, _Sequence >::stack (const _Sequence & __c) [inline, explicit]

Default constructor creates no elements.

Definition at line 130 of file stl_stack.h.

5.693.3 Member Function Documentation

5.693.3.1 template<typename _Tp, typename _Sequence = deque<_Tp>> bool std::stack< _Tp, _Sequence >::empty () const [inline]

Returns true if the stack is empty.

Definition at line 142 of file stl_stack.h.

5.693.3.2 template<typename _Tp, typename _Sequence = deque<_Tp>> void std::stack< _Tp, _Sequence >::pop () [inline]

Removes first element. This is a typical stack operation. It shrinks the stack by one. The time complexity of the operation depends on the underlying sequence.

Note that no data is returned, and if the first element's data is needed, it should be retrieved before pop() is called.

Definition at line 208 of file stl_stack.h.

5.693.3.3 template<typename _Tp, typename _Sequence = deque<_Tp>> void std::stack< _Tp, _Sequence >::push (const value_type & __x) [inline]

Add data to the top of the stack.

Parameters:

x Data to be added.

This is a typical stack operation. The function creates an element at the top of the stack and assigns the given data to it. The time complexity of the operation depends on the underlying sequence.

Definition at line 182 of file stl_stack.h.

5.693.3.4 template<typename _Tp, typename _Sequence = deque<_Tp>> size_type std::stack< _Tp, _Sequence >::size () const [inline]

Returns the number of elements in the stack.

Definition at line 147 of file stl_stack.h.

5.693.3.5 template<typename _Tp, typename _Sequence = deque<_Tp>> const_reference std::stack< _Tp, _Sequence >::top () const [inline]

Returns a read-only (constant) reference to the data at the first element of the stack.

Definition at line 166 of file stl_stack.h.

5.693.3.6 template<typename _Tp, typename _Sequence = deque<_Tp>> reference std::stack< _Tp, _Sequence >::top () [inline]

Returns a read/write reference to the data at the first element of the stack.

Definition at line 155 of file stl_stack.h.

The documentation for this class was generated from the following file:

- stl_stack.h

5.694 std::student_t_distribution< _RealType > Class Template Reference

A student_t_distribution random number distribution.

Classes

- struct param_type

Public Types

- typedef _RealType result_type

Public Member Functions

- **student_t_distribution** (const param_type &__p)
- **student_t_distribution** (_RealType __n=_RealType(1))
- result_type max () const
- result_type min () const
- _RealType **n** () const
- template<typename _UniformRandomNumberGenerator >
  result_type **operator()** (_UniformRandomNumberGenerator &__urng, const param_type &__p)
- template<typename _UniformRandomNumberGenerator >
  result_type **operator()** (_UniformRandomNumberGenerator &__urng)
- void param (const param_type &__param)
- param_type param () const
- void reset ()

Friends

- template<typename _RealType1 , typename _CharT , typename _Traits >
  std::basic_ostream< _CharT, _Traits > & operator<< (std::basic_ostream< _CharT, _Traits > &, const std::student_t_distribution< _RealType1 > &)
- template<typename _RealType1 , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & operator>> (std::basic_istream< _CharT, _Traits > &, std::student_t_distribution< _RealType1 > &)

5.694.1 Detailed Description

template<typename _RealType = double> class std::student_t_distribution< _RealType >

A student_t_distribution random number distribution. The formula for the normal probability mass function is:

$$p(x|n) = \frac{1}{\sqrt(n\pi)} \frac{\Gamma((n+1)/2)}{\Gamma(n/2)} (1 + \frac{x^2}{n})^{-(n+1)/2}$$

Definition at line 2718 of file random.h.

5.694.2 Member Typedef Documentation

5.694.2.1 template<typename _RealType = double> typedef _RealType std::student_t_distribution< _RealType >::result_type

The type of the range of the distribution.

Definition at line 2725 of file random.h.

5.694.3 Member Function Documentation

5.694.3.1 template<typename _RealType = double> result_type std::student_t_distribution< _RealType >::max () const [inline]

Returns the least upper bound value of the distribution.

Definition at line 2797 of file random.h.

5.694.3.2 template<typename _RealType = double> result_type std::student_t_distribution< _RealType >::min () const [inline]

Returns the greatest lower bound value of the distribution.

Definition at line 2790 of file random.h.

5.694.3.3 template<typename _RealType = double> void std::student_t_distribution< _RealType >::param (const param_type & *__param*) [inline]

Sets the parameter set of the distribution.

Parameters:

__param The new parameter set of the distribution.

Definition at line 2783 of file random.h.

5.694.3.4 template<typename _RealType = double> param_type std::student_t_distribution< _RealType >::param () const [inline]

Returns the parameter set of the distribution.

Definition at line 2775 of file random.h.

5.694.3.5 template<typename _RealType = double> void std::student_t_distribution< _RealType >::reset () [inline]

Resets the distribution state.

Definition at line 2758 of file random.h.

References std::gamma_distribution< _RealType >::reset(), and std::normal_distribution< _RealType >::reset().

5.694.4 Friends And Related Function Documentation

5.694.4.1 template<typename _RealType = double> template<typename _RealType1 , typename _CharT , typename _Traits > std::basic_ostream<_CharT, _Traits>& operator<< (std::basic_ostream< _CharT, _Traits > &, const std::student_t_distribution< _RealType1 > &) [friend]

Inserts a student_t_distribution random number distribution __x into the output stream __os.

Parameters:

__os An output stream.

__x A student_t_distribution random number distribution.

Returns:

The output stream with the state of __x inserted or in an error state.

5.694.4.2 template<typename _RealType = double> template<typename _RealType1 , typename _CharT , typename _Traits > std::basic_istream<_CharT, _Traits>& operator>> (std::basic_istream< _CharT, _Traits > &, std::student_t_distribution< _RealType1 > &) [friend]

Extracts a student_t_distribution random number distribution __x from the input stream __is.

Parameters:

__is An input stream.

__x A student_t_distribution random number generator engine.

Returns:

The input stream with __x extracted or in an error state.

The documentation for this class was generated from the following file:

- random.h

5.695 std::student_t_distribution< _RealType >::param_type Struct Reference

Public Types

- typedef student_t_distribution< _RealType > **distribution_type**

Public Member Functions

- **param_type** (_RealType __n=_RealType(1))
- _RealType **n** () const

5.695.1 Detailed Description

template<typename _RealType = double> struct std::student_t_distribution< _RealType >::param_type

Parameter type.

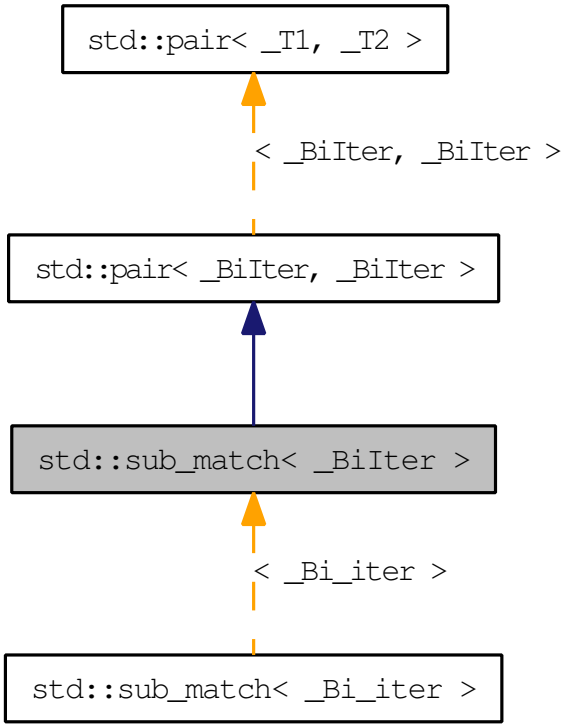
Definition at line 2727 of file random.h.

The documentation for this struct was generated from the following file:

- random.h

5.696 std::sub_match< _BiIter > Class Template Reference

Inheritance diagram for std::sub_match< _BiIter >:



Public Types

- typedef iterator_traits< _BiIter >::difference_type **difference_type**
- typedef _BiIter first_type
- typedef _BiIter **iterator**
- typedef _BiIter second_type
- typedef iterator_traits< _BiIter >::value_type **value_type**

Public Member Functions

- int compare (const value_type *__s) const
- int compare (const basic_string< value_type > &__s) const
- int compare (const sub_match &__s) const

- difference_type length () const
- operator basic_string< value_type > () const
- basic_string< value_type > str () const
- void **swap** (pair &__p)

Public Attributes

- _BiIter first
- bool **matched**
- _BiIter second

5.696.1 Detailed Description

template<typename _BiIter> class std::sub_match< _BiIter >

A sequence of characters matched by a particular marked sub-expression.

An object of this class is essentially a pair of iterators marking a matched subexpression within a regular expression pattern match. Such objects can be converted to and compared with std::basic_string objects of a similar base character type as the pattern matched by the regular expression.

The iterators that make up the pair are the usual half-open interval referencing the actual original pattern matched.

Definition at line 1088 of file tr1_impl/regex.

5.696.2 Member Typedef Documentation

5.696.2.1 typedef _BiIter std::pair< _BiIter , _BiIter >::first_type [inherited]

`first_type` is the first bound type

Definition at line 73 of file stl_pair.h.

5.696.2.2 typedef _BiIter std::pair< _BiIter , _BiIter >::second_type [inherited]

`second_type` is the second bound type

Definition at line 74 of file stl_pair.h.

5.696.3 Member Function Documentation

5.696.3.1 template<typename _BiIter> int std::sub_match< _BiIter >::compare (const value_type * __s) const [inline]

Compares this sub_match to a C-style string.

Parameters:

s A C-style string to compare to this sub_match.

Return values:

<0 this matched sequence will collate before `s`.

=0 this matched sequence is equivalent to `s`.

<0 this matched sequence will collate after `s`.

Definition at line 1172 of file tr1_impl/regex.

5.696.3.2 template<typename _BiIter> int std::sub_match< _BiIter >::compare (const basic_string< value_type > & __s) const [inline]

Compares this sub_match to a string.

Parameters:

s A string to compare to this sub_match.

Return values:

<0 this matched sequence will collate before `s`.

=0 this matched sequence is equivalent to `s`.

<0 this matched sequence will collate after `s`.

Definition at line 1159 of file tr1_impl/regex.

5.696.3.3 template<typename _BiIter> int std::sub_match< _BiIter >::compare (const sub_match< _BiIter > & __s) const [inline]

Compares this and another matched sequence.

Parameters:

s Another matched sequence to compare to this one.

Return values:

<0 this matched sequence will collate before `s`.

=0 this matched sequence is equivalent to `s`.

<0 this matched sequence will collate after `s`.

Definition at line 1146 of file tr1_impl/regex.

Referenced by std::operator!=(), std::operator==(), std::operator>(), and std::operator>=().

5.696.3.4 template<typename _BiIter> difference_type std::sub_match< _BiIter >::length () const [inline]

Gets the length of the matching sequence.

Definition at line 1103 of file tr1_impl/regex.

5.696.3.5 template<typename _BiIter> std::sub_match< _BiIter >::operator basic_string< value_type > () const [inline]

Gets the matching sequence as a string.

Returns:

the matching sequence as a string.

This is the implicit conversion operator. It is identical to the str() member function except that it will want to pop up in unexpected places and cause a great deal of confusion and cursing from the unwary.

Definition at line 1116 of file tr1_impl/regex.

5.696.3.6 template<typename _BiIter> basic_string<value_type> std::sub_match< _BiIter >::str () const [inline]

Gets the matching sequence as a string.

Returns:

the matching sequence as a string.

Definition at line 1129 of file tr1_impl/regex.

Referenced by std::sub_match< _Bi_iter >::compare(), std::operator!=(), std::operator<(), std::operator<=(), std::operator==(), std::operator>(), and std::operator>=().

5.696.4 Member Data Documentation

5.696.4.1 _BiIter std::pair< _BiIter , _BiIter >::first [inherited]

`first` is a copy of the first object

Definition at line 76 of file stl_pair.h.

Referenced by std::sub_match< _Bi_iter >::length(), std::sub_match< _Bi_iter >::operator basic_string< value_type >(), and std::sub_match< _Bi_iter >::str().

5.696.4.2 _BiIter std::pair< _BiIter , _BiIter >::second [inherited]

`second` is a copy of the second object

Definition at line 77 of file stl_pair.h.

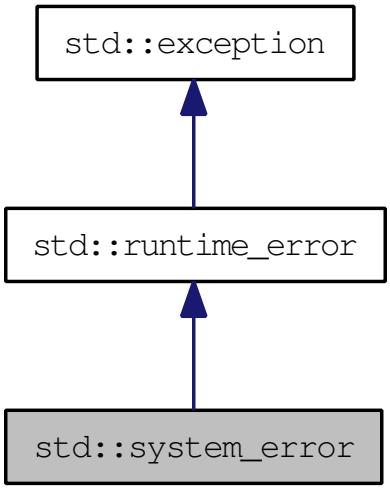
Referenced by std::sub_match< _Bi_iter >::length(), std::sub_match< _Bi_iter >::operator basic_string< value_type >(), and std::sub_match< _Bi_iter >::str().

The documentation for this class was generated from the following file:

- tr1_impl/regex

5.697 std::system_error Class Reference

Thrown to indicate error code of underlying system. Inheritance diagram for std::system_error:



Public Member Functions

- **system_error** (int __v, const error_category &__ecat, const string &__what)
- **system_error** (int __v, const error_category &__ecat)
- **system_error** (error_code __ec, const string &__what)
- **system_error** (error_code __ec=error_code())
- const error_code & **code** () const throw ()
- virtual const char * what () const throw ()

5.697.1 Detailed Description

Thrown to indicate error code of underlying system.

Definition at line 307 of file system_error.

5.697.2 Member Function Documentation

5.697.2.1 virtual const char* std::runtime_error::what () const throw () [virtual, inherited]

Returns a C-style character string describing the general cause of the current error (the same string passed to the ctor).

Reimplemented from std::exception.

The documentation for this class was generated from the following file:

- system_error

5.698 std::thread Class Reference

thread

Classes

- class id
  thread::id

Public Types

- typedef shared_ptr< _Impl_base > **__shared_base_type**
- typedef __gthread_t **native_handle_type**

Public Member Functions

- template<typename _Callable , typename... _Args>
  thread (_Callable &&__f, _Args &&...__args)
- template<typename _Callable >
  thread (_Callable __f)
- **thread** (thread &&__t)
- **thread** (const thread &)
- void **detach** ()
- thread::id **get_id** () const
- void **join** ()
- bool **joinable** () const
- native_handle_type native_handle ()
- thread & **operator=** (thread &&__t)
- thread & **operator=** (const thread &)
- void **swap** (thread &__t)

Static Public Member Functions

- static unsigned int **hardware_concurrency** ()

5.698.1 Detailed Description

thread

Definition at line 64 of file thread.

5.698.2 Member Function Documentation

5.698.2.1 native_handle_type std::thread::native_handle () [inline]

Precondition:

thread is joinable

Definition at line 180 of file thread.

The documentation for this class was generated from the following file:

- thread

5.699 std::thread::id Class Reference

thread::id

Public Member Functions

- **id** (native_handle_type __id)

Friends

- class **hash**< **thread::id** >
- bool **operator**< (thread::id __x, thread::id __y)
- template<class _CharT , class _Traits >
  basic_ostream< _CharT, _Traits > & **operator**<< (basic_ostream< _CharT, _Traits > &__out, thread::id __id)
- bool **operator==** (thread::id __x, thread::id __y)
- class **thread**

5.699.1 Detailed Description

thread::id

Definition at line 72 of file thread.

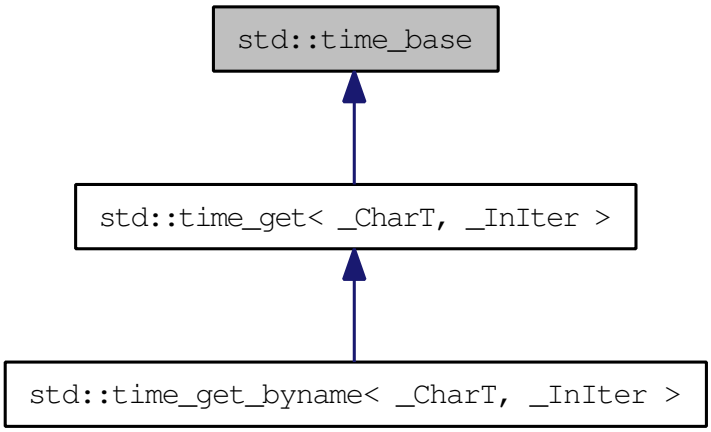
The documentation for this class was generated from the following file:

- thread

5.700 std::time_base Class Reference

Time format ordering data.

This class provides an enum representing different orderings of time: day, month, and year. Inheritance diagram for std::time_base:



Public Types

- enum **dateorder** {
  no_order, **dmy**, **mdy**, **ymd**,
  ydm }

5.700.1 Detailed Description

Time format ordering data.

This class provides an enum representing different orderings of time: day, month, and year.

Definition at line 50 of file locale_facets_nonio.h.

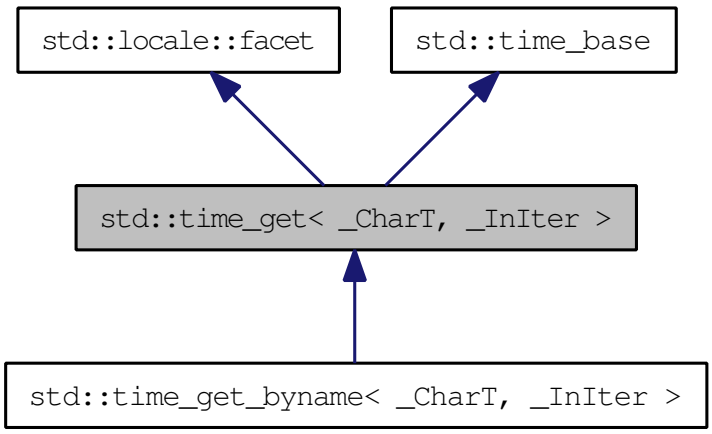
The documentation for this class was generated from the following file:

- locale_facets_nonio.h

5.701 std::time_get< _CharT, _InIter > Class Template Reference

Primary class template time_get.

This facet encapsulates the code to parse and return a date or time from a string. It is used by the istream numeric extraction operators. Inheritance diagram for std::time_get< _CharT, _InIter >:



Public Types

- typedef basic_string< _CharT > **__string_type**
- enum **dateorder** {

  no_order, **dmy**, **mdy**, **ymd**,

  ydm }

  - typedef _CharT char_type
  - typedef _InIter iter_type

Public Member Functions

- time_get (size_t __refs=0)
- dateorder date_order () const
- iter_type get_date (iter_type __beg, iter_type __end, ios_base &__io, ios_base::iostate &__err, tm *__tm) const
- iter_type get_monthname (iter_type __beg, iter_type __end, ios_base &__io, ios_base::iostate &__err, tm *__tm) const

- iter_type get_time (iter_type __beg, iter_type __end, ios_base &__io, ios_base::iostate &__err, tm *__tm) const
- iter_type get_weekday (iter_type __beg, iter_type __end, ios_base &__io, ios_base::iostate &__err, tm *__tm) const
- iter_type get_year (iter_type __beg, iter_type __end, ios_base &__io, ios_base::iostate &__err, tm *__tm) const

Static Public Attributes

- static locale::id id

Protected Member Functions

- virtual ~time_get ()
- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()
- iter_type **_M_extract_name** (iter_type __beg, iter_type __end, int &__member, const _CharT **__names, size_t __indexlen, ios_base &__io, ios_base::iostate &__err) const
- iter_type **_M_extract_num** (iter_type __beg, iter_type __end, int &__member, int __min, int __max, size_t __len, ios_base &__io, ios_base::iostate &__err) const
- iter_type **_M_extract_via_format** (iter_type __beg, iter_type __end, ios_base &__io, ios_base::iostate &__err, tm *__tm, const _CharT *__format) const
- iter_type **_M_extract_wday_or_month** (iter_type __beg, iter_type __end, int &__member, const _CharT **__names, size_t __indexlen, ios_base &__io, ios_base::iostate &__err) const
- virtual dateorder do_date_order () const
- virtual iter_type do_get_date (iter_type __beg, iter_type __end, ios_base &__io, ios_base::iostate &__err, tm *__tm) const
- virtual iter_type do_get_monthname (iter_type __beg, iter_type __end, ios_base &, ios_base::iostate &__err, tm *__tm) const
- virtual iter_type do_get_time (iter_type __beg, iter_type __end, ios_base &__io, ios_base::iostate &__err, tm *__tm) const
- virtual iter_type do_get_weekday (iter_type __beg, iter_type __end, ios_base &, ios_base::iostate &__err, tm *__tm) const
- virtual iter_type do_get_year (iter_type __beg, iter_type __end, ios_base &__io, ios_base::iostate &__err, tm *__tm) const

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_locale __old=0)

- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Friends

- class **locale::_Impl**

5.701.1 Detailed Description

template<typename _CharT, typename _InIter> class std::time_get< _CharT, _InIter >

Primary class template time_get.

This facet encapsulates the code to parse and return a date or time from a string. It is used by the istream numeric extraction operators. The time_get template uses protected virtual functions to provide the actual results. The public accessors forward the call to the virtual functions. These virtual functions are hooks for developers to implement the behavior they require from the time_get facet.

Definition at line 363 of file locale_facets_nonio.h.

5.701.2 Member Typedef Documentation

5.701.2.1 template<typename _CharT , typename _InIter > typedef _CharT std::time_get< _CharT, _InIter >::char_type

Public typedefs.

Reimplemented in std::time_get_byname< _CharT, _InIter >.

Definition at line 369 of file locale_facets_nonio.h.

5.701.2.2 template<typename _CharT , typename _InIter > typedef _InIter std::time_get< _CharT, _InIter >::iter_type

Public typedefs.

Reimplemented in std::time_get_byname< _CharT, _InIter >.

Definition at line 370 of file locale_facets_nonio.h.

5.701.3 Constructor & Destructor Documentation

5.701.3.1 template<typename _CharT , typename _InIter > std::time_get< _CharT, _InIter >::time_get (size_t __*refs* = 0) [inline, explicit]

Constructor performs initialization. This is the constructor provided by the standard.

Parameters:

refs Passed to the base facet class.

Definition at line 385 of file locale_facets_nonio.h.

5.701.3.2 template<typename _CharT , typename _InIter > virtual std::time_get< _CharT, _InIter >::~time_get () [inline, protected, virtual]

Destructor.

Definition at line 541 of file locale_facets_nonio.h.

5.701.4 Member Function Documentation

5.701.4.1 template<typename _CharT , typename _InIter > dateorder std::time_get< _CharT, _InIter >::date_order () const [inline]

Return preferred order of month, day, and year. This function returns an enum from timebase::dateorder giving the preferred ordering if the format *x* given to time_put::put() only uses month, day, and year. If the format *x* for the associated locale uses other fields, this function returns timebase::dateorder::noorder.

NOTE: The library always returns noorder at the moment.

Returns:

A member of timebase::dateorder.

Definition at line 402 of file locale_facets_nonio.h.

5.701.4.2 template<typename _CharT , typename _InIter > time_base::dateorder std::time_get< _CharT, _InIter >::do_date_order () const [inline, protected, virtual]

Return preferred order of month, day, and year. This function returns an enum from timebase::dateorder giving the preferred ordering if the format *x* given to time_-

put::put() only uses month, day, and year. This function is a hook for derived classes to change the value returned.

Returns:

A member of timebase::dateorder.

Definition at line 618 of file locale_facets_nonio.tcc.

5.701.4.3 template<typename _CharT , typename _InIter > _InIter std::time_get< _CharT, _InIter >::do_get_date (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, tm * *__tm*) const [inline, protected, virtual]

Parse input date string. This function parses a date according to the format *X* and puts the results into a user-supplied struct tm. This function is a hook for derived classes to change the value returned.

See also:

get_date() for details.

Parameters:

beg Start of string to parse.

end End of string to parse.

io Source of the locale.

err Error flags to set.

tm Pointer to struct tm to fill in.

Returns:

Iterator to first char beyond date string.

Definition at line 1044 of file locale_facets_nonio.tcc.

References std::ios_base::_M_getloc(), and std::ios_base::eofbit.

5.701.4.4 template<typename _CharT , typename _InIter > _InIter std::time_get< _CharT, _InIter >::do_get_monthname (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, tm * *__tm*) const [inline, protected, virtual]

Parse input month string. This function parses a month name and puts the results into a user-supplied struct tm. This function is a hook for derived classes to change the value returned.

See also:

get_monthname() for details.

Parameters:

beg Start of string to parse.

end End of string to parse.

io Source of the locale.

err Error flags to set.

tm Pointer to struct tm to fill in.

Returns:

Iterator to first char beyond month name.

Definition at line 1089 of file locale_facets_nonio.tcc.

References std::ios_base::_M_getloc(), std::ios_base::eofbit, std::ios_base::failbit, and std::ios_base::goodbit.

5.701.4.5 template<typename _CharT , typename _InIter > _InIter std::time_get< _CharT, _InIter >::do_get_time (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, tm * *__tm*) const [inline, protected, virtual]

Parse input time string. This function parses a time according to the format *x* and puts the results into a user-supplied struct tm. This function is a hook for derived classes to change the value returned.

See also:

get_time() for details.

Parameters:

beg Start of string to parse.

end End of string to parse.

io Source of the locale.

err Error flags to set.

tm Pointer to struct tm to fill in.

Returns:

Iterator to first char beyond time string.

Definition at line 1027 of file locale_facets_nonio.tcc.

References std::ios_base::_M_getloc(), and std::ios_base::eofbit.

5.701.4.6 template<typename _CharT , typename _InIter > _InIter std::time_get< _CharT, _InIter >::do_get_weekday (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, tm * *__tm*) const [inline, protected, virtual]

Parse input weekday string. This function parses a weekday name and puts the results into a user-supplied struct tm. This function is a hook for derived classes to change the value returned.

See also:

get_weekday() for details.

Parameters:

beg Start of string to parse.

end End of string to parse.

io Source of the locale.

err Error flags to set.

tm Pointer to struct tm to fill in.

Returns:

Iterator to first char beyond weekday name.

Definition at line 1061 of file locale_facets_nonio.tcc.

References std::ios_base::_M_getloc(), std::ios_base::eofbit, std::ios_base::failbit, and std::ios_base::goodbit.

5.701.4.7 template<typename _CharT , typename _InIter > _InIter std::time_get< _CharT, _InIter >::do_get_year (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, tm * *__tm*) const [inline, protected, virtual]

Parse input year string. This function reads up to 4 characters to parse a year string and puts the results into a user-supplied struct tm. This function is a hook for derived classes to change the value returned.

See also:

get_year() for details.

Parameters:

beg Start of string to parse.

end End of string to parse.

io Source of the locale.

err Error flags to set.

tm Pointer to struct tm to fill in.

Returns:

Iterator to first char beyond year.

Definition at line 1117 of file locale_facets_nonio.tcc.

References std::ios_base::_M_getloc(), std::ios_base::eofbit, std::ios_base::failbit, and std::ios_base::goodbit.

5.701.4.8 template<typename _CharT , typename _InIter > iter_type std::time_get< _CharT, _InIter >::get_date (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, tm * *__tm*) const [inline]

Parse input date string. This function parses a date according to the format *X* and puts the results into a user-supplied struct tm. The result is returned by calling time_get::do_get_date().

If there is a valid date string according to format *X*, *tm* will be filled in accordingly and the returned iterator will point to the first character beyond the date string. If an error occurs before the end, err |= ios_base::failbit. If parsing reads all the characters, err |= ios_base::eofbit.

Parameters:

beg Start of string to parse.

end End of string to parse.

io Source of the locale.

err Error flags to set.

tm Pointer to struct tm to fill in.

Returns:

Iterator to first char beyond date string.

Definition at line 451 of file locale_facets_nonio.h.

5.701.4.9 template<typename _CharT , typename _InIter > iter_type std::time_get< _CharT, _InIter >::get_monthname (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, tm * *__tm*) const [inline]

Parse input month string. This function parses a month name and puts the results into a user-supplied struct tm. The result is returned by calling time_get::do_get_monthname().

Parsing starts by parsing an abbreviated month name. If a valid abbreviation is followed by a character that would lead to the full month name, parsing continues until the full name is found or an error occurs. Otherwise parsing finishes at the end of the abbreviated name.

If an error occurs before the end, err |= ios_base::failbit. If parsing reads all the characters, err |= ios_base::eofbit.

Parameters:

beg Start of string to parse.

end End of string to parse.

io Source of the locale.

err Error flags to set.

tm Pointer to struct tm to fill in.

Returns:

Iterator to first char beyond month name.

Definition at line 508 of file locale_facets_nonio.h.

5.701.4.10 template<typename _CharT , typename _InIter > iter_type std::time_get< _CharT, _InIter >::get_time (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, tm * *__tm*) const [inline]

Parse input time string. This function parses a time according to the format *x* and puts the results into a user-supplied struct tm. The result is returned by calling time_get::do_get_time().

If there is a valid time string according to format *x*, *tm* will be filled in accordingly and the returned iterator will point to the first character beyond the time string. If an error occurs before the end, err |= ios_base::failbit. If parsing reads all the characters, err |= ios_base::eofbit.

Parameters:

beg Start of string to parse.

end End of string to parse.

io Source of the locale.

err Error flags to set.

tm Pointer to struct tm to fill in.

Returns:

Iterator to first char beyond time string.

Definition at line 426 of file locale_facets_nonio.h.

5.701.4.11 template<typename _CharT , typename _InIter > iter_type std::time_get< _CharT, _InIter >::get_weekday (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, tm * *__tm*) const [inline]

Parse input weekday string. This function parses a weekday name and puts the results into a user-supplied struct tm. The result is returned by calling time_get::do_get_weekday().

Parsing starts by parsing an abbreviated weekday name. If a valid abbreviation is followed by a character that would lead to the full weekday name, parsing continues until the full name is found or an error occurs. Otherwise parsing finishes at the end of the abbreviated name.

If an error occurs before the end, err |= ios_base::failbit. If parsing reads all the characters, err |= ios_base::eofbit.

Parameters:

beg Start of string to parse.

end End of string to parse.

io Source of the locale.

err Error flags to set.

tm Pointer to struct tm to fill in.

Returns:

Iterator to first char beyond weekday name.

Definition at line 479 of file locale_facets_nonio.h.

5.701.4.12 template<typename _CharT , typename _InIter > iter_type std::time_get< _CharT, _InIter >::get_year (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, tm * *__tm*) const [inline]

Parse input year string. This function reads up to 4 characters to parse a year string and puts the results into a user-supplied struct tm. The result is returned by calling time_get::do_get_year().

4 consecutive digits are interpreted as a full year. If there are exactly 2 consecutive digits, the library interprets this as the number of years since 1900.

If an error occurs before the end, err |= ios_base::failbit. If parsing reads all the characters, err |= ios_base::eofbit.

Parameters:

beg Start of string to parse.

end End of string to parse.

io Source of the locale.

err Error flags to set.

tm Pointer to struct tm to fill in.

Returns:

Iterator to first char beyond year.

Definition at line 534 of file locale_facets_nonio.h.

5.701.5 Member Data Documentation

5.701.5.1 template<typename _CharT , typename _InIter > locale::id std::time_get< _CharT, _InIter >::id [inline, static]

Numpunct facet id.

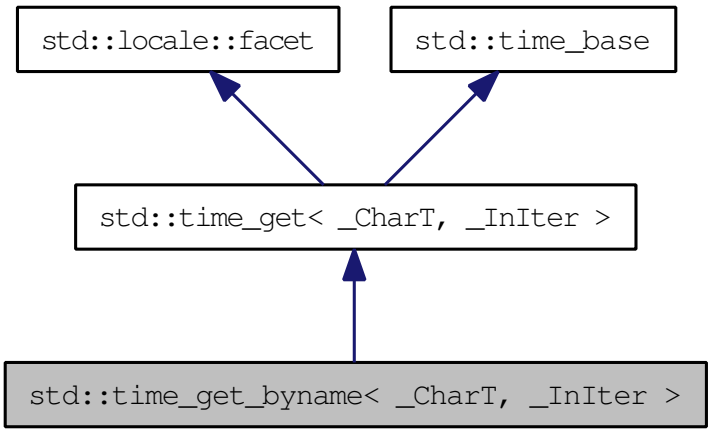
Definition at line 375 of file locale_facets_nonio.h.

The documentation for this class was generated from the following files:

- locale_facets_nonio.h
- locale_facets_nonio.tcc

5.702 std::time_get_byname< _CharT, _InIter > Class Template Reference

class time_get_byname [22.2.5.2]. Inheritance diagram for std::time_get_byname< _CharT, _InIter >:



Public Types

- typedef basic_string< _CharT > **__string_type**
- typedef _CharT char_type
- enum **dateorder** {

  no_order, **dmy**, **mdy**, **ymd**,

  ydm }
- typedef _InIter iter_type

Public Member Functions

- **time_get_byname** (const char *, size_t __refs=0)
- dateorder date_order () const
- iter_type get_date (iter_type __beg, iter_type __end, ios_base &__io, ios_base::iostate &__err, tm *__tm) const
- iter_type get_monthname (iter_type __beg, iter_type __end, ios_base &__io, ios_base::iostate &__err, tm *__tm) const
- iter_type get_time (iter_type __beg, iter_type __end, ios_base &__io, ios_base::iostate &__err, tm *__tm) const

- iter_type get_weekday (iter_type __beg, iter_type __end, ios_base &__io, ios_base::iostate &__err, tm *__tm) const
- iter_type get_year (iter_type __beg, iter_type __end, ios_base &__io, ios_base::iostate &__err, tm *__tm) const

Static Public Attributes

- static locale::id id

Protected Member Functions

- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()
- iter_type **_M_extract_name** (iter_type __beg, iter_type __end, int &__member, const _CharT **__names, size_t __indexlen, ios_base &__io, ios_base::iostate &__err) const
- iter_type **_M_extract_num** (iter_type __beg, iter_type __end, int &__member, int __min, int __max, size_t __len, ios_base &__io, ios_base::iostate &__err) const
- iter_type **_M_extract_via_format** (iter_type __beg, iter_type __end, ios_base &__io, ios_base::iostate &__err, tm *__tm, const _CharT *__format) const
- iter_type **_M_extract_wday_or_month** (iter_type __beg, iter_type __end, int &__member, const _CharT **__names, size_t __indexlen, ios_base &__io, ios_base::iostate &__err) const
- virtual dateorder do_date_order () const
- virtual iter_type do_get_date (iter_type __beg, iter_type __end, ios_base &__io, ios_base::iostate &__err, tm *__tm) const
- virtual iter_type do_get_monthname (iter_type __beg, iter_type __end, ios_base &, ios_base::iostate &__err, tm *__tm) const
- virtual iter_type do_get_time (iter_type __beg, iter_type __end, ios_base &__io, ios_base::iostate &__err, tm *__tm) const
- virtual iter_type do_get_weekday (iter_type __beg, iter_type __end, ios_base &, ios_base::iostate &__err, tm *__tm) const
- virtual iter_type do_get_year (iter_type __beg, iter_type __end, ios_base &__io, ios_base::iostate &__err, tm *__tm) const

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_locale __old=0)
- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Friends

- class **locale::_Impl**

5.702.1 Detailed Description

template<typename _CharT, typename _InIter> class std::time_get_byname< _CharT, _InIter >

class time_get_byname [22.2.5.2].

Definition at line 681 of file locale_facets_nonio.h.

5.702.2 Member Typedef Documentation

5.702.2.1 template<typename _CharT , typename _InIter > typedef _CharT std::time_get_byname< _CharT, _InIter >::char_type

Public typedefs.

Reimplemented from std::time_get< _CharT, _InIter >.

Definition at line 685 of file locale_facets_nonio.h.

5.702.2.2 template<typename _CharT , typename _InIter > typedef _InIter std::time_get_byname< _CharT, _InIter >::iter_type

Public typedefs.

Reimplemented from std::time_get< _CharT, _InIter >.

Definition at line 686 of file locale_facets_nonio.h.

5.702.3 Member Function Documentation

5.702.3.1 template<typename _CharT , typename _InIter > dateorder std::time_get< _CharT, _InIter >::date_order () const [inline, inherited]

Return preferred order of month, day, and year. This function returns an enum from timebase::dateorder giving the preferred ordering if the format *x* given to time_put::put() only uses month, day, and year. If the format *x* for the associated locale uses other fields, this function returns timebase::dateorder::noorder.

NOTE: The library always returns noorder at the moment.

Returns:

A member of timebase::dateorder.

Definition at line 402 of file locale_facets_nonio.h.

5.702.3.2 template<typename _CharT , typename _InIter > time_base::dateorder std::time_get< _CharT, _InIter >::do_date_order () const [inline, protected, virtual, inherited]

Return preferred order of month, day, and year. This function returns an enum from timebase::dateorder giving the preferred ordering if the format *x* given to time_put::put() only uses month, day, and year. This function is a hook for derived classes to change the value returned.

Returns:

A member of timebase::dateorder.

Definition at line 618 of file locale_facets_nonio.tcc.

5.702.3.3 template<typename _CharT , typename _InIter > _InIter std::time_get< _CharT, _InIter >::do_get_date (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, tm * *__tm*) const [inline, protected, virtual, inherited]

Parse input date string. This function parses a date according to the format *X* and puts the results into a user-supplied struct tm. This function is a hook for derived classes to change the value returned.

See also:

get_date() for details.

Parameters:

beg Start of string to parse.

end End of string to parse.

io Source of the locale.

err Error flags to set.

tm Pointer to struct tm to fill in.

Returns:

Iterator to first char beyond date string.

Definition at line 1044 of file locale_facets_nonio.tcc.

References std::ios_base::_M_getloc(), and std::ios_base::eofbit.

5.702.3.4 template<typename _CharT , typename _InIter > _InIter std::time_get< _CharT, _InIter >::do_get_monthname (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, tm * *__tm*) const [inline, protected, virtual, inherited]

Parse input month string. This function parses a month name and puts the results into a user-supplied struct tm. This function is a hook for derived classes to change the value returned.

See also:

get_monthname() for details.

Parameters:

beg Start of string to parse.

end End of string to parse.

io Source of the locale.

err Error flags to set.

tm Pointer to struct tm to fill in.

Returns:

Iterator to first char beyond month name.

Definition at line 1089 of file locale_facets_nonio.tcc.

References std::ios_base::_M_getloc(), std::ios_base::eofbit, std::ios_base::failbit, and std::ios_base::goodbit.

5.702.3.5 template<typename _CharT , typename _InIter > _InIter std::time_get< _CharT, _InIter >::do_get_time (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, tm * *__tm*) const [inline, protected, virtual, inherited]

Parse input time string. This function parses a time according to the format *x* and puts the results into a user-supplied struct tm. This function is a hook for derived classes to change the value returned.

See also:

get_time() for details.

Parameters:

beg Start of string to parse.

end End of string to parse.

io Source of the locale.

err Error flags to set.

tm Pointer to struct tm to fill in.

Returns:

Iterator to first char beyond time string.

Definition at line 1027 of file locale_facets_nonio.tcc.

References std::ios_base::_M_getloc(), and std::ios_base::eofbit.

5.702.3.6 template<typename _CharT , typename _InIter > _InIter std::time_get< _CharT, _InIter >::do_get_weekday (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, tm * *__tm*) const [inline, protected, virtual, inherited]

Parse input weekday string. This function parses a weekday name and puts the results into a user-supplied struct tm. This function is a hook for derived classes to change the value returned.

See also:

get_weekday() for details.

Parameters:

beg Start of string to parse.

end End of string to parse.

io Source of the locale.

err Error flags to set.

tm Pointer to struct tm to fill in.

Returns:

Iterator to first char beyond weekday name.

Definition at line 1061 of file locale_facets_nonio.tcc.

References std::ios_base::_M_getloc(), std::ios_base::eofbit, std::ios_base::failbit, and std::ios_base::goodbit.

5.702.3.7 template<typename _CharT , typename _InIter > _InIter std::time_get< _CharT, _InIter >::do_get_year (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, tm * *__tm*) const [inline, protected, virtual, inherited]

Parse input year string. This function reads up to 4 characters to parse a year string and puts the results into a user-supplied struct tm. This function is a hook for derived classes to change the value returned.

See also:

get_year() for details.

Parameters:

beg Start of string to parse.

end End of string to parse.

io Source of the locale.

err Error flags to set.

tm Pointer to struct tm to fill in.

Returns:

Iterator to first char beyond year.

Definition at line 1117 of file locale_facets_nonio.tcc.

References std::ios_base::_M_getloc(), std::ios_base::eofbit, std::ios_base::failbit, and std::ios_base::goodbit.

5.702.3.8 template<typename _CharT , typename _InIter > iter_type std::time_get< _CharT, _InIter >::get_date (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, tm * *__tm*) const [inline, inherited]

Parse input date string. This function parses a date according to the format *X* and puts the results into a user-supplied struct tm. The result is returned by calling time_-get::do_get_date().

If there is a valid date string according to format *X*, *tm* will be filled in accordingly and the returned iterator will point to the first character beyond the date string. If an error occurs before the end, err |= ios_base::failbit. If parsing reads all the characters, err |= ios_base::eofbit.

Parameters:

beg Start of string to parse.

end End of string to parse.

io Source of the locale.

err Error flags to set.

tm Pointer to struct tm to fill in.

Returns:

Iterator to first char beyond date string.

Definition at line 451 of file locale_facets_nonio.h.

5.702.3.9 template<typename _CharT , typename _InIter > iter_type std::time_get< _CharT, _InIter >::get_monthname (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, tm * *__tm*) const [inline, inherited]

Parse input month string. This function parses a month name and puts the results into a user-supplied struct tm. The result is returned by calling time_get::do_get_monthname().

Parsing starts by parsing an abbreviated month name. If a valid abbreviation is followed by a character that would lead to the full month name, parsing continues until the full name is found or an error occurs. Otherwise parsing finishes at the end of the abbreviated name.

If an error occurs before the end, err |= ios_base::failbit. If parsing reads all the characters, err |= ios_base::eofbit.

Parameters:

beg Start of string to parse.

end End of string to parse.

io Source of the locale.

err Error flags to set.

tm Pointer to struct tm to fill in.

Returns:

Iterator to first char beyond month name.

Definition at line 508 of file locale_facets_nonio.h.

5.702.3.10 template<typename _CharT , typename _InIter > iter_type std::time_get< _CharT, _InIter >::get_time (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, tm * *__tm*) const [inline, inherited]

Parse input time string. This function parses a time according to the format *x* and puts the results into a user-supplied struct tm. The result is returned by calling time_get::do_get_time().

If there is a valid time string according to format *x*, *tm* will be filled in accordingly and the returned iterator will point to the first character beyond the time string. If an error occurs before the end, err |= ios_base::failbit. If parsing reads all the characters, err |= ios_base::eofbit.

Parameters:

beg Start of string to parse.

end End of string to parse.

io Source of the locale.

err Error flags to set.

tm Pointer to struct tm to fill in.

Returns:

Iterator to first char beyond time string.

Definition at line 426 of file locale_facets_nonio.h.

5.702.3.11 template<typename _CharT , typename _InIter > iter_type std::time_get< _CharT, _InIter >::get_weekday (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, tm * *__tm*) const [inline, inherited]

Parse input weekday string. This function parses a weekday name and puts the results into a user-supplied struct tm. The result is returned by calling time_get::do_get_weekday().

Parsing starts by parsing an abbreviated weekday name. If a valid abbreviation is followed by a character that would lead to the full weekday name, parsing continues until the full name is found or an error occurs. Otherwise parsing finishes at the end of the abbreviated name.

If an error occurs before the end, err |= ios_base::failbit. If parsing reads all the characters, err |= ios_base::eofbit.

Parameters:

beg Start of string to parse.

end End of string to parse.

io Source of the locale.

err Error flags to set.

tm Pointer to struct tm to fill in.

Returns:

Iterator to first char beyond weekday name.

Definition at line 479 of file locale_facets_nonio.h.

5.702.3.12 template<typename _CharT , typename _InIter > iter_type std::time_get< _CharT, _InIter >::get_year (iter_type *__beg*, iter_type *__end*, ios_base & *__io*, ios_base::iostate & *__err*, tm * *__tm*) const [inline, inherited]

Parse input year string. This function reads up to 4 characters to parse a year string and puts the results into a user-supplied struct tm. The result is returned by calling time_get::do_get_year().

4 consecutive digits are interpreted as a full year. If there are exactly 2 consecutive digits, the library interprets this as the number of years since 1900.

If an error occurs before the end, err |= ios_base::failbit. If parsing reads all the characters, err |= ios_base::eofbit.

Parameters:

beg Start of string to parse.

end End of string to parse.

io Source of the locale.

err Error flags to set.

tm Pointer to struct tm to fill in.

Returns:

Iterator to first char beyond year.

Definition at line 534 of file locale_facets_nonio.h.

5.702.4 Member Data Documentation

5.702.4.1 template<typename _CharT , typename _InIter > locale::id std::time_get< _CharT, _InIter >::id [inline, static, inherited]

Numpunct facet id.

Definition at line 375 of file locale_facets_nonio.h.

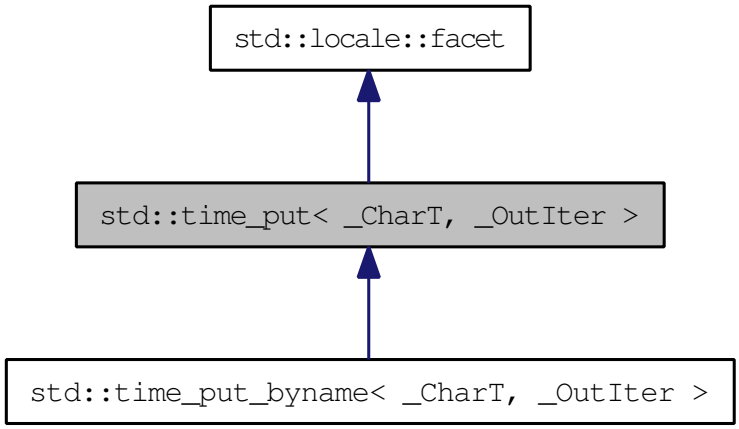
The documentation for this class was generated from the following file:

- locale_facets_nonio.h

5.703 std::time_put< _CharT, _OutIter > Class Template Reference

Primary class template time_put.

This facet encapsulates the code to format and output dates and times according to formats used by strftime(). Inheritance diagram for std::time_put< _CharT, _OutIter >:



Public Types

- typedef _CharT char_type
- typedef _OutIter iter_type

Public Member Functions

- time_put (size_t __refs=0)
- iter_type put (iter_type __s, ios_base &__io, char_type __fill, const tm *__tm, char __format, char __mod=0) const
- iter_type put (iter_type __s, ios_base &__io, char_type __fill, const tm *__tm, const _CharT *__beg, const _CharT *__end) const

Static Public Attributes

- static locale::id id

Protected Member Functions

- virtual ~time_put ()
- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()
- virtual iter_type do_put (iter_type __s, ios_base &__io, char_type __fill, const tm *__tm, char __format, char __mod) const

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_locale __old=0)
- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Friends

- class **locale::_Impl**

5.703.1 Detailed Description

template<typename _CharT, typename _OutIter> class std::time_put< _CharT, _OutIter >

Primary class template time_put.

This facet encapsulates the code to format and output dates and times according to formats used by strftime(). The time_put template uses protected virtual functions to provide the actual results. The public accessors forward the call to the virtual functions. These virtual functions are hooks for developers to implement the behavior they require from the time_put facet.

Definition at line 710 of file locale_facets_nonio.h.

5.703.2 Member Typedef Documentation

5.703.2.1 template<typename _CharT , typename _OutIter > typedef _CharT std::time_put< _CharT, _OutIter >::char_type

Public typedefs.

Reimplemented in std::time_put_byname< _CharT, _OutIter >.

Definition at line 716 of file locale_facets_nonio.h.

5.703.2.2 template<typename _CharT , typename _OutIter > typedef _OutIter std::time_put< _CharT, _OutIter >::iter_type

Public typedefs.

Reimplemented in std::time_put_byname< _CharT, _OutIter >.

Definition at line 717 of file locale_facets_nonio.h.

5.703.3 Constructor & Destructor Documentation

5.703.3.1 template<typename _CharT , typename _OutIter > std::time_put< _CharT, _OutIter >::time_put (size_t *__refs* = 0) [inline, explicit]

Constructor performs initialization. This is the constructor provided by the standard.

Parameters:

refs Passed to the base facet class.

Definition at line 731 of file locale_facets_nonio.h.

5.703.3.2 template<typename _CharT , typename _OutIter > virtual std::time_put< _CharT, _OutIter >::~time_put () [inline, protected, virtual]

Destructor.

Definition at line 777 of file locale_facets_nonio.h.

5.703.4 Member Function Documentation

5.703.4.1 template<typename _CharT , typename _OutIter > _OutIter std::time_put< _CharT, _OutIter >::do_put (iter_type *__s*, ios_base & *__io*, char_type *__fill*, const tm * *__tm*, char *__format*, char *__mod*) const [inline, protected, virtual]

Format and output a time or date. This function formats the data in struct tm according to the provided format char and optional modifier. This function is a hook for derived classes to change the value returned.

See also:

put() for more details.

Parameters:

s The stream to write to.

io Source of locale.

fill char_type to use for padding.

tm Struct tm with date and time info to format.

format Format char.

mod Optional modifier char.

Returns:

Iterator after writing.

Definition at line 1175 of file locale_facets_nonio.tcc.

References std::ios_base::_M_getloc(), and std::__ctype_abstract_base< _CharT >::widen().

Referenced by std::time_put< _CharT, _OutIter >::put().

5.703.4.2 template<typename _CharT , typename _OutIter > iter_type std::time_put< _CharT, _OutIter >::put (iter_type *__s*, ios_base & *__io*, char_type *__fill*, const tm * *__tm*, char *__format*, char *__mod* = 0) const [inline]

Format and output a time or date. This function formats the data in struct tm according to the provided format char and optional modifier. The format and modifier are interpreted as by strftime(). It does so by returning time_put::do_put().

Parameters:

s The stream to write to.

io Source of locale.

fill char_type to use for padding.

tm Struct tm with date and time info to format.

format Format char.

mod Optional modifier char.

Returns:

Iterator after writing.

Definition at line 770 of file locale_facets_nonio.h.

References std::time_put< _CharT, _OutIter >::do_put().

5.703.4.3 template<typename _CharT , typename _OutIter > _OutIter std::time_put< _CharT, _OutIter >::put (iter_type __s, ios_base & __io, char_type __fill, const tm * __tm, const _CharT * __beg, const _CharT * __end) const [inline]

Format and output a time or date. This function formats the data in struct tm according to the provided format string. The format string is interpreted as by strftime().

Parameters:

s The stream to write to.

io Source of locale.

fill char_type to use for padding.

tm Struct tm with date and time info to format.

beg Start of format string.

end End of format string.

Returns:

Iterator after writing.

Definition at line 1140 of file locale_facets_nonio.tcc.

References std::ios_base::_M_getloc(), std::time_put< _CharT, _OutIter >::do_put(), and std::__ctype_abstract_base< _CharT >::narrow().

5.703.5 Member Data Documentation

5.703.5.1 template<typename _CharT , typename _OutIter > locale::id std::time_put< _CharT, _OutIter >::id [inline, static]

Numpunct facet id.

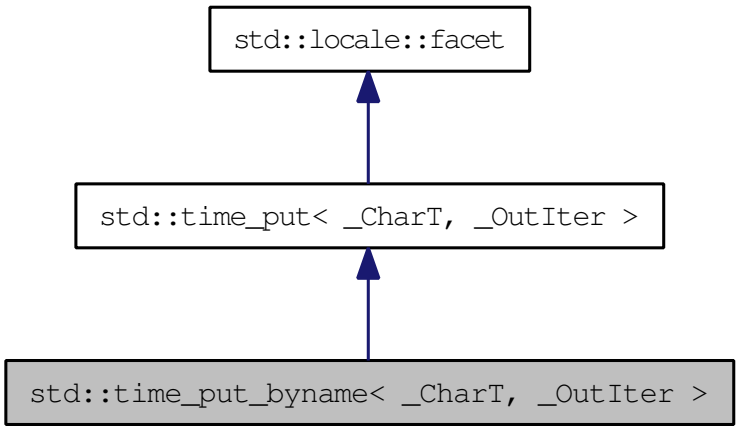
Definition at line 721 of file locale_facets_nonio.h.

The documentation for this class was generated from the following files:

- locale_facets_nonio.h
- locale_facets_nonio.tcc

5.704 std::time_put_byname< _CharT, _OutIter > Class Template Reference

class time_put_byname [22.2.5.4]. Inheritance diagram for std::time_put_byname< _CharT, _OutIter >:



Public Types

- typedef _CharT char_type
- typedef _OutIter iter_type

Public Member Functions

- **time_put_byname** (const char *, size_t __refs=0)
- iter_type put (iter_type __s, ios_base &__io, char_type __fill, const tm *__tm, char __format, char __mod=0) const
- iter_type put (iter_type __s, ios_base &__io, char_type __fill, const tm *__tm, const _CharT *__beg, const _CharT *__end) const

Static Public Attributes

- static locale::id id

Protected Member Functions

- **__attribute__** ((__const__)) static const char *_S_get_c_name() throw ()

- virtual iter_type do_put (iter_type __s, ios_base &__io, char_type __fill, const tm *__tm, char __format, char __mod) const

Static Protected Member Functions

- static __c_locale **_S_clone_c_locale** (__c_locale &__cloc) throw ()
- static void **_S_create_c_locale** (__c_locale &__cloc, const char *__s, __c_locale __old=0)
- static void **_S_destroy_c_locale** (__c_locale &__cloc)
- static __c_locale **_S_get_c_locale** ()
- static __c_locale **_S_lc_ctype_c_locale** (__c_locale __cloc, const char *__s)

Friends

- class **locale::_Impl**

5.704.1 Detailed Description

template<typename _CharT, typename _OutIter> class std::time_put_byname< _CharT, _OutIter >

class time_put_byname [22.2.5.4].

Definition at line 806 of file locale_facets_nonio.h.

5.704.2 Member Typedef Documentation

5.704.2.1 template<typename _CharT , typename _OutIter > typedef _CharT std::time_put_byname< _CharT, _OutIter >::char_type

Public typedefs.

Reimplemented from std::time_put< _CharT, _OutIter >.

Definition at line 810 of file locale_facets_nonio.h.

5.704.2.2 template<typename _CharT , typename _OutIter > typedef _OutIter std::time_put_byname< _CharT, _OutIter >::iter_type

Public typedefs.

Reimplemented from std::time_put< _CharT, _OutIter >.

Definition at line 811 of file locale_facets_nonio.h.

5.704.3 Member Function Documentation

5.704.3.1 template<typename _CharT , typename _OutIter > _OutIter std::time_put< _CharT, _OutIter >::do_put (iter_type __s, ios_base & __io, char_type __fill, const tm * __tm, char __format, char __mod) const [inline, protected, virtual, inherited]

Format and output a time or date. This function formats the data in struct tm according to the provided format char and optional modifier. This function is a hook for derived classes to change the value returned.

See also:

put() for more details.

Parameters:

s The stream to write to.

io Source of locale.

fill char_type to use for padding.

tm Struct tm with date and time info to format.

format Format char.

mod Optional modifier char.

Returns:

Iterator after writing.

Definition at line 1175 of file locale_facets_nonio.tcc.

References std::ios_base::_M_getloc(), and std::__ctype_abstract_base< _CharT >::widen().

Referenced by std::time_put< _CharT, _OutIter >::put().

5.704.3.2 template<typename _CharT , typename _OutIter > iter_type std::time_put< _CharT, _OutIter >::put (iter_type __s, ios_base & __io, char_type __fill, const tm * __tm, char __format, char __mod = 0) const [inline, inherited]

Format and output a time or date. This function formats the data in struct tm according to the provided format char and optional modifier. The format and modifier are interpreted as by strftime(). It does so by returning time_put::do_put().

Parameters:

s The stream to write to.

io Source of locale.

fill char_type to use for padding.

tm Struct tm with date and time info to format.

format Format char.

mod Optional modifier char.

Returns:

Iterator after writing.

Definition at line 770 of file locale_facets_nonio.h.

References std::time_put< _CharT, _OutIter >::do_put().

5.704.3.3 template<typename _CharT , typename _OutIter > _OutIter std::time_put< _CharT, _OutIter >::put (iter_type *__s*, ios_base & *__io*, char_type *__fill*, const tm * *__tm*, const _CharT * *__beg*, const _CharT * *__end*) const [inline, inherited]

Format and output a time or date. This function formats the data in struct tm according to the provided format string. The format string is interpreted as by strftime().

Parameters:

s The stream to write to.

io Source of locale.

fill char_type to use for padding.

tm Struct tm with date and time info to format.

beg Start of format string.

end End of format string.

Returns:

Iterator after writing.

Definition at line 1140 of file locale_facets_nonio.tcc.

References std::ios_base::_M_getloc(), std::time_put< _CharT, _OutIter >::do_put(), and std::__ctype_abstract_base< _CharT >::narrow().

5.704.4 Member Data Documentation

5.704.4.1 template<typename _CharT , typename _OutIter > locale::id std::time_put< _CharT, _OutIter >::id [inline, static, inherited]

Numpunct facet id.

Definition at line 721 of file locale_facets_nonio.h.

The documentation for this class was generated from the following file:

- locale_facets_nonio.h

5.705 std::timed_mutex Class Reference

timed_mutex

Public Types

- typedef __native_type * **native_handle_type**

Public Member Functions

- **timed_mutex** (const timed_mutex &)
- void **lock** ()
- native_handle_type **native_handle** ()
- timed_mutex & **operator=** (const timed_mutex &)
- bool **try_lock** ()
- template<class _Rep , class _Period >
  bool **try_lock_for** (const chrono::duration< _Rep, _Period > &__rtime)
- template<class _Clock , class _Duration >
  bool **try_lock_until** (const chrono::time_point< _Clock, _Duration > &__atime)
- void **unlock** ()

5.705.1 Detailed Description

timed_mutex

Definition at line 167 of file mutex.

The documentation for this class was generated from the following file:

- mutex

5.706 std::try_to_lock_t Struct Reference

Try to acquire ownership of the mutex without blocking.

5.706.1 Detailed Description

Try to acquire ownership of the mutex without blocking.

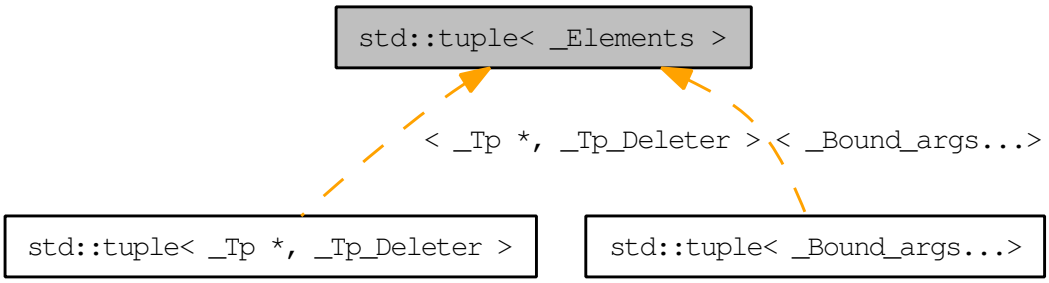
Definition at line 379 of file mutex.

The documentation for this struct was generated from the following file:

- mutex

5.707 std::tuple< _Elements > Class Template Reference

tuple Inheritance diagram for std::tuple< _Elements >:



Public Member Functions

- template<typename... _UElements>
  tuple (tuple< _UElements...> &__in)
- template<typename... _UElements>
  tuple (tuple< _UElements...> &&__in)
- template<typename... _UElements>
  tuple (const tuple< _UElements...> &__in)
- **tuple** (tuple &&__in)
- **tuple** (const tuple &__in)
- template<typename... _UElements>
  tuple (_UElements &&...__elements)
- **tuple** (const _Elements &...__elements)
- template<typename... _UElements>
  tuple & **operator=** (tuple< _UElements...> &&__in)
- template<typename... _UElements>
  tuple & **operator=** (const tuple< _UElements...> &__in)
- tuple & **operator=** (tuple &&__in)
- tuple & **operator=** (const tuple &__in)
- void **swap** (tuple &__in)

5.707.1 Detailed Description

template<typename... _Elements> class std::tuple< _Elements >

tuple

Definition at line 224 of file tuple.

The documentation for this class was generated from the following file:

- tuple

5.708 std::tuple< _T1, _T2 > Class Template Reference

tuple (2-element), with construction and assignment from a pair.

Inherits _Tuple_impl< 0, _T1, _T2 >.

Public Member Functions

- template<typename _U1 , typename _U2 >
  tuple (pair< _U1, _U2 > &&__in)
- template<typename _U1 , typename _U2 >
  tuple (const pair< _U1, _U2 > &__in)
- template<typename _U1 , typename _U2 >
  tuple (tuple< _U1, _U2 > &&__in)
- template<typename _U1 , typename _U2 >
  tuple (const tuple< _U1, _U2 > &__in)
- **tuple** (tuple &&__in)
- **tuple** (const tuple &__in)
- template<typename _U1 , typename _U2 >
  tuple (_U1 &&__a1, _U2 &&__a2)
- **tuple** (const _T1 &__a1, const _T2 &__a2)
- template<typename _U1 , typename _U2 >
  tuple & **operator=** (pair< _U1, _U2 > &&__in)
- template<typename _U1 , typename _U2 >
  tuple & **operator=** (const pair< _U1, _U2 > &__in)
- template<typename _U1 , typename _U2 >
  tuple & **operator=** (tuple< _U1, _U2 > &&__in)
- template<typename _U1 , typename _U2 >
  tuple & **operator=** (const tuple< _U1, _U2 > &__in)
- tuple & **operator=** (tuple &&__in)
- tuple & **operator=** (const tuple &__in)
- void **swap** (tuple &__in)

5.708.1 Detailed Description

template<typename _T1, typename _T2> class std::tuple< _T1, _T2 >

tuple (2-element), with construction and assignment from a pair.

Definition at line 307 of file tuple.

The documentation for this class was generated from the following file:

- tuple

5.709 std::tuple_element< 0, tuple< _Head, _Tail...> > Struct Template Reference

Public Types

- typedef _Head **type**

5.709.1 Detailed Description

template<typename _Head, typename... _Tail> struct std::tuple_element< 0, tuple< _Head, _Tail...> >

Basis case for tuple_element: The first element is the one we're seeking.

Definition at line 420 of file tuple.

The documentation for this struct was generated from the following file:

- tuple

5.710 std::tuple_element< __i, tuple< _Head, _Tail...> > Struct Template Reference

Inherits tuple_element< __i-1, tuple< _Tail...> >.

5.710.1 Detailed Description

template<std::size_t __i, typename _Head, typename... _Tail> struct std::tuple_element< __i, tuple< _Head, _Tail...> >

Recursive case for tuple_element: strip off the first element in the tuple and retrieve the (i-1)th element of the remaining tuple.

Definition at line 413 of file tuple.

The documentation for this struct was generated from the following file:

- tuple

5.711 std::tuple_size< tuple< _Elements...> > Struct Template Reference

class tuple_size

Static Public Attributes

- static const std::size_t **value**

5.711.1 Detailed Description

template<typename... _Elements> struct std::tuple_size< tuple< _Elements...> >

class tuple_size

Definition at line 431 of file tuple.

The documentation for this struct was generated from the following file:

- tuple

5.712 std::type_info Class Reference

Part of RTTI.

Inherited by __cxxabiv1::__array_type_info, __cxxabiv1::__class_type_info, __cxxabiv1::__enum_type_info, __cxxabiv1::__function_type_info, __cxxabiv1::__fundamental_type_info, and __cxxabiv1::__pbase_type_info.

Public Member Functions

- virtual ~type_info ()
- virtual bool **__do_catch** (const type_info *__thr_type, void **__thr_obj, unsigned __outer) const
- virtual bool **__do_upcast** (const __cxxabiv1::__class_type_info *__target, void **__obj_ptr) const
- virtual bool **__is_function_p** () const
- virtual bool **__is_pointer_p** () const
- bool **before** (const type_info &__arg) const
- const char * name () const
- bool **operator!=** (const type_info &__arg) const
- bool **operator==** (const type_info &__arg) const

Protected Member Functions

- **type_info** (const char *__n)

Protected Attributes

- const char * **__name**

5.712.1 Detailed Description

Part of RTTI. The `type_info` class describes type information generated by an implementation.

Definition at line 87 of file typeinfo.

5.712.2 Constructor & Destructor Documentation

5.712.2.1 virtual std::type_info::~type_info () `[virtual]`

Destructor first. Being the first non-inline virtual function, this controls in which translation unit the vtable is emitted. The compiler makes use of that information to know

where to emit the runtime-mandated type_info structures in the new-abi.

5.712.3 Member Function Documentation

5.712.3.1 const char* std::type_info::name () const [inline]

Returns an *implementation-defined* byte string; this is not portable between compilers!

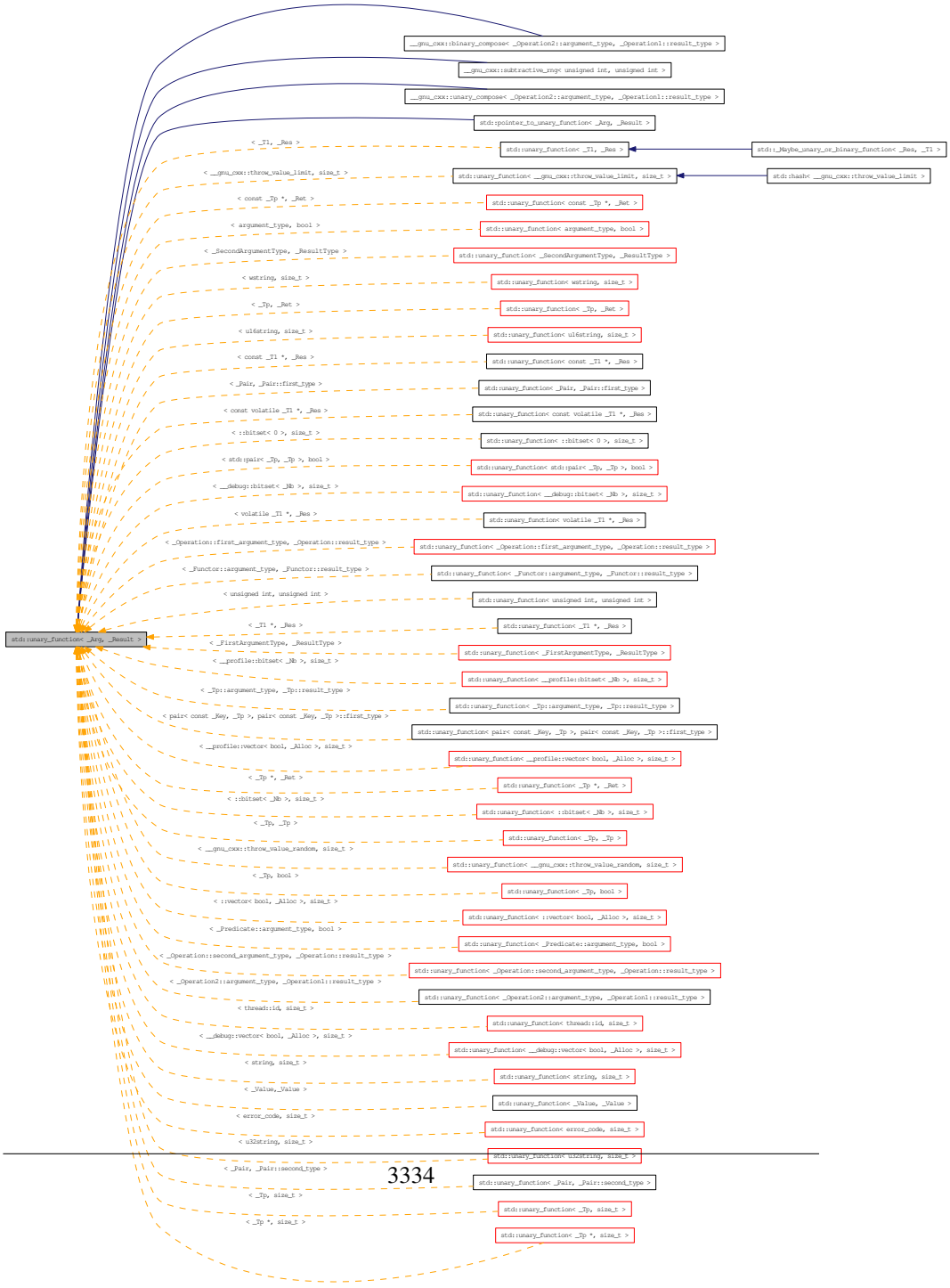
Definition at line 98 of file typeinfo.

The documentation for this class was generated from the following file:

- typeinfo

5.713 std::unary_function< _Arg, _Result > Struct Template Reference

Inheritance diagram for std::unary_function< _Arg, _Result >:



Public Types

- typedef _Arg argument_type
- typedef _Result result_type

5.713.1 Detailed Description

template<typename _Arg, typename _Result> struct std::unary_function< _Arg, _Result >

This is one of the functor base classes.

Definition at line 100 of file stl_function.h.

5.713.2 Member Typedef Documentation

5.713.2.1 template<typename _Arg, typename _Result> typedef _Arg std::unary_function< _Arg, _Result >::argument_type

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.713.2.2 template<typename _Arg, typename _Result> typedef _Result std::unary_function< _Arg, _Result >::result_type

`result_type` is the return type

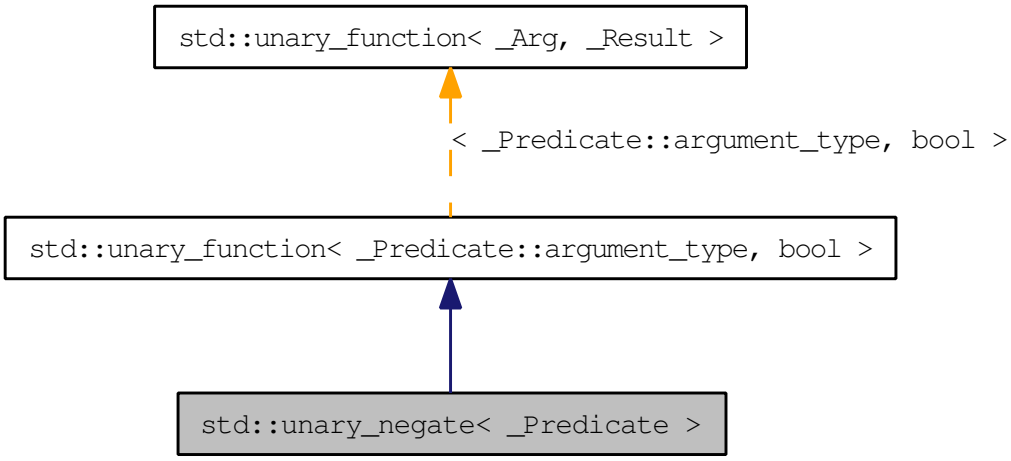
Definition at line 105 of file stl_function.h.

The documentation for this struct was generated from the following file:

- stl_function.h

5.714 std::unary_negate< _Predicate > Class Template Reference

One of the negation functors. Inheritance diagram for std::unary_negate< _Predicate >:



Public Types

- typedef _Predicate::argument_type argument_type
- typedef bool result_type

Public Member Functions

- **unary_negate** (const _Predicate &__x)
- bool **operator()** (const typename _Predicate::argument_type &__x) const

Protected Attributes

- _Predicate **_M_pred**

5.714.1 Detailed Description

template<typename _Predicate> class std::unary_negate< _Predicate >

One of the negation functors.

Definition at line 346 of file stl_function.h.

5.714.2 Member Typedef Documentation

5.714.2.1 typedef _Predicate::argument_type std::unary_function< _Predicate::argument_type , bool >::argument_type [inherited]

`argument_type` is the type of the argument (no surprises here)

Definition at line 102 of file stl_function.h.

5.714.2.2 typedef bool std::unary_function< _Predicate::argument_type , bool >::result_type [inherited]

`result_type` is the return type

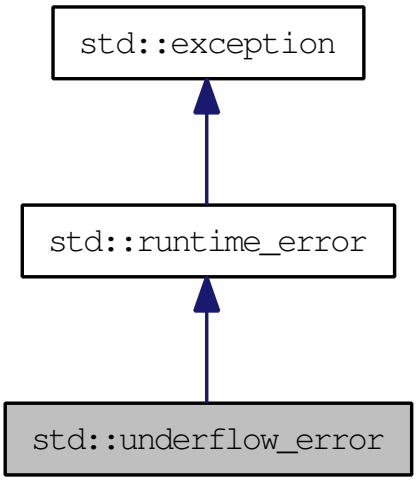
Definition at line 105 of file stl_function.h.

The documentation for this class was generated from the following file:

- stl_function.h

5.715 std::underflow_error Class Reference

Inheritance diagram for std::underflow_error:



Public Member Functions

- **underflow_error** (const string &__arg)
- virtual const char * what () const throw ()

5.715.1 Detailed Description

Thrown to indicate arithmetic underflow.

Definition at line 140 of file stdexcept.

5.715.2 Member Function Documentation

5.715.2.1 virtual const char* std::runtime_error::what () const throw () [virtual, inherited]

Returns a C-style character string describing the general cause of the current error (the same string passed to the ctor).

Reimplemented from std::exception.

The documentation for this class was generated from the following file:

- stdexcept

5.716 std::uniform_int_distribution< _IntType > Class Template Reference

Uniform discrete distribution for random numbers. A discrete random distribution on the range $[min, max]$ with equal probability throughout the range.

Classes

- struct param_type

Public Types

- typedef _IntType result_type

Public Member Functions

- **uniform_int_distribution** (const param_type &__p)
- uniform_int_distribution (_IntType __a=0, _IntType __b=std::numeric_limits< _IntType >::max())
- result_type **a** () const
- result_type **b** () const
- result_type max () const
- result_type min () const
- template<typename _UniformRandomNumberGenerator > result_type operator() (_UniformRandomNumberGenerator &__urng, const param_type &__p)
- template<typename _UniformRandomNumberGenerator > result_type operator() (_UniformRandomNumberGenerator &__urng)
- void param (const param_type &__param)
- param_type param () const
- void reset ()

Public Attributes

- param_type **_M_param**

5.716.1 Detailed Description

template<typename _IntType = int> class std::uniform_int_distribution< _IntType >

Uniform discrete distribution for random numbers. A discrete random distribution on the range $[min, max]$ with equal probability throughout the range.

Definition at line 1496 of file random.h.

5.716.2 Member Typedef Documentation

5.716.2.1 template<typename _IntType = int> typedef _IntType std::uniform_int_distribution< _IntType >::result_type

The type of the range of the distribution.

Definition at line 1503 of file random.h.

5.716.3 Constructor & Destructor Documentation

5.716.3.1 template<typename _IntType = int> std::uniform_int_distribution< _IntType >::uniform_int_distribution (_IntType *__a* = 0, _IntType *__b* = std::numeric_limits<_IntType>::max()) [inline, explicit]

Constructs a uniform distribution object.

Definition at line 1535 of file random.h.

5.716.4 Member Function Documentation

5.716.4.1 template<typename _IntType = int> result_type std::uniform_int_distribution< _IntType >::max () const [inline]

Returns the inclusive upper bound of the distribution range.

Definition at line 1572 of file random.h.

5.716.4.2 template<typename _IntType = int> result_type std::uniform_int_distribution< _IntType >::min () const [inline]

Returns the inclusive lower bound of the distribution range.

Definition at line 1565 of file random.h.

5.716.4.3 template<typename _IntType > template<typename _UniformRandomNumberGenerator > uniform_int_distribution< _IntType >::result_type std::uniform_int_distribution< _IntType >::operator() (_UniformRandomNumberGenerator & *__urng*, const param_type & *__p*) [inline]

Gets a uniform random number in the range $[0, n)$.

This function is aimed at use with std::random_shuffle.

Definition at line 818 of file random.tcc.

5.716.4.4 template<typename _IntType = int> template<typename _UniformRandomNumberGenerator > result_type std::uniform_int_distribution< _IntType >::operator() (_UniformRandomNumberGenerator & *__urng*) [inline]

Gets a uniformly distributed random number in the range (min, max).

Definition at line 1596 of file random.h.

References std::uniform_int_distribution< _IntType >::operator()(), and std::uniform_int_distribution< _IntType >::param().

Referenced by std::uniform_int_distribution< _IntType >::operator()().

5.716.4.5 template<typename _IntType = int> void std::uniform_int_distribution< _IntType >::param (const param_type & *__param*) [inline]

Sets the parameter set of the distribution.

Parameters:

__param The new parameter set of the distribution.

Definition at line 1587 of file random.h.

5.716.4.6 template<typename _IntType = int> param_type std::uniform_int_distribution< _IntType >::param () const [inline]

Returns the parameter set of the distribution.

Definition at line 1579 of file random.h.

Referenced by std::uniform_int_distribution< _IntType >::operator()(), and std::operator>>().

5.716.4.7 template<typename _IntType = int> void std::uniform_int_distribution< _IntType >::reset () [inline]

Resets the distribution state. Does nothing for the uniform integer distribution.

Definition at line 1551 of file random.h.

The documentation for this class was generated from the following files:

- random.h
- random.tcc

5.717 std::uniform_int_distribution< _IntType >::param_type Struct Reference

Public Types

- typedef uniform_int_distribution< _IntType > **distribution_type**

Public Member Functions

- **param_type** (_IntType __a=0, _IntType __b=std::numeric_limits< _IntType >::max())
- result_type **a** () const
- result_type **b** () const

5.717.1 Detailed Description

template<typename _IntType = int> struct std::uniform_int_distribution< _IntType >::param_type

Parameter type.

Definition at line 1505 of file random.h.

The documentation for this struct was generated from the following file:

- random.h

5.718 std::uniform_real_distribution< _RealType > Class Template Reference

Uniform continuous distribution for random numbers.

Classes

- struct param_type

Public Types

- typedef _RealType result_type

Public Member Functions

- **uniform_real_distribution** (const param_type &__p)
- uniform_real_distribution (_RealType __a=_RealType(0), _RealType __b=_RealType(1))
- result_type **a** () const
- result_type **b** () const
- result_type max () const
- result_type min () const
- template<typename _UniformRandomNumberGenerator > result_type **operator()** (_UniformRandomNumberGenerator &__urng, const param_type &__p)
- template<typename _UniformRandomNumberGenerator > result_type **operator()** (_UniformRandomNumberGenerator &__urng)
- void param (const param_type &__param)
- param_type param () const
- void reset ()

5.718.1 Detailed Description

template<typename _RealType = double> class std::uniform_real_distribution< _RealType >

Uniform continuous distribution for random numbers. A continuous random distribution on the range [min, max) with equal probability throughout the range. The URNG should be real-valued and deliver number in the range [0, 1).

Definition at line 1650 of file random.h.

5.718.2 Member Typedef Documentation

5.718.2.1 template<typename _RealType = double> typedef _RealType std::uniform_real_distribution< _RealType >::result_type

The type of the range of the distribution.

Definition at line 1657 of file random.h.

5.718.3 Constructor & Destructor Documentation

5.718.3.1 template<typename _RealType = double> std::uniform_real_distribution< _RealType >::uniform_real_distribution (_RealType __a = `_RealType(0)`, _RealType __b = `_RealType(1)`) `[inline, explicit]`

Constructs a uniform_real_distribution object.

Parameters:

__min [IN] The lower bound of the distribution.

__max [IN] The upper bound of the distribution.

Definition at line 1692 of file random.h.

5.718.4 Member Function Documentation

5.718.4.1 template<typename _RealType = double> result_type std::uniform_real_distribution< _RealType >::max () const `[inline]`

Returns the inclusive upper bound of the distribution range.

Definition at line 1729 of file random.h.

5.718.4.2 template<typename _RealType = double> result_type std::uniform_real_distribution< _RealType >::min () const `[inline]`

Returns the inclusive lower bound of the distribution range.

Definition at line 1722 of file random.h.

5.718.4.3 template<typename _RealType = double> void std::uniform_real_distribution< _RealType >::param (const param_type & *__param*) [inline]

Sets the parameter set of the distribution.

Parameters:

__param The new parameter set of the distribution.

Definition at line 1744 of file random.h.

5.718.4.4 template<typename _RealType = double> param_type std::uniform_real_distribution< _RealType >::param () const [inline]

Returns the parameter set of the distribution.

Definition at line 1736 of file random.h.

Referenced by std::operator>>().

5.718.4.5 template<typename _RealType = double> void std::uniform_real_distribution< _RealType >::reset () [inline]

Resets the distribution state. Does nothing for the uniform real distribution.

Definition at line 1708 of file random.h.

The documentation for this class was generated from the following file:

- random.h

5.719 std::uniform_real_distribution< _RealType >::param_type Struct Reference

Public Types

- typedef uniform_real_distribution< _RealType > **distribution_type**

Public Member Functions

- **param_type** (_RealType __a=_RealType(0), _RealType __b=_RealType(1))
- result_type **a** () const
- result_type **b** () const

5.719.1 Detailed Description

template<typename _RealType = double> struct std::uniform_real_distribution< _RealType >::param_type

Parameter type.

Definition at line 1659 of file random.h.

The documentation for this struct was generated from the following file:

- random.h

5.720 std::unique_lock< _Mutex > Class Template Reference

unique_lock

Public Types

- typedef _Mutex **mutex_type**

Public Member Functions

- **unique_lock** (unique_lock &&__u)
- **unique_lock** (const unique_lock &)
- template<typename _Rep , typename _Period >
  unique_lock (mutex_type &__m, const chrono::duration< _Rep, _Period > &__rtime)
- template<typename _Clock , typename _Duration >
  unique_lock (mutex_type &__m, const chrono::time_point< _Clock, _Duration > &__atime)
- **unique_lock** (mutex_type &__m, adopt_lock_t)
- **unique_lock** (mutex_type &__m, try_to_lock_t)
- **unique_lock** (mutex_type &__m, defer_lock_t)
- **unique_lock** (mutex_type &__m)
- void **lock** ()
- mutex_type * **mutex** () const
- **operator bool** () const
- unique_lock & **operator=** (unique_lock &&__u)
- unique_lock & **operator=** (const unique_lock &)
- bool **owns_lock** () const
- mutex_type * **release** ()
- void **swap** (unique_lock &__u)
- bool **try_lock** ()
- template<typename _Rep , typename _Period >
  bool **try_lock_for** (const chrono::duration< _Rep, _Period > &__rtime)
- template<typename _Clock , typename _Duration >
  bool **try_lock_until** (const chrono::time_point< _Clock, _Duration > &__atime)
- void **unlock** ()

5.720.1 Detailed Description

template<typename _Mutex> class std::unique_lock< _Mutex >

unique_lock

Definition at line 416 of file mutex.

The documentation for this class was generated from the following file:

- mutex

5.721 std::unique_ptr< _Tp, _Tp_Deleter > Class Template Reference

20.7.12.2 unique_ptr for single objects.

Public Types

- typedef _Tp_Deleter **deleter_type**
- typedef _Tp **element_type**
- typedef _Tp * **pointer**

Public Member Functions

- **unique_ptr** (const unique_ptr &)
- template<typename _Up , typename _Up_Deleter >
  unique_ptr (unique_ptr< _Up, _Up_Deleter > &&__u)
- **unique_ptr** (unique_ptr &&__u)
- **unique_ptr** (pointer __p, typename std::remove_reference< deleter_type >::type &&__d)
- **unique_ptr** (pointer __p, typename std::conditional< std::is_reference< deleter_type >::value, deleter_type, const deleter_type & >::type __d)
- **unique_ptr** (pointer __p)
- pointer **get** () const
- const deleter_type & **get_deleter** () const
- deleter_type & **get_deleter** ()
- **operator bool** () const
- std::add_lvalue_reference< element_type >::type **operator*** () const
- pointer **operator->** () const
- unique_ptr & **operator=** (const unique_ptr &)
- unique_ptr & **operator=** (__unspecified_pointer_type)
- template<typename _Up , typename _Up_Deleter >
  unique_ptr & **operator=** (unique_ptr< _Up, _Up_Deleter > &&__u)
- unique_ptr & **operator=** (unique_ptr &&__u)
- pointer **release** ()
- void **reset** (pointer __p=pointer())
- void **swap** (unique_ptr &__u)

5.721.1 Detailed Description

template<typename _Tp, typename _Tp_Deleter = default_delete<_Tp>> class std::unique_ptr< _Tp, _Tp_Deleter >

20.7.12.2 unique_ptr for single objects.

Definition at line 81 of file unique_ptr.h.

The documentation for this class was generated from the following file:

- unique_ptr.h

5.722 std::unique_ptr< _Tp[], _Tp_Deleter > Class Template Reference

20.7.12.3 unique_ptr for array objects with a runtime length

Public Types

- typedef _Tp_Deleter **deleter_type**
- typedef _Tp **element_type**
- typedef _Tp * **pointer**

Public Member Functions

- template<typename _Up >
  unique_ptr (_Up *, typename std::enable_if< std::is_convertible< _Up *, pointer >::value >::type *=0)
- template<typename _Up >
  unique_ptr (_Up *, typename std::remove_reference< deleter_type >::type &&, typename std::enable_if< std::is_convertible< _Up *, pointer >::value >::type *=0)
- template<typename _Up >
  unique_ptr (_Up *, typename std::conditional< std::is_reference< deleter_type >::value, deleter_type, const deleter_type & >::type, typename std::enable_if< std::is_convertible< _Up *, pointer >::value >::type *=0)
- **unique_ptr** (const unique_ptr &)
- template<typename _Up , typename _Up_Deleter >
  unique_ptr (unique_ptr< _Up, _Up_Deleter > &&__u)
- **unique_ptr** (unique_ptr &&__u)
- **unique_ptr** (pointer __p, typename std::remove_reference< deleter_type >::type &&__d)
- **unique_ptr** (pointer __p, typename std::conditional< std::is_reference< deleter_type >::value, deleter_type, const deleter_type & >::type __d)
- **unique_ptr** (pointer __p)
- pointer **get** () const
- const deleter_type & **get_deleter** () const
- deleter_type & **get_deleter** ()
- **operator bool** () const
- unique_ptr & **operator=** (const unique_ptr &)
- unique_ptr & **operator=** (__unspecified_pointer_type)
- template<typename _Up , typename _Up_Deleter >
  unique_ptr & **operator=** (unique_ptr< _Up, _Up_Deleter > &&__u)
- unique_ptr & **operator=** (unique_ptr &&__u)

- std::add_lvalue_reference< element_type >::type **operator[ ]** (size_t __i) const

- pointer **release** ()
- template<typename _Up >
  void **reset** (_Up)
- void **reset** (pointer __p=pointer())
- void **swap** (unique_ptr &__u)

5.722.1 Detailed Description

template<typename _Tp, typename _Tp_Deleter> class std::unique_ptr< _Tp[ ], _Tp_Deleter >

20.7.12.3 unique_ptr for array objects with a runtime length

Definition at line 219 of file unique_ptr.h.

The documentation for this class was generated from the following file:

- unique_ptr.h

5.723 std::unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc > Class Template Reference

A standard container composed of unique keys (containing at most one of each key value) that associates values of another type with the keys.

Inherits std::__unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc >.

Public Types

- typedef _Base::allocator_type **allocator_type**
- typedef _Base::hasher **hasher**
- typedef _Base::key_equal **key_equal**
- typedef _Base::size_type **size_type**
- typedef _Base::value_type **value_type**

Public Member Functions

- **unordered_map** (initializer_list< value_type > __l, size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- **unordered_map** (unordered_map &&__x)
- template<typename _InputIterator >
  unordered_map (_InputIterator __f, _InputIterator __l, size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- **unordered_map** (size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- unordered_map & **operator=** (initializer_list< value_type > __l)
- unordered_map & **operator=** (unordered_map &&__x)

5.723.1 Detailed Description

template<class _Key, class _Tp, class _Hash = hash<_Key>, class _Pred = std::equal_to<_Key>, class _Alloc = std::allocator<std::pair<const _Key, _Tp> > > class std::unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc >

A standard container composed of unique keys (containing at most one of each key value) that associates values of another type with the keys. Meets the requirements of a `container`, and `unordered associative container`

Parameters:

Key Type of key objects.

Tp Type of mapped objects.

Hash Hashing function object type, defaults to hash<Value>.

Pred Predicate function object type, defaults to equal_to<Value>.

Alloc Allocator type, defaults to allocator<Key>.

The resulting value type of the container is std::pair<const Key, Tp>.

Definition at line 185 of file unordered_map.h.

The documentation for this class was generated from the following file:

- unordered_map.h

5.724 std::unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc > Class Template Reference

A standard container composed of equivalent keys (possibly containing multiple of each key value) that associates values of another type with the keys.

Inherits std::__unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc >.

Public Types

- typedef _Base::allocator_type **allocator_type**
- typedef _Base::hasher **hasher**
- typedef _Base::key_equal **key_equal**
- typedef _Base::size_type **size_type**
- typedef _Base::value_type **value_type**

Public Member Functions

- **unordered_multimap** (initializer_list< value_type > __l, size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- **unordered_multimap** (unordered_multimap &&__x)
- template<typename _InputIterator >
  unordered_multimap (_InputIterator __f, _InputIterator __l, typename _Base::size_type __n=0, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- **unordered_multimap** (size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- unordered_multimap & **operator=** (initializer_list< value_type > __l)
- unordered_multimap & **operator=** (unordered_multimap &&__x)

5.724.1 Detailed Description

template<class _Key, class _Tp, class _Hash = hash<_Key>, class _Pred = std::equal_to<_Key>, class _Alloc = std::allocator<std::pair<const _Key, _Tp> >> class std::unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc >

A standard container composed of equivalent keys (possibly containing multiple of each key value) that associates values of another type with the keys. Meets the requirements of a `container`, and `unordered associative container`

Parameters:

Key Type of key objects.

Tp Type of mapped objects.

Hash Hashing function object type, defaults to hash<Value>.

Pred Predicate function object type, defaults to equal_to<Value>.

Alloc Allocator type, defaults to allocator<Key>.

The resulting value type of the container is std::pair<const Key, Tp>.

Definition at line 266 of file unordered_map.h.

The documentation for this class was generated from the following file:

- unordered_map.h

5.725 std::unordered_multiset< _Value, _Hash, _Pred, _Alloc > Class Template Reference

A standard container composed of equivalent keys (possibly containing multiple of each key value) in which the elements' keys are the elements themselves.

Inherits std::__unordered_multiset< _Value, _Hash, _Pred, _Alloc >.

Public Types

- typedef _Base::allocator_type **allocator_type**
- typedef _Base::hasher **hasher**
- typedef _Base::key_equal **key_equal**
- typedef _Base::size_type **size_type**
- typedef _Base::value_type **value_type**

Public Member Functions

- **unordered_multiset** (initializer_list< value_type > __l, size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- **unordered_multiset** (unordered_multiset &&__x)
- template<typename _InputIterator >
  unordered_multiset (_InputIterator __f, _InputIterator __l, typename _Base::size_type __n=0, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- **unordered_multiset** (size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- unordered_multiset & **operator=** (initializer_list< value_type > __l)
- unordered_multiset & **operator=** (unordered_multiset &&__x)

5.725.1 Detailed Description

template<class _Value, class _Hash = hash<_Value>, class _Pred = std::equal_to<_Value>, class _Alloc = std::allocator<_Value>> class std::unordered_multiset< _Value, _Hash, _Pred, _Alloc >

A standard container composed of equivalent keys (possibly containing multiple of each key value) in which the elements' keys are the elements themselves. Meets the requirements of a `container`, and `unordered associative container`

Parameters:

Value Type of key objects.

Hash Hashing function object type, defaults to hash<Value>.

Pred Predicate function object type, defaults to equal_to<Value>.

Alloc Allocator type, defaults to allocator<Key>.

Definition at line 256 of file unordered_set.h.

The documentation for this class was generated from the following file:

- unordered_set.h

5.726 std::unordered_set< _Value, _Hash, _Pred, _Alloc > Class Template Reference

A standard container composed of unique keys (containing at most one of each key value) in which the elements' keys are the elements themselves.

Inherits std::__unordered_set< _Value, _Hash, _Pred, _Alloc >.

Public Types

- typedef _Base::allocator_type **allocator_type**
- typedef _Base::hasher **hasher**
- typedef _Base::key_equal **key_equal**
- typedef _Base::size_type **size_type**
- typedef _Base::value_type **value_type**

Public Member Functions

- **unordered_set** (initializer_list< value_type > __l, size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- **unordered_set** (unordered_set &&__x)
- template<typename _InputIterator >
  unordered_set (_InputIterator __f, _InputIterator __l, size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- **unordered_set** (size_type __n=10, const hasher &__hf=hasher(), const key_equal &__eql=key_equal(), const allocator_type &__a=allocator_type())
- unordered_set & **operator=** (initializer_list< value_type > __l)
- unordered_set & **operator=** (unordered_set &&__x)

5.726.1 Detailed Description

template<class _Value, class _Hash = hash<_Value>, class _Pred = std::equal_to<_Value>, class _Alloc = std::allocator<_Value>> class std::unordered_set< _Value, _Hash, _Pred, _Alloc >

A standard container composed of unique keys (containing at most one of each key value) in which the elements' keys are the elements themselves. Meets the requirements of a `container`, and `unordered associative container`

Parameters:

Value Type of key objects.

Hash Hashing function object type, defaults to hash<Value>.

Pred Predicate function object type, defaults to equal_to<Value>.

Alloc Allocator type, defaults to allocator<Key>.

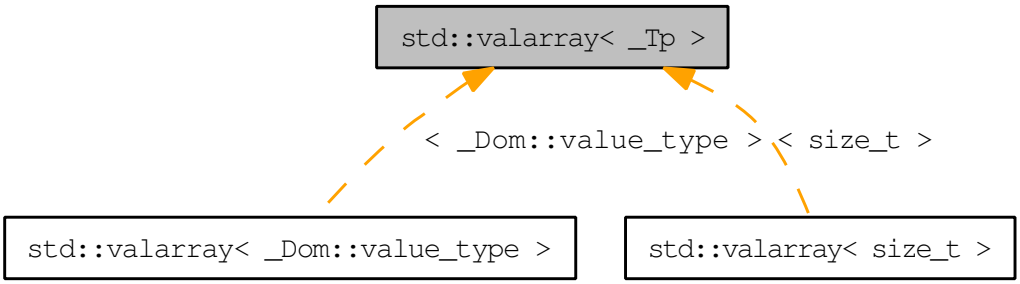
Definition at line 178 of file unordered_set.h.

The documentation for this class was generated from the following file:

- unordered_set.h

5.727 std::valarray< _Tp > Class Template Reference

Smart array designed to support numeric processing. Inheritance diagram for std::valarray< _Tp >:



Public Types

- typedef _Tp **value_type**

Public Member Functions

- template<typename _Tp>
  valarray (const _Tp *__restrict__ __p, size_t __n)
- template<class _Dom >
  valarray (const _Expr< _Dom, _Tp > &__e)
- valarray (initializer_list< _Tp >)
- valarray (const indirect_array< _Tp > &)
- valarray (const mask_array< _Tp > &)
- valarray (const gslice_array< _Tp > &)
- valarray (const slice_array< _Tp > &)
- valarray (const valarray &)
- valarray (const _Tp *__restrict__, size_t)
- valarray (const _Tp &, size_t)
- valarray (size_t)
- valarray ()
- _Expr< _RefFunClos< _ValArray, _Tp >, _Tp > apply (_Tp func(const _Tp &)) const
- _Expr< _ValFunClos< _ValArray, _Tp >, _Tp > apply (_Tp func(_Tp)) const
- valarray< _Tp > cshift (int) const
- _Tp max () const
- _Tp min () const

- _UnaryOp< __logical_not >::_Rt operator! () const
- template<class _Dom >
  valarray< _Tp > & **operator%=** (const _Expr< _Dom, _Tp > &)
- valarray< _Tp > & operator%= (const valarray< _Tp > &)
- valarray< _Tp > & operator%= (const _Tp &)
- template<class _Dom >
  valarray< _Tp > & **operator&=** (const _Expr< _Dom, _Tp > &)
- valarray< _Tp > & operator&= (const valarray< _Tp > &)
- valarray< _Tp > & operator&= (const _Tp &)
- template<class _Dom >
  valarray< _Tp > & **operator*=** (const _Expr< _Dom, _Tp > &)
- valarray< _Tp > & operator*= (const valarray< _Tp > &)
- valarray< _Tp > & operator*= (const _Tp &)
- _UnaryOp< __unary_plus >::_Rt operator+ () const
- template<class _Dom >
  valarray< _Tp > & **operator+=** (const _Expr< _Dom, _Tp > &)
- valarray< _Tp > & operator+= (const valarray< _Tp > &)
- valarray< _Tp > & operator+= (const _Tp &)
- _UnaryOp< __negate >::_Rt operator- () const
- template<class _Dom >
  valarray< _Tp > & **operator-=** (const _Expr< _Dom, _Tp > &)
- valarray< _Tp > & operator-= (const valarray< _Tp > &)
- valarray< _Tp > & operator-= (const _Tp &)
- template<class _Dom >
  valarray< _Tp > & **operator/=** (const _Expr< _Dom, _Tp > &)
- valarray< _Tp > & operator/= (const valarray< _Tp > &)
- valarray< _Tp > & operator/= (const _Tp &)
- template<class _Dom >
  valarray< _Tp > & **operator<<=** (const _Expr< _Dom, _Tp > &)
- valarray< _Tp > & operator<<= (const valarray< _Tp > &)
- valarray< _Tp > & operator<<= (const _Tp &)
- template<class _Dom >
  valarray< _Tp > & **operator=** (const _Expr< _Dom, _Tp > &)
- valarray & operator= (initializer_list< _Tp >)
- valarray< _Tp > & operator= (const indirect_array< _Tp > &)
- valarray< _Tp > & operator= (const mask_array< _Tp > &)
- valarray< _Tp > & operator= (const gslice_array< _Tp > &)
- valarray< _Tp > & operator= (const slice_array< _Tp > &)
- valarray< _Tp > & operator= (const _Tp &)
- valarray< _Tp > & operator= (const valarray< _Tp > &)
- template<class _Dom >
  valarray< _Tp > & **operator>>=** (const _Expr< _Dom, _Tp > &)
- valarray< _Tp > & operator>>= (const valarray< _Tp > &)

- valarray< _Tp > & operator>>= (const _Tp &)
- indirect_array< _Tp > operator[ ] (const valarray< size_t > &)
- _Expr< _IClos< _ValArray, _Tp >, _Tp > operator[ ] (const valarray< size_t > &) const
- mask_array< _Tp > operator[ ] (const valarray< bool > &)
- valarray< _Tp > operator[ ] (const valarray< bool > &) const
- gslice_array< _Tp > operator[ ] (const gslice &)
- _Expr< _GClos< _ValArray, _Tp >, _Tp > operator[ ] (const gslice &) const
- slice_array< _Tp > operator[ ] (slice)
- _Expr< _SClos< _ValArray, _Tp >, _Tp > operator[ ] (slice) const
- const _Tp & **operator[ ]** (size_t) const
- _Tp & operator[ ] (size_t)
- template<class _Dom >
  valarray< _Tp > & **operator^=** (const _Expr< _Dom, _Tp > &)
- valarray< _Tp > & operator^= (const valarray< _Tp > &)
- valarray< _Tp > & operator^= (const _Tp &)
- template<class _Dom >
  valarray< _Tp > & **operator|=** (const _Expr< _Dom, _Tp > &)
- valarray< _Tp > & operator|= (const valarray< _Tp > &)
- valarray< _Tp > & operator|= (const _Tp &)
- _UnaryOp< __bitwise_not >::_Rt operator~ () const
- void resize (size_t __size, _Tp __c=_Tp())
- valarray< _Tp > shift (int) const
- size_t size () const
- _Tp sum () const

Friends

- class **_Array< _Tp >**

5.727.1 Detailed Description

template<class _Tp> class std::valarray< _Tp >

Smart array designed to support numeric processing. A valarray is an array that provides constraints intended to allow for effective optimization of numeric array processing by reducing the aliasing that can result from pointer representations. It represents a one-dimensional array from which different multidimensional subsets can be accessed and modified.

Parameters:

Tp Type of object in the array.

Definition at line 112 of file valarray.

5.727.2 Constructor & Destructor Documentation

5.727.2.1 template<class _Tp> std::valarray< _Tp >::valarray (const _Tp * __restrict__, size_t)

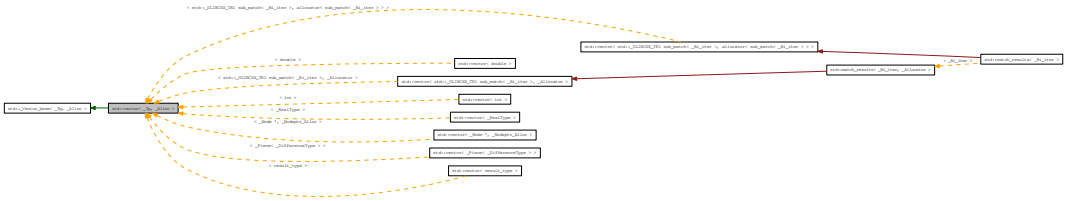
Construct an array initialized to the first *n* elements of *t*.

The documentation for this class was generated from the following file:

- valarray

5.728 std::vector< _Tp, _Alloc > Class Template Reference

A standard container which offers fixed time access to individual elements in any order.
Inheritance diagram for std::vector< _Tp, _Alloc >:



Public Types

- typedef _Alloc **allocator_type**
- typedef __gnu_cxx::__normal_iterator< const_pointer, vector > **const_iterator**

- typedef _Tp_alloc_type::const_pointer **const_pointer**
- typedef _Tp_alloc_type::const_reference **const_reference**
- typedef std::reverse_iterator< const_iterator > **const_reverse_iterator**
- typedef ptrdiff_t **difference_type**
- typedef __gnu_cxx::__normal_iterator< pointer, vector > **iterator**
- typedef _Tp_alloc_type::pointer **pointer**
- typedef _Tp_alloc_type::reference **reference**
- typedef std::reverse_iterator< iterator > **reverse_iterator**
- typedef size_t **size_type**
- typedef _Tp **value_type**

Public Member Functions

- template<typename _InputIterator >
  vector (_InputIterator __first, _InputIterator __last, const allocator_type &__a=allocator_type())
- vector (initializer_list< value_type > __l, const allocator_type &__a=allocator_type())
- vector (vector &&__x)
- vector (const vector &__x)
- vector (size_type __n, const value_type &__value=value_type(), const allocator_type &__a=allocator_type())

- vector (const allocator_type &__a)
- vector ()
- ~vector ()
- void assign (initializer_list< value_type > __l)
- template<typename _InputIterator >
  void assign (_InputIterator __first, _InputIterator __last)
- void assign (size_type __n, const value_type &__val)
- const_reference at (size_type __n) const
- reference at (size_type __n)
- const_reference back () const
- reference back ()
- const_iterator begin () const
- iterator begin ()
- size_type capacity () const
- const_iterator cbegin () const
- const_iterator cend () const
- void clear ()
- const_reverse_iterator crbegin () const
- const_reverse_iterator crend () const
- const_pointer **data** () const
- pointer data ()
- template<typename... _Args>
  iterator emplace (iterator __position, _Args &&...__args)
- template<typename... _Args>
  void **emplace_back** (_Args &&...__args)
- bool empty () const
- const_iterator end () const
- iterator end ()
- iterator erase (iterator __first, iterator __last)
- iterator erase (iterator __position)
- const_reference front () const
- reference front ()
- template<typename _InputIterator >
  void insert (iterator __position, _InputIterator __first, _InputIterator __last)
- void insert (iterator __position, size_type __n, const value_type &__x)
- void insert (iterator __position, initializer_list< value_type > __l)
- iterator insert (iterator __position, value_type &&__x)
- iterator insert (iterator __position, const value_type &__x)
- size_type max_size () const
- vector & operator= (initializer_list< value_type > __l)
- vector & operator= (vector &&__x)
- vector & operator= (const vector &__x)
- const_reference operator[ ] (size_type __n) const

- reference operator[ ] (size_type __n)
- void pop_back ()
- void **push_back** (value_type &&__x)
- void push_back (const value_type &__x)
- const_reverse_iterator rbegin () const
- reverse_iterator rbegin ()
- const_reverse_iterator rend () const
- reverse_iterator rend ()
- void reserve (size_type __n)
- void resize (size_type __new_size, value_type __x=value_type())
- void shrink_to_fit ()
- size_type size () const
- void swap (vector &__x)

Protected Member Functions

- _Tp_alloc_type::pointer **_M_allocate** (size_t __n)
- template<typename _ForwardIterator >
  pointer _M_allocate_and_copy (size_type __n, _ForwardIterator __first, _ForwardIterator __last)
- template<typename _ForwardIterator >
  void **_M_assign_aux** (_ForwardIterator __first, _ForwardIterator __last, std::forward_iterator_tag)
- template<typename _InputIterator >
  void **_M_assign_aux** (_InputIterator __first, _InputIterator __last, std::input_iterator_tag)
- template<typename _InputIterator >
  void **_M_assign_dispatch** (_InputIterator __first, _InputIterator __last, __false_type)
- template<typename _Integer >
  void **_M_assign_dispatch** (_Integer __n, _Integer __val, __true_type)
- size_type **_M_check_len** (size_type __n, const char *__s) const
- void **_M_deallocate** (typename _Tp_alloc_type::pointer __p, size_t __n)
- void **_M_erase_at_end** (pointer __pos)
- void **_M_fill_assign** (size_type __n, const value_type &__val)
- void **_M_fill_initialize** (size_type __n, const value_type &__value)
- void **_M_fill_insert** (iterator __pos, size_type __n, const value_type &__x)
- const _Tp_alloc_type & **_M_get_Tp_allocator** () const
- _Tp_alloc_type & **_M_get_Tp_allocator** ()
- template<typename _InputIterator >
  void **_M_initialize_dispatch** (_InputIterator __first, _InputIterator __last, __false_type)

- template<typename _Integer >
  void **_M_initialize_dispatch** (_Integer __n, _Integer __value, __true_type)
- template<typename... _Args>
  void **_M_insert_aux** (iterator __position, _Args &&...__args)
- template<typename _InputIterator >
  void **_M_insert_dispatch** (iterator __pos, _InputIterator __first, _InputIterator __last, __false_type)
- template<typename _Integer >
  void **_M_insert_dispatch** (iterator __pos, _Integer __n, _Integer __val, __true_type)
- void _M_range_check (size_type __n) const
- template<typename _ForwardIterator >
  void **_M_range_initialize** (_ForwardIterator __first, _ForwardIterator __last, std::forward_iterator_tag)
- template<typename _InputIterator >
  void **_M_range_initialize** (_InputIterator __first, _InputIterator __last, std::input_iterator_tag)
- template<typename _ForwardIterator >
  void **_M_range_insert** (iterator __pos, _ForwardIterator __first, _ForwardIterator __last, std::forward_iterator_tag)
- template<typename _InputIterator >
  void **_M_range_insert** (iterator __pos, _InputIterator __first, _InputIterator __last, std::input_iterator_tag)
- allocator_type **get_allocator** () const

Protected Attributes

- _Vector_impl **_M_impl**

5.728.1 Detailed Description

template<typename _Tp, typename _Alloc = std::allocator<_Tp>> class std::vector< _Tp, _Alloc >

A standard container which offers fixed time access to individual elements in any order. Meets the requirements of a `container`, a `reversible container`, and a `sequence`, including the `optional sequence requirements` with the exception of `push_front` and `pop_front`.

In some terminology a vector can be described as a dynamic C-style array, it offers fast and efficient access to individual elements in any order and saves the user from worrying about memory and size allocation. Subscripting ([]) access is also provided as with C-style arrays.

Definition at line 170 of file stl_vector.h.

5.728.2 Constructor & Destructor Documentation

5.728.2.1 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> std::vector< _Tp, _Alloc >::vector () [inline]

Default constructor creates no elements.

Definition at line 207 of file stl_vector.h.

5.728.2.2 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> std::vector< _Tp, _Alloc >::vector (const allocator_type & __a) [inline, explicit]

Creates a vector with no elements.

Parameters:

a An allocator object.

Definition at line 215 of file stl_vector.h.

5.728.2.3 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> std::vector< _Tp, _Alloc >::vector (size_type __n, const value_type & __value = value_type(), const allocator_type & __a = allocator_type()) [inline, explicit]

Creates a vector with copies of an exemplar element.

Parameters:

n The number of elements to initially create.

value An element to copy.

a An allocator.

This constructor fills the vector with *n* copies of *value*.

Definition at line 227 of file stl_vector.h.

5.728.2.4 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> std::vector< _Tp, _Alloc >::vector (const vector< _Tp, _Alloc > & __x) [inline]

Vector copy constructor.

Parameters:

x A vector of identical element and allocator types.

The newly-created vector uses a copy of the allocation object used by *x*. All the elements of *x* are copied, but any extra memory in *x* (for fast expansion) will not be copied.

Definition at line 241 of file stl_vector.h.

5.728.2.5 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> std::vector< _Tp, _Alloc >::vector (vector< _Tp, _Alloc > && __x) [inline]

Vector move constructor.

Parameters:

x A vector of identical element and allocator types.

The newly-created vector contains the exact contents of *x*. The contents of *x* are a valid, but unspecified vector.

Definition at line 257 of file stl_vector.h.

5.728.2.6 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> std::vector< _Tp, _Alloc >::vector (initializer_list< value_type > __l, const allocator_type & __a = allocator_type()) [inline]

Builds a vector from an initializer list.

Parameters:

l An initializer_list.

a An allocator.

Create a vector consisting of copies of the elements in the initializer_list *l*.

This will call the element type's copy constructor N times (where N is *l.size()*) and do no memory reallocation.

Definition at line 271 of file stl_vector.h.

5.728.2.7 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> template<typename _InputIterator > std::vector< _Tp, _Alloc >::vector (_InputIterator __*first*, _InputIterator __*last*, const allocator_type & __a = allocator_type()) [inline]

Builds a vector from a range.

Parameters:

first An input iterator.

last An input iterator.

a An allocator.

Create a vector consisting of copies of the elements from [first,last).

If the iterators are forward, bidirectional, or random-access, then this will call the elements' copy constructor N times (where N is distance(first,last)) and do no memory reallocation. But if only input iterators are used, then this will do at most 2N calls to the copy constructor, and logN memory reallocations.

Definition at line 297 of file stl_vector.h.

5.728.2.8 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> std::vector< _Tp, _Alloc >::~vector () [inline]

The dtor only erases the elements, and note that if the elements themselves are pointers, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 312 of file stl_vector.h.

5.728.3 Member Function Documentation

5.728.3.1 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> template<typename _ForwardIterator > pointer std::vector< _Tp, _Alloc >::_M_allocate_and_copy (size_type *__n*, _ForwardIterator *__first*, _ForwardIterator *__last*) [inline, protected]

Memory expansion handler. Uses the member allocation function to obtain *n* bytes of memory, and then copies [first,last) into it.

Definition at line 964 of file stl_vector.h.

Referenced by std::vector< _Tp, _Alloc >::operator=().

5.728.3.2 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::vector< _Tp, _Alloc >::_M_range_check (size_type *__n*) const [inline, protected]

Safety check used only from at().

Definition at line 639 of file stl_vector.h.

5.728.3.3 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::vector< _Tp, _Alloc >::assign (initializer_list< value_type > __l) [inline]

Assigns an initializer list to a vector.

Parameters:

l An initializer_list.

This function fills a vector with copies of the elements in the initializer list *l*.

Note that the assignment completely changes the vector and that the resulting vector's size is the same as the number of elements assigned. Old data may be lost.

Definition at line 412 of file stl_vector.h.

Referenced by std::vector< result_type >::assign().

5.728.3.4 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> template<typename _InputIterator > void std::vector< _Tp, _Alloc >::assign (_InputIterator __*first*, _InputIterator __*last*) [inline]

Assigns a range to a vector.

Parameters:

first An input iterator.

last An input iterator.

This function fills a vector with copies of the elements in the range [first,last).

Note that the assignment completely changes the vector and that the resulting vector's size is the same as the number of elements assigned. Old data may be lost.

Definition at line 392 of file stl_vector.h.

5.728.3.5 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::vector< _Tp, _Alloc >::assign (size_type __*n*, const value_type & __*val*) [inline]

Assigns a given value to a vector.

Parameters:

n Number of elements to be assigned.

val Value to be assigned.

This function fills a vector with *n* copies of the given value. Note that the assignment completely changes the vector and that the resulting vector's size is the same as the number of elements assigned. Old data may be lost.

Definition at line 375 of file stl_vector.h.

5.728.3.6 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_reference std::vector< _Tp, _Alloc >::at (size_type __n) const [inline]

Provides access to the data contained in the vector.

Parameters:

n The index of the element for which data should be accessed.

Returns:

Read-only (constant) reference to data.

Exceptions:

std::out_of_range If *n* is an invalid index.

This function provides for safer data access. The parameter is first checked that it is in the range of the vector. The function throws out_of_range if the check fails.

Definition at line 676 of file stl_vector.h.

5.728.3.7 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> reference std::vector< _Tp, _Alloc >::at (size_type __n) [inline]

Provides access to the data contained in the vector.

Parameters:

n The index of the element for which data should be accessed.

Returns:

Read/write reference to data.

Exceptions:

std::out_of_range If *n* is an invalid index.

This function provides for safer data access. The parameter is first checked that it is in the range of the vector. The function throws out_of_range if the check fails.

Definition at line 658 of file stl_vector.h.

5.728.3.8 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_reference std::vector< _Tp, _Alloc >::back () const [inline]

Returns a read-only (constant) reference to the data at the last element of the vector.

Definition at line 711 of file stl_vector.h.

5.728.3.9 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> reference std::vector< _Tp, _Alloc >::back () [inline]

Returns a read/write reference to the data at the last element of the vector.

Definition at line 703 of file stl_vector.h.

Referenced by std::piecewise_linear_distribution< _RealType >::max(), and std::piecewise_constant_distribution< _RealType >::max().

5.728.3.10 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_iterator std::vector< _Tp, _Alloc >::begin () const [inline]

Returns a read-only (constant) iterator that points to the first element in the vector. Iteration is done in ordinary element order.

Reimplemented in std::match_results< _Bi_iter, _Allocator >, and std::match_results< _Bi_iter >.

Definition at line 435 of file stl_vector.h.

5.728.3.11 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> iterator std::vector< _Tp, _Alloc >::begin () [inline]

Returns a read/write iterator that points to the first element in the vector. Iteration is done in ordinary element order.

Definition at line 426 of file stl_vector.h.

Referenced by std::vector< _Tp, _Alloc >::emplace(), std::vector< _Tp, _Alloc >::insert(), __gnu_parallel::multiseq_partition(), __gnu_parallel::multiseq_selection(), __gnu_parallel::multiway_merge_exact_splitting(), std::vector< _Tp, _Alloc >::operator=(), std::operator==(), and std::vector< result_type >::vector().

5.728.3.12 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> size_type std::vector< _Tp, _Alloc >::capacity () const [inline]

Returns the total number of elements that the vector can hold before needing to allocate more memory.

Definition at line 573 of file stl_vector.h.

Referenced by std::vector< _Tp, _Alloc >::operator=().

5.728.3.13 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_iterator std::vector< _Tp, _Alloc >::cbegin () const [inline]

Returns a read-only (constant) iterator that points to the first element in the vector. Iteration is done in ordinary element order.

Reimplemented in std::match_results< _Bi_iter, _Allocator >, and std::match_results< _Bi_iter >.

Definition at line 499 of file stl_vector.h.

5.728.3.14 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_iterator std::vector< _Tp, _Alloc >::cend () const [inline]

Returns a read-only (constant) iterator that points one past the last element in the vector. Iteration is done in ordinary element order.

Reimplemented in std::match_results< _Bi_iter, _Allocator >, and std::match_results< _Bi_iter >.

Definition at line 508 of file stl_vector.h.

5.728.3.15 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::vector< _Tp, _Alloc >::clear () [inline]

Erases all the elements. Note that this function only erases the elements, and that if the elements themselves are pointers, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 954 of file stl_vector.h.

5.728.3.16 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_reverse_iterator std::vector< _Tp, _Alloc >::crbegin () const [inline]

Returns a read-only (constant) reverse iterator that points to the last element in the vector. Iteration is done in reverse element order.

Definition at line 517 of file stl_vector.h.

5.728.3.17 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_reverse_iterator std::vector< _Tp, _Alloc >::crend () const [inline]

Returns a read-only (constant) reverse iterator that points to one before the first element in the vector. Iteration is done in reverse element order.

Definition at line 526 of file stl_vector.h.

5.728.3.18 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> pointer std::vector< _Tp, _Alloc >::data () [inline]

Returns a pointer such that [data(), data() + size()) is a valid range. For a non-empty vector, data() == &front().

Definition at line 722 of file stl_vector.h.

5.728.3.19 template<typename _Tp , typename _Alloc > template<typename... _Args> vector< _Tp, _Alloc >::iterator vector::emplace (iterator *__position*, _Args &&... *__args*) [inline]

Inserts an object in vector before specified iterator.

Parameters:

position An iterator into the vector.

args Arguments.

Returns:

An iterator that points to the inserted data.

This function will insert an object of type T constructed with T(std::forward<Args>(args)...) before the specified location. Note that this kind of operation could be expensive for a vector and if it is frequently used the user should consider using std::list.

Definition at line 272 of file vector.tcc.

References std::vector< _Tp, _Alloc >::begin(), and std::vector< _Tp, _Alloc >::end().

5.728.3.20 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> bool std::vector< _Tp, _Alloc >::empty () const [inline]

Returns true if the vector is empty. (Thus begin() would equal end().)

Reimplemented in std::match_results< _Bi_iter, _Allocator >, and std::match_results< _Bi_iter >.

Definition at line 582 of file stl_vector.h.

5.728.3.21 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_iterator std::vector< _Tp, _Alloc >::end () const [inline]

Returns a read-only (constant) iterator that points one past the last element in the vector. Iteration is done in ordinary element order.

Reimplemented in std::match_results< _Bi_iter, _Allocator >, and std::match_results< _Bi_iter >.

Definition at line 453 of file stl_vector.h.

5.728.3.22 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> iterator std::vector< _Tp, _Alloc >::end () [inline]

Returns a read/write iterator that points one past the last element in the vector. Iteration is done in ordinary element order.

Definition at line 444 of file stl_vector.h.

Referenced by std::vector< _Tp, _Alloc >::emplace(), std::vector< _Tp, _Alloc >::erase(), std::vector< _Tp, _Alloc >::insert(), __gnu_parallel::multiseq_partition(), __gnu_parallel::multiseq_selection(), __gnu_parallel::multiway_merge_exact_splitting(), std::vector< _Tp, _Alloc >::operator=(), std::operator==(), and std::vector< result_type >::vector().

5.728.3.23 template<typename _Tp , typename _Alloc > vector< _Tp, _Alloc >::iterator vector::erase (iterator *__first*, iterator *__last*) [inline]

Remove a range of elements.

Parameters:

first Iterator pointing to the first element to be erased.

last Iterator pointing to one past the last element to be erased.

Returns:

An iterator pointing to the element pointed to by *last* prior to erasing (or end()).

This function will erase the elements in the range [first,last) and shorten the vector accordingly.

Note This operation could be expensive and if it is frequently used the user should consider using std::list. The user is also cautioned that this function only erases the elements, and that if the elements themselves are pointers, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 146 of file vector.tcc.

References std::vector< _Tp, _Alloc >::end().

5.728.3.24 template<typename _Tp , typename _Alloc > vector< _Tp, _Alloc >::iterator vector::erase (iterator *__position*) [inline]

Remove element at given position.

Parameters:

position Iterator pointing to element to be erased.

Returns:

An iterator pointing to the next element (or end()).

This function will erase the element at the given position and thus shorten the vector by one.

Note This operation could be expensive and if it is frequently used the user should consider using std::list. The user is also cautioned that this function only erases the element, and that if the element is itself a pointer, the pointed-to memory is not touched in any way. Managing the pointer is the user's responsibility.

Definition at line 134 of file vector.tcc.

References std::vector< _Tp, _Alloc >::end().

5.728.3.25 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_reference std::vector< _Tp, _Alloc >::front () const [inline]

Returns a read-only (constant) reference to the data at the first element of the vector.

Definition at line 695 of file stl_vector.h.

5.728.3.26 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> reference std::vector< _Tp, _Alloc >::front () [inline]

Returns a read/write reference to the data at the first element of the vector.

Definition at line 687 of file stl_vector.h.

Referenced by std::piecewise_linear_distribution< _RealType >::min(), and std::piecewise_constant_distribution< _RealType >::min().

5.728.3.27 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> template<typename _InputIterator > void std::vector< _Tp, _Alloc >::insert (iterator *__position*, _InputIterator *__first*, _InputIterator *__last*) [inline]

Inserts a range into the vector.

Parameters:

position An iterator into the vector.

first An input iterator.

last An input iterator.

This function will insert copies of the data in the range [first,last) into the vector before the location specified by *pos*.

Note that this kind of operation could be expensive for a vector and if it is frequently used the user should consider using std::list.

Definition at line 877 of file stl_vector.h.

5.728.3.28 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::vector< _Tp, _Alloc >::insert (iterator *__position*, size_type *__n*, const value_type & *__x*) [inline]

Inserts a number of copies of given data into the vector.

Parameters:

position An iterator into the vector.

n Number of elements to be inserted.

x Data to be inserted.

This function will insert a specified number of copies of the given data before the location specified by *position*.

Note that this kind of operation could be expensive for a vector and if it is frequently used the user should consider using std::list.

Definition at line 858 of file stl_vector.h.

5.728.3.29 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::vector< _Tp, _Alloc >::insert (iterator *__position*, initializer_list< value_type > *__l*) [inline]

Inserts an initializer_list into the vector.

Parameters:

position An iterator into the vector.

l An initializer_list.

This function will insert copies of the data in the initializer_list *l* into the vector before the location specified by *position*.

Note that this kind of operation could be expensive for a vector and if it is frequently used the user should consider using std::list.

Definition at line 840 of file stl_vector.h.

Referenced by std::vector< result_type >::insert().

5.728.3.30 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> iterator std::vector< _Tp, _Alloc >::insert (iterator *__position*, value_type && *__x*) [inline]

Inserts given rvalue into vector before specified iterator.

Parameters:

position An iterator into the vector.

x Data to be inserted.

Returns:

An iterator that points to the inserted data.

This function will insert a copy of the given rvalue before the specified location. Note that this kind of operation could be expensive for a vector and if it is frequently used the user should consider using std::list.

Definition at line 823 of file stl_vector.h.

5.728.3.31 template<typename _Tp , typename _Alloc > vector< _Tp, _Alloc >::iterator vector::insert (iterator *__position*, const value_type & *__x*) [inline]

Inserts given value into vector before specified iterator.

Parameters:

position An iterator into the vector.

x Data to be inserted.

Returns:

An iterator that points to the inserted data.

This function will insert a copy of the given value before the specified location. Note that this kind of operation could be expensive for a vector and if it is frequently used the user should consider using std::list.

Definition at line 107 of file vector.tcc.

References std::vector< _Tp, _Alloc >::begin(), and std::vector< _Tp, _Alloc >::end().

5.728.3.32 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> size_type std::vector< _Tp, _Alloc >::max_size () const [inline]

Returns the size() of the largest possible vector.

Definition at line 538 of file stl_vector.h.

5.728.3.33 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> vector& std::vector< _Tp, _Alloc >::operator= (initializer_list< value_type > *__l*) [inline]

Vector list assignment operator.

Parameters:

l An initializer_list.

This function fills a vector with copies of the elements in the initializer list *l*.

Note that the assignment completely changes the vector and that the resulting vector's size is the same as the number of elements assigned. Old data may be lost.

Definition at line 357 of file stl_vector.h.

5.728.3.34 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> vector& std::vector< _Tp, _Alloc >::operator= (vector< _Tp, _Alloc > && __x) [inline]

Vector move assignment operator.

Parameters:

x A vector of identical element and allocator types.

The contents of *x* are moved into this vector (without copying). *x* is a valid, but unspecified vector.

Definition at line 336 of file stl_vector.h.

5.728.3.35 template<typename _Tp , typename _Alloc > vector< _Tp, _Alloc > & vector::operator= (const vector< _Tp, _Alloc > & __x) [inline]

Vector assignment operator.

Parameters:

x A vector of identical element and allocator types.

All the elements of *x* are copied, but any extra memory in *x* (for fast expansion) will not be copied. Unlike the copy constructor, the allocator object is not copied.

Definition at line 157 of file vector.tcc.

References std::_Destroy(), std::vector< _Tp, _Alloc >::_M_allocate_and_copy(), std::vector< _Tp, _Alloc >::begin(), std::vector< _Tp, _Alloc >::capacity(), std::vector< _Tp, _Alloc >::end(), and std::vector< _Tp, _Alloc >::size().

5.728.3.36 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_reference std::vector< _Tp, _Alloc >::operator[ ] (size_type __n) const [inline]

Subscript access to the data contained in the vector.

Parameters:

n The index of the element for which data should be accessed.

Returns:

Read-only (constant) reference to data.

This operator allows for easy, array-style, data access. Note that data access with this operator is unchecked and out_of_range lookups are not defined. (For checked lookups see at().)

Reimplemented in std::match_results< _Bi_iter >.

Definition at line 633 of file stl_vector.h.

5.728.3.37 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> reference std::vector< _Tp, _Alloc >::operator[ ] (size_type __n) [inline]

Subscript access to the data contained in the vector.

Parameters:

n The index of the element for which data should be accessed.

Returns:

Read/write reference to data.

This operator allows for easy, array-style, data access. Note that data access with this operator is unchecked and out_of_range lookups are not defined. (For checked lookups see at().)

Definition at line 618 of file stl_vector.h.

5.728.3.38 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::vector< _Tp, _Alloc >::pop_back () [inline]

Removes last element. This is a typical stack operation. It shrinks the vector by one.

Note that no data is returned, and if the last element's data is needed, it should be retrieved before pop_back() is called.

Definition at line 772 of file stl_vector.h.

5.728.3.39 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::vector< _Tp, _Alloc >::push_back (const value_type & __x) [inline]

Add data to the end of the vector.

Parameters:

x Data to be added.

This is a typical stack operation. The function creates an element at the end of the vector and assigns the given data to it. Due to the nature of a vector this operation can be done in constant time if the vector has preallocated space available.

Definition at line 741 of file stl_vector.h.

Referenced by __gnu_parallel::multiseq_partition(), and __gnu_parallel::multiseq_-selection().

5.728.3.40 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_reverse_iterator std::vector< _Tp, _Alloc >::rbegin () const [inline]

Returns a read-only (constant) reverse iterator that points to the last element in the vector. Iteration is done in reverse element order.

Definition at line 471 of file stl_vector.h.

5.728.3.41 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> reverse_iterator std::vector< _Tp, _Alloc >::rbegin () [inline]

Returns a read/write reverse iterator that points to the last element in the vector. Iteration is done in reverse element order.

Definition at line 462 of file stl_vector.h.

5.728.3.42 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> const_reverse_iterator std::vector< _Tp, _Alloc >::rend () const [inline]

Returns a read-only (constant) reverse iterator that points to one before the first element in the vector. Iteration is done in reverse element order.

Definition at line 489 of file stl_vector.h.

5.728.3.43 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> reverse_iterator std::vector< _Tp, _Alloc >::rend () [inline]

Returns a read/write reverse iterator that points to one before the first element in the vector. Iteration is done in reverse element order.

Definition at line 480 of file stl_vector.h.

5.728.3.44 template<typename _Tp , typename _Alloc > void vector::reserve (size_type __n) [inline]

Attempt to preallocate enough memory for specified number of elements.

Parameters:

n Number of elements required.

Exceptions:

std::length_error If *n* exceeds `max_size()`.

This function attempts to reserve enough memory for the vector to hold the specified number of elements. If the number requested is more than max_size(), length_error is thrown.

The advantage of this function is that if optimal code is a necessity and the user can determine the number of elements that will be required, the user can reserve the memory in advance, and thus prevent a possible reallocation of memory and copying of vector data.

Definition at line 65 of file vector.tcc.

References std::_Destroy().

5.728.3.45 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::vector< _Tp, _Alloc >::resize (size_type __new_size, value_type __x = value_type()) [inline]

Resizes the vector to the specified number of elements.

Parameters:

new_size Number of elements the vector should contain.

x Data with which new elements should be populated.

This function will resize the vector to the specified number of elements. If the number is smaller than the vector's current size the vector is truncated, otherwise the vector is extended and new elements are populated with given data.

Definition at line 553 of file stl_vector.h.

Referenced by __gnu_parallel::__shrink_and_double(), __gnu_parallel::multiway_merge_exact_splitting(), and __gnu_parallel::parallel_sort_mwms().

5.728.3.46 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::vector< _Tp, _Alloc >::shrink_to_fit () [inline]

A non-binding request to reduce capacity() to size().

Definition at line 564 of file stl_vector.h.

5.728.3.47 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> size_type std::vector< _Tp, _Alloc >::size () const [inline]

Returns the number of elements in the vector.

Reimplemented in std::match_results< _Bi_iter, _Allocator >, and std::match_results< _Bi_iter >.

Definition at line 533 of file stl_vector.h.

Referenced by __gnu_parallel::__shrink(), __gnu_parallel::__shrink_and_double(), __gnu_parallel::list_partition(), std::discrete_distribution< _IntType >::max(), std::vector< _Tp, _Alloc >::operator=(), and std::operator==().

5.728.3.48 template<typename _Tp, typename _Alloc = std::allocator<_Tp>> void std::vector< _Tp, _Alloc >::swap (vector< _Tp, _Alloc > & __x) [inline]

Swaps data with another vector.

Parameters:

x A vector of the same element and allocator types.

This exchanges the elements between two vectors in constant time. (Three pointers, so it should be quite fast.) Note that the global std::swap() function is specialized such that std::swap(v1,v2) will feed to this function.

Definition at line 934 of file stl_vector.h.

Referenced by std::swap().

The documentation for this class was generated from the following files:

- stl_vector.h
- vector.tcc

5.729 std::vector< bool, _Alloc > Class Template Reference

A specialization of vector for booleans which offers fixed time access to individual elements in any order.

Inherits std::_Bvector_base< _Alloc >.

Public Types

- typedef _Alloc **allocator_type**
- typedef _Bit_const_iterator **const_iterator**
- typedef const bool * **const_pointer**
- typedef bool **const_reference**
- typedef std::reverse_iterator< const_iterator > **const_reverse_iterator**
- typedef ptrdiff_t **difference_type**
- typedef _Bit_iterator **iterator**
- typedef _Bit_reference * **pointer**
- typedef _Bit_reference **reference**
- typedef std::reverse_iterator< iterator > **reverse_iterator**
- typedef size_t **size_type**
- typedef bool **value_type**

Public Member Functions

- template<typename _InputIterator >
  vector (_InputIterator __first, _InputIterator __last, const allocator_type &__a=allocator_type())
- **vector** (initializer_list< bool > __l, const allocator_type &__a=allocator_type())
- **vector** (vector &&__x)
- **vector** (const vector &__x)
- **vector** (size_type __n, const bool &__value=bool(), const allocator_type &__a=allocator_type())
- **vector** (const allocator_type &__a)
- void **assign** (initializer_list< bool > __l)
- template<typename _InputIterator >
  void **assign** (_InputIterator __first, _InputIterator __last)
- void **assign** (size_type __n, const bool &__x)
- const_reference **at** (size_type __n) const
- reference **at** (size_type __n)
- const_reference **back** () const

- reference **back** ()
- const_iterator **begin** () const
- iterator **begin** ()
- size_type **capacity** () const
- const_iterator **cbegin** () const
- const_iterator **cend** () const
- void **clear** ()
- const_reverse_iterator **crbegin** () const
- const_reverse_iterator **crend** () const
- void **data** ()
- bool **empty** () const
- const_iterator **end** () const
- iterator **end** ()
- iterator **erase** (iterator __first, iterator __last)
- iterator **erase** (iterator __position)
- void **flip** ()
- const_reference **front** () const
- reference **front** ()
- allocator_type **get_allocator** () const
- void **insert** (iterator __p, initializer_list< bool > __l)
- void **insert** (iterator __position, size_type __n, const bool &__x)
- template<typename _InputIterator >
  void **insert** (iterator __position, _InputIterator __first, _InputIterator __last)
- iterator **insert** (iterator __position, const bool &__x=bool())
- size_type **max_size** () const
- vector & **operator=** (initializer_list< bool > __l)
- vector & **operator=** (vector &&__x)
- vector & **operator=** (const vector &__x)
- const_reference **operator[ ]** (size_type __n) const
- reference **operator[ ]** (size_type __n)
- void **pop_back** ()
- void **push_back** (bool __x)
- const_reverse_iterator **rbegin** () const
- reverse_iterator **rbegin** ()
- const_reverse_iterator **rend** () const
- reverse_iterator **rend** ()
- void **reserve** (size_type __n)
- void **resize** (size_type __new_size, bool __x=bool())
- void **shrink_to_fit** ()
- size_type **size** () const
- void **swap** (vector &__x)

Static Public Member Functions

- static void **swap** (reference __x, reference __y)

Protected Types

- typedef _Alloc::template rebind< _Bit_type >::other **_Bit_alloc_type**

Protected Member Functions

- _Bit_type * **_M_allocate** (size_t __n)
- template<typename _ForwardIterator >
  void **_M_assign_aux** (_ForwardIterator __first, _ForwardIterator __last, std::forward_iterator_tag)
- template<typename _InputIterator >
  void **_M_assign_aux** (_InputIterator __first, _InputIterator __last, std::input_iterator_tag)
- template<class _InputIterator >
  void **_M_assign_dispatch** (_InputIterator __first, _InputIterator __last, __false_type)
- template<typename _Integer >
  void **_M_assign_dispatch** (_Integer __n, _Integer __val, __true_type)
- size_type **_M_check_len** (size_type __n, const char *__s) const
- iterator **_M_copy_aligned** (const_iterator __first, const_iterator __last, iterator __result)
- void **_M_deallocate** ()
- void **_M_erase_at_end** (iterator __pos)
- void **_M_fill_assign** (size_t __n, bool __x)
- void **_M_fill_insert** (iterator __position, size_type __n, bool __x)
- const _Bit_alloc_type & **_M_get_Bit_allocator** () const
- _Bit_alloc_type & **_M_get_Bit_allocator** ()
- void **_M_initialize** (size_type __n)
- template<typename _InputIterator >
  void **_M_initialize_dispatch** (_InputIterator __first, _InputIterator __last, __false_type)
- template<typename _Integer >
  void **_M_initialize_dispatch** (_Integer __n, _Integer __x, __true_type)
- template<typename _ForwardIterator >
  void **_M_initialize_range** (_ForwardIterator __first, _ForwardIterator __last, std::forward_iterator_tag)
- template<typename _InputIterator >
  void **_M_initialize_range** (_InputIterator __first, _InputIterator __last, std::input_iterator_tag)

- void **_M_insert_aux** (iterator __position, bool __x)
- template<typename _InputIterator >
  void **_M_insert_dispatch** (iterator __pos, _InputIterator __first, _InputIterator __last, __false_type)
- template<typename _Integer >
  void **_M_insert_dispatch** (iterator __pos, _Integer __n, _Integer __x, __true_type)
- template<typename _ForwardIterator >
  void **_M_insert_range** (iterator __position, _ForwardIterator __first, _ForwardIterator __last, std::forward_iterator_tag)
- template<typename _InputIterator >
  void **_M_insert_range** (iterator __pos, _InputIterator __first, _InputIterator __last, std::input_iterator_tag)
- void **_M_range_check** (size_type __n) const

Protected Attributes

- _Bvector_impl **_M_impl**

Friends

- class **hash**

5.729.1 Detailed Description

template<typename _Alloc> class std::vector< bool, _Alloc >

A specialization of vector for booleans which offers fixed time access to individual elements in any order. Note that vector<bool> does not actually meet the requirements for being a container. This is because the reference and pointer types are not really references and pointers to bool. See DR96 for details.

See also:

vector for function documentation.

In some terminology a vector can be described as a dynamic C-style array, it offers fast and efficient access to individual elements in any order and saves the user from worrying about memory and size allocation. Subscripting ([]) access is also provided as with C-style arrays.

Definition at line 474 of file stl_bvector.h.

The documentation for this class was generated from the following files:

- stl_bvector.h
- vector.tcc

5.730 std::weak_ptr< _Tp > Class Template Reference

A smart pointer with weak semantics.

Inherits __weak_ptr< _Tp >.

Public Member Functions

- template<typename _Tp1 >
  weak_ptr (const shared_ptr< _Tp1 > &__r)
- template<typename _Tp1 >
  weak_ptr (const weak_ptr< _Tp1 > &__r)
- shared_ptr< _Tp > **lock** () const
- template<typename _Tp1 >
  weak_ptr & **operator=** (const shared_ptr< _Tp1 > &__r)
- template<typename _Tp1 >
  weak_ptr & **operator=** (const weak_ptr< _Tp1 > &__r)

5.730.1 Detailed Description

template<typename _Tp> class std::weak_ptr< _Tp >

A smart pointer with weak semantics. With forwarding constructors and assignment operators.

Definition at line 322 of file shared_ptr.h.

The documentation for this class was generated from the following file:

- shared_ptr.h

5.731 std::weibull_distribution< _RealType > Class Template Reference

A weibull_distribution random number distribution.

Classes

- struct param_type

Public Types

- typedef _RealType result_type

Public Member Functions

- **weibull_distribution** (const param_type &__p)
- **weibull_distribution** (_RealType __a=_RealType(1), _RealType __b=_RealType(1))
- _RealType a () const
- _RealType b () const
- result_type max () const
- result_type min () const
- template<typename _UniformRandomNumberGenerator > result_type **operator()** (_UniformRandomNumberGenerator &__urng, const param_type &__p)
- template<typename _UniformRandomNumberGenerator > result_type **operator()** (_UniformRandomNumberGenerator &__urng)
- void param (const param_type &__param)
- param_type param () const
- void reset ()

5.731.1 Detailed Description

template<typename _RealType = double> class std::weibull_distribution< _RealType >

A weibull_distribution random number distribution. The formula for the normal probability density function is:

$$p(x|\alpha,\beta) = \frac{\alpha}{\beta}(\frac{x}{\beta})^{\alpha-1}\exp{(-(\frac{x}{\beta})^{\alpha})}$$

Definition at line 3796 of file random.h.

5.731.2 Member Typedef Documentation

5.731.2.1 template<typename _RealType = double> typedef _RealType std::weibull_distribution< _RealType >::result_type

The type of the range of the distribution.

Definition at line 3803 of file random.h.

5.731.3 Member Function Documentation

5.731.3.1 template<typename _RealType = double> _RealType std::weibull_distribution< _RealType >::a () const [inline]

Return the a parameter of the distribution.

Definition at line 3850 of file random.h.

5.731.3.2 template<typename _RealType = double> _RealType std::weibull_distribution< _RealType >::b () const [inline]

Return the b parameter of the distribution.

Definition at line 3857 of file random.h.

5.731.3.3 template<typename _RealType = double> result_type std::weibull_distribution< _RealType >::max () const [inline]

Returns the least upper bound value of the distribution.

Definition at line 3886 of file random.h.

5.731.3.4 template<typename _RealType = double> result_type std::weibull_distribution< _RealType >::min () const [inline]

Returns the greatest lower bound value of the distribution.

Definition at line 3879 of file random.h.

5.731.3.5 template<typename _RealType = double> void std::weibull_distribution< _RealType >::param (const param_type & *__param*) [inline]

Sets the parameter set of the distribution.

Parameters:

__param The new parameter set of the distribution.

Definition at line 3872 of file random.h.

5.731.3.6 template<typename _RealType = double> param_type std::weibull_distribution< _RealType >::param () const [inline]

Returns the parameter set of the distribution.

Definition at line 3864 of file random.h.

Referenced by std::operator>>().

5.731.3.7 template<typename _RealType = double> void std::weibull_distribution< _RealType >::reset () [inline]

Resets the distribution state.

Definition at line 3843 of file random.h.

The documentation for this class was generated from the following files:

- random.h
- random.tcc

5.732 std::weibull_distribution< _RealType >::param_type Struct Reference

Public Types

- typedef weibull_distribution< _RealType > **distribution_type**

Public Member Functions

- **param_type** (_RealType __a=_RealType(1), _RealType __b=_RealType(1))
- _RealType **a** () const
- _RealType **b** () const

5.732.1 Detailed Description

template<typename _RealType = double> struct std::weibull_distribution< _RealType >::param_type

Parameter type.

Definition at line 3805 of file random.h.

The documentation for this struct was generated from the following file:

- random.h

Chapter 6

File Documentation

6.1 algo.h File Reference

Parallel STL function calls corresponding to the stl_algo.h header.

Classes

- struct std::__parallel::_CRandNumber< _MustBeInt >

  Functor wrapper for std::rand().

Namespaces

- namespace std
- namespace std::__parallel

Defines

- #define **_GLIBCXX_PARALLEL_ALGO_H**

Functions

- template<typename _RAIter , typename _BinaryPredicate >
  _RAIter **std::__parallel::__adjacent_find_switch** (_RAIter __begin, _RAIter __end, _BinaryPredicate __pred, random_access_iterator_tag)

- template<typename _FIterator , typename _BinaryPredicate , typename _IteratorTag >
  _FIterator **std::__parallel::__adjacent_find_switch** (_FIterator __begin, _FIterator __end, _BinaryPredicate __pred, _IteratorTag)
- template<typename _FIterator , typename _IteratorTag >
  _FIterator **std::__parallel::__adjacent_find_switch** (_FIterator __begin, _FIterator __end, _IteratorTag)
- template<typename _RAIter >
  _RAIter **std::__parallel::__adjacent_find_switch** (_RAIter __begin, _RAIter __end, random_access_iterator_tag)
- template<typename _IIter , typename _Predicate , typename _IteratorTag >
  iterator_traits< _IIter >::difference_type **std::__parallel::__count_if_switch** (_IIter __begin, _IIter __end, _Predicate __pred, _IteratorTag)
- template<typename _RAIter , typename _Predicate >
  iterator_traits< _RAIter >::difference_type **std::__parallel::__count_if_switch** (_RAIter __begin, _RAIter __end, _Predicate __pred, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_unbalanced)
- template<typename _IIter , typename _Tp , typename _IteratorTag >
  iterator_traits< _IIter >::difference_type **std::__parallel::__count_switch** (_IIter __begin, _IIter __end, const _Tp &__value, _IteratorTag)
- template<typename _RAIter , typename _Tp >
  iterator_traits< _RAIter >::difference_type **std::__parallel::__count_switch** (_RAIter __begin, _RAIter __end, const _Tp &__value, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_unbalanced)
- template<typename _IIter , typename _FIterator , typename _BinaryPredicate , typename _IteratorTag1 , typename _IteratorTag2 >
  _IIter **std::__parallel::__find_first_of_switch** (_IIter __begin1, _IIter __end1, _FIterator __begin2, _FIterator __end2, _BinaryPredicate __comp, _IteratorTag1, _IteratorTag2)
- template<typename _RAIter , typename _FIterator , typename _BinaryPredicate , typename _IteratorTag >
  _RAIter **std::__parallel::__find_first_of_switch** (_RAIter __begin1, _RAIter __end1, _FIterator __begin2, _FIterator __end2, _BinaryPredicate __comp, random_access_iterator_tag, _IteratorTag)
- template<typename _IIter , typename _FIterator , typename _IteratorTag1 , typename _IteratorTag2 >
  _IIter **std::__parallel::__find_first_of_switch** (_IIter __begin1, _IIter __end1, _FIterator __begin2, _FIterator __end2, _IteratorTag1, _IteratorTag2)
- template<typename _RAIter , typename _Predicate >
  _RAIter **std::__parallel::__find_if_switch** (_RAIter __begin, _RAIter __end, _Predicate __pred, random_access_iterator_tag)
- template<typename _IIter , typename _Predicate , typename _IteratorTag >
  _IIter **std::__parallel::__find_if_switch** (_IIter __begin, _IIter __end, _Predicate __pred, _IteratorTag)

- template<typename _RAIter , typename _Tp >
  _RAIter **std::__parallel::__find_switch** (_RAIter __begin, _RAIter __end, const _Tp &__val, random_access_iterator_tag)
- template<typename _IIter , typename _Tp , typename _IteratorTag >
  _IIter **std::__parallel::__find_switch** (_IIter __begin, _IIter __end, const _Tp &__val, _IteratorTag)
- template<typename _RAIter , typename _Function >
  _Function **std::__parallel::__for_each_switch** (_RAIter __begin, _RAIter __end, _Function __f, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_balanced)
- template<typename _IIter , typename _Function , typename _IteratorTag >
  _Function **std::__parallel::__for_each_switch** (_IIter __begin, _IIter __end, _Function __f, _IteratorTag)
- template<typename _RAIter , typename _Size , typename _Generator >
  _RAIter **std::__parallel::__generate_n_switch** (_RAIter __begin, _Size __n, _Generator __gen, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_balanced)
- template<typename _OutputIterator , typename _Size , typename _Generator , typename _IteratorTag >
  _OutputIterator **std::__parallel::__generate_n_switch** (_OutputIterator __begin, _Size __n, _Generator __gen, _IteratorTag)
- template<typename _RAIter , typename _Generator >
  void **std::__parallel::__generate_switch** (_RAIter __begin, _RAIter __end, _Generator __gen, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_balanced)
- template<typename _FIterator , typename _Generator , typename _IteratorTag >
  void **std::__parallel::__generate_switch** (_FIterator __begin, _FIterator __end, _Generator __gen, _IteratorTag)
- template<typename _RAIter , typename _Compare >
  _RAIter **std::__parallel::__max_element_switch** (_RAIter __begin, _RAIter __end, _Compare __comp, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_balanced)
- template<typename _FIterator , typename _Compare , typename _IteratorTag >
  _FIterator **std::__parallel::__max_element_switch** (_FIterator __begin, _FIterator __end, _Compare __comp, _IteratorTag)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _Compare >
  _OutputIterator **std::__parallel::__merge_switch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __result, _Compare __comp, random_access_iterator_tag, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _Compare , typename _IteratorTag1 , typename _IteratorTag2 , typename _IteratorTag3 >
  _OutputIterator **std::__parallel::__merge_switch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __result, _Compare __comp, _IteratorTag1, _IteratorTag2, _IteratorTag3)

- template<typename _RAIter , typename _Compare >
  _RAIter **std::__parallel::__min_element_switch** (_RAIter __begin, _RAIter __end, _Compare __comp, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_balanced)
- template<typename _FIterator , typename _Compare , typename _IteratorTag >
  _FIterator **std::__parallel::__min_element_switch** (_FIterator __begin, _FIterator __end, _Compare __comp, _IteratorTag)
- template<typename _RAIter , typename _Predicate >
  _RAIter **std::__parallel::__partition_switch** (_RAIter __begin, _RAIter __end, _Predicate __pred, random_access_iterator_tag)
- template<typename _FIterator , typename _Predicate , typename _IteratorTag >
  _FIterator **std::__parallel::__partition_switch** (_FIterator __begin, _FIterator __end, _Predicate __pred, _IteratorTag)
- template<typename _RAIter , typename _Predicate , typename _Tp >
  void **std::__parallel::__replace_if_switch** (_RAIter __begin, _RAIter __end, _Predicate __pred, const _Tp &__new_value, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_balanced)
- template<typename _FIterator , typename _Predicate , typename _Tp , typename _IteratorTag >
  void **std::__parallel::__replace_if_switch** (_FIterator __begin, _FIterator __end, _Predicate __pred, const _Tp &__new_value, _IteratorTag)
- template<typename _RAIter , typename _Tp >
  void **std::__parallel::__replace_switch** (_RAIter __begin, _RAIter __end, const _Tp &__old_value, const _Tp &__new_value, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_balanced)
- template<typename _FIterator , typename _Tp , typename _IteratorTag >
  void **std::__parallel::__replace_switch** (_FIterator __begin, _FIterator __end, const _Tp &__old_value, const _Tp &__new_value, _IteratorTag)
- template<typename _FIterator , typename _Integer , typename _Tp , typename _BinaryPredicate , typename _IteratorTag >
  _FIterator **std::__parallel::__search_n_switch** (_FIterator __begin, _FIterator __end, _Integer __count, const _Tp &__val, _BinaryPredicate __binary_pred, _IteratorTag)
- template<typename _RAIter , typename _Integer , typename _Tp , typename _BinaryPredicate >
  _RAIter **std::__parallel::__search_n_switch** (_RAIter __begin, _RAIter __end, _Integer __count, const _Tp &__val, _BinaryPredicate __binary_pred, random_access_iterator_tag)
- template<typename _FIterator1 , typename _FIterator2 , typename _BinaryPredicate , typename _IteratorTag1 , typename _IteratorTag2 >
  _FIterator1 **std::__parallel::__search_switch** (_FIterator1 __begin1, _FIterator1 __end1, _FIterator2 __begin2, _FIterator2 __end2, _BinaryPredicate __pred, _IteratorTag1, _IteratorTag2)
- template<typename _RAIter1 , typename _RAIter2 , typename _BinaryPredicate >
  _RAIter1 **std::__parallel::__search_switch** (_RAIter1 __begin1, _RAIter1

__end1, _RAIter2 __begin2, _RAIter2 __end2, _BinaryPredicate __pred, random_access_iterator_tag, random_access_iterator_tag)

- template<typename _FIterator1 , typename _FIterator2 , typename _IteratorTag1 , typename _IteratorTag2 >
  _FIterator1 **std::__parallel::__search_switch** (_FIterator1 __begin1, _FIterator1 __end1, _FIterator2 __begin2, _FIterator2 __end2, _IteratorTag1, _IteratorTag2)
- template<typename _RAIter1 , typename _RAIter2 >
  _RAIter1 **std::__parallel::__search_switch** (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _RAIter2 __end2, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _RAIter1 , typename _RAIter2 , typename _Output_RAIter , typename _Predicate >
  _Output_RAIter **std::__parallel::__set_difference_switch** (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _RAIter2 __end2, _Output_RAIter __result, _Predicate __pred, random_access_iterator_tag, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate , typename _OutputIterator , typename _IteratorTag1 , typename _IteratorTag2 , typename _IteratorTag3 >
  _OutputIterator **std::__parallel::__set_difference_switch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __result, _Predicate __pred, _IteratorTag1, _IteratorTag2, _IteratorTag3)
- template<typename _RAIter1 , typename _RAIter2 , typename _Output_RAIter , typename _Predicate >
  _Output_RAIter **std::__parallel::__set_intersection_switch** (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _RAIter2 __end2, _Output_RAIter __result, _Predicate __pred, random_access_iterator_tag, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate , typename _OutputIterator , typename _IteratorTag1 , typename _IteratorTag2 , typename _IteratorTag3 >
  _OutputIterator **std::__parallel::__set_intersection_switch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __result, _Predicate __pred, _IteratorTag1, _IteratorTag2, _IteratorTag3)
- template<typename _RAIter1 , typename _RAIter2 , typename _Output_RAIter , typename _Predicate >
  _Output_RAIter **std::__parallel::__set_symmetric_difference_switch** (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _RAIter2 __end2, _Output_RAIter __result, _Predicate __pred, random_access_iterator_tag, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate , typename _OutputIterator , typename _IteratorTag1 , typename _IteratorTag2 , typename _IteratorTag3 >
  _OutputIterator **std::__parallel::__set_symmetric_difference_switch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __result, _Predicate __pred, _IteratorTag1, _IteratorTag2, _IteratorTag3)

- template<typename _RAIter1 , typename _RAIter2 , typename _Output_RAIter , typename _Predicate >
  _Output_RAIter **std::__parallel::__set_union_switch** (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _RAIter2 __end2, _Output_RAIter __result, _Predicate __pred, random_access_iterator_tag, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate , typename _OutputIterator , typename _IteratorTag1 , typename _IteratorTag2 , typename _IteratorTag3 >
  _OutputIterator **std::__parallel::__set_union_switch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __result, _Predicate __pred, _IteratorTag1, _IteratorTag2, _IteratorTag3)
- template<typename _RAIter1 , typename _RAIter2 , typename _UnaryOperation , typename _IteratorTag1 , typename _IteratorTag2 >
  _RAIter2 **std::__parallel::__transform1_switch** (_RAIter1 __begin, _RAIter1 __end, _RAIter2 __result, _UnaryOperation __unary_op, _IteratorTag1, _IteratorTag2)
- template<typename _RAIter1 , typename _RAIter2 , typename _UnaryOperation >
  _RAIter2 **std::__parallel::__transform1_switch** (_RAIter1 __begin, _RAIter1 __end, _RAIter2 __result, _UnaryOperation __unary_op, random_access_iterator_tag, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_balanced)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _BinaryOperation , typename _Tag1 , typename _Tag2 , typename _Tag3 >
  _OutputIterator **std::__parallel::__transform2_switch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _OutputIterator __result, _BinaryOperation __binary_op, _Tag1, _Tag2, _Tag3)
- template<typename _RAIter1 , typename _RAIter2 , typename _RAIter3 , typename _BinaryOperation >
  _RAIter3 **std::__parallel::__transform2_switch** (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _RAIter3 __result, _BinaryOperation __binary_op, random_access_iterator_tag, random_access_iterator_tag, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_balanced)
- template<typename _RAIter , typename RandomAccessOutputIterator , typename _Predicate >
  RandomAccessOutputIterator **std::__parallel::__unique_copy_switch** (_RAIter __begin, _RAIter __last, RandomAccessOutputIterator __out, _Predicate __pred, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _IIter , typename _OutputIterator , typename _Predicate , typename _IteratorTag1 , typename _IteratorTag2 >
  _OutputIterator **std::__parallel::__unique_copy_switch** (_IIter __begin, _IIter __last, _OutputIterator __out, _Predicate __pred, _IteratorTag1, _IteratorTag2)
- template<typename _FIterator , typename _BinaryPredicate >
  _FIterator **std::__parallel::adjacent_find** (_FIterator __begin, _FIterator __end, _BinaryPredicate __pred)

- template<typename _FIterator >
  _FIterator **std::__parallel::adjacent_find** (_FIterator __begin, _FIterator __end)
- template<typename _FIterator , typename _BinaryPredicate >
  _FIterator **std::__parallel::adjacent_find** (_FIterator __begin, _FIterator __end, _BinaryPredicate __binary_pred, __gnu_parallel::sequential_tag)
- template<typename _FIterator >
  _FIterator **std::__parallel::adjacent_find** (_FIterator __begin, _FIterator __end, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _Tp >
  iterator_traits< _IIter >::difference_type **std::__parallel::count** (_IIter __begin, _IIter __end, const _Tp &__value)
- template<typename _IIter , typename _Tp >
  iterator_traits< _IIter >::difference_type **std::__parallel::count** (_IIter __begin, _IIter __end, const _Tp &__value, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _IIter , typename _Tp >
  iterator_traits< _IIter >::difference_type **std::__parallel::count** (_IIter __begin, _IIter __end, const _Tp &__value, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _Predicate >
  iterator_traits< _IIter >::difference_type **std::__parallel::count_if** (_IIter __begin, _IIter __end, _Predicate __pred)
- template<typename _IIter , typename _Predicate >
  iterator_traits< _IIter >::difference_type **std::__parallel::count_if** (_IIter __begin, _IIter __end, _Predicate __pred, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _IIter , typename _Predicate >
  iterator_traits< _IIter >::difference_type **std::__parallel::count_if** (_IIter __begin, _IIter __end, _Predicate __pred, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _Tp >
  _IIter **std::__parallel::find** (_IIter __begin, _IIter __end, const _Tp &__val)
- template<typename _IIter , typename _Tp >
  _IIter **std::__parallel::find** (_IIter __begin, _IIter __end, const _Tp &__val, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _FIterator >
  _IIter **std::__parallel::find_first_of** (_IIter __begin1, _IIter __end1, _FIterator __begin2, _FIterator __end2)
- template<typename _IIter , typename _FIterator , typename _BinaryPredicate >
  _IIter **std::__parallel::find_first_of** (_IIter __begin1, _IIter __end1, _FIterator __begin2, _FIterator __end2, _BinaryPredicate __comp)
- template<typename _IIter , typename _FIterator , typename _BinaryPredicate >
  _IIter **std::__parallel::find_first_of** (_IIter __begin1, _IIter __end1, _FIterator __begin2, _FIterator __end2, _BinaryPredicate __comp, __gnu_parallel::sequential_tag)

- template<typename _IIter , typename _FIterator >
  _IIter **std::__parallel::find_first_of** (_IIter __begin1, _IIter __end1, _FIterator __begin2, _FIterator __end2, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _Predicate >
  _IIter **std::__parallel::find_if** (_IIter __begin, _IIter __end, _Predicate __pred)
- template<typename _IIter , typename _Predicate >
  _IIter **std::__parallel::find_if** (_IIter __begin, _IIter __end, _Predicate __pred, __gnu_parallel::sequential_tag)
- template<typename _Iterator , typename _Function >
  _Function **std::__parallel::for_each** (_Iterator __begin, _Iterator __end, _Function __f)
- template<typename _Iterator , typename _Function >
  _Function **std::__parallel::for_each** (_Iterator __begin, _Iterator __end, _Function __f, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _IIter , typename _Function >
  _Function **std::__parallel::for_each** (_IIter __begin, _IIter __end, _Function __f, __gnu_parallel::sequential_tag)
- template<typename _FIterator , typename _Generator >
  void **std::__parallel::generate** (_FIterator __begin, _FIterator __end, _Generator __gen)
- template<typename _FIterator , typename _Generator >
  void **std::__parallel::generate** (_FIterator __begin, _FIterator __end, _Generator __gen, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _FIterator , typename _Generator >
  void **std::__parallel::generate** (_FIterator __begin, _FIterator __end, _Generator __gen, __gnu_parallel::sequential_tag)
- template<typename _OutputIterator , typename _Size , typename _Generator >
  _OutputIterator **std::__parallel::generate_n** (_OutputIterator __begin, _Size __n, _Generator __gen)
- template<typename _OutputIterator , typename _Size , typename _Generator >
  _OutputIterator **std::__parallel::generate_n** (_OutputIterator __begin, _Size __n, _Generator __gen, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _OutputIterator , typename _Size , typename _Generator >
  _OutputIterator **std::__parallel::generate_n** (_OutputIterator __begin, _Size __n, _Generator __gen, __gnu_parallel::sequential_tag)
- template<typename _FIterator , typename _Compare >
  _FIterator **std::__parallel::max_element** (_FIterator __begin, _FIterator __end, _Compare __comp)
- template<typename _FIterator , typename _Compare >
  _FIterator **std::__parallel::max_element** (_FIterator __begin, _FIterator __end, _Compare __comp, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _FIterator >
  _FIterator **std::__parallel::max_element** (_FIterator __begin, _FIterator __end)

- template<typename _FIterator >
  _FIterator **std::__parallel::max_element** (_FIterator __begin, _FIterator __end, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _FIterator , typename _Compare >
  _FIterator **std::__parallel::max_element** (_FIterator __begin, _FIterator __end, _Compare __comp, __gnu_parallel::sequential_tag)
- template<typename _FIterator >
  _FIterator **std::__parallel::max_element** (_FIterator __begin, _FIterator __end, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator >
  _OutputIterator **std::__parallel::merge** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __result)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _Compare >
  _OutputIterator **std::__parallel::merge** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __result, _Compare __comp)

- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _Compare >
  _OutputIterator **std::__parallel::merge** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __result, _Compare __comp, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator >
  _OutputIterator **std::__parallel::merge** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __result, __gnu_parallel::sequential_tag)
- template<typename _FIterator , typename _Compare >
  _FIterator **std::__parallel::min_element** (_FIterator __begin, _FIterator __end, _Compare __comp)
- template<typename _FIterator , typename _Compare >
  _FIterator **std::__parallel::min_element** (_FIterator __begin, _FIterator __end, _Compare __comp, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _FIterator >
  _FIterator **std::__parallel::min_element** (_FIterator __begin, _FIterator __end)

- template<typename _FIterator >
  _FIterator **std::__parallel::min_element** (_FIterator __begin, _FIterator __end, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _FIterator , typename _Compare >
  _FIterator **std::__parallel::min_element** (_FIterator __begin, _FIterator __end, _Compare __comp, __gnu_parallel::sequential_tag)
- template<typename _FIterator >
  _FIterator **std::__parallel::min_element** (_FIterator __begin, _FIterator __end, __gnu_parallel::sequential_tag)
- template<typename _RAIter >
  void **std::__parallel::nth_element** (_RAIter __begin, _RAIter __nth, _RAIter __end)

- template<typename _RAIter , typename _Compare >
  void **std::__parallel::nth_element** (_RAIter __begin, _RAIter __nth, _RAIter __end, _Compare __comp)
- template<typename _RAIter , typename _Compare >
  void **std::__parallel::nth_element** (_RAIter __begin, _RAIter __nth, _RAIter __end, _Compare __comp, __gnu_parallel::sequential_tag)
- template<typename _RAIter >
  void **std::__parallel::nth_element** (_RAIter __begin, _RAIter __nth, _RAIter __end, __gnu_parallel::sequential_tag)
- template<typename _RAIter >
  void **std::__parallel::partial_sort** (_RAIter __begin, _RAIter __middle, _RAIter __end)
- template<typename _RAIter , typename _Compare >
  void **std::__parallel::partial_sort** (_RAIter __begin, _RAIter __middle, _RAIter __end, _Compare __comp)
- template<typename _RAIter >
  void **std::__parallel::partial_sort** (_RAIter __begin, _RAIter __middle, _RAIter __end, __gnu_parallel::sequential_tag)
- template<typename _RAIter , typename _Compare >
  void **std::__parallel::partial_sort** (_RAIter __begin, _RAIter __middle, _RAIter __end, _Compare __comp, __gnu_parallel::sequential_tag)
- template<typename _FIterator , typename _Predicate >
  _FIterator **std::__parallel::partition** (_FIterator __begin, _FIterator __end, _Predicate __pred)
- template<typename _FIterator , typename _Predicate >
  _FIterator **std::__parallel::partition** (_FIterator __begin, _FIterator __end, _Predicate __pred, __gnu_parallel::sequential_tag)
- template<typename _RAIter , typename _RandomNumberGenerator >
  void **std::__parallel::random_shuffle** (_RAIter __begin, _RAIter __end, _RandomNumberGenerator &__rand)
- template<typename _RAIter >
  void **std::__parallel::random_shuffle** (_RAIter __begin, _RAIter __end)
- template<typename _RAIter , typename _RandomNumberGenerator >
  void **std::__parallel::random_shuffle** (_RAIter __begin, _RAIter __end, _RandomNumberGenerator &__rand, __gnu_parallel::sequential_tag)
- template<typename _RAIter >
  void **std::__parallel::random_shuffle** (_RAIter __begin, _RAIter __end, __gnu_parallel::sequential_tag)
- template<typename _FIterator , typename _Tp >
  void **std::__parallel::replace** (_FIterator __begin, _FIterator __end, const _Tp &__old_value, const _Tp &__new_value)
- template<typename _FIterator , typename _Tp >
  void **std::__parallel::replace** (_FIterator __begin, _FIterator __end, const _Tp &__old_value, const _Tp &__new_value, __gnu_parallel::_Parallelism __parallelism_tag)

- template<typename _FIterator , typename _Tp >
  void **std::__parallel::replace** (_FIterator __begin, _FIterator __end, const _Tp &__old_value, const _Tp &__new_value, __gnu_parallel::sequential_tag)
- template<typename _FIterator , typename _Predicate , typename _Tp >
  void **std::__parallel::replace_if** (_FIterator __begin, _FIterator __end, _Predicate __pred, const _Tp &__new_value)
- template<typename _FIterator , typename _Predicate , typename _Tp >
  void **std::__parallel::replace_if** (_FIterator __begin, _FIterator __end, _Predicate __pred, const _Tp &__new_value, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _FIterator , typename _Predicate , typename _Tp >
  void **std::__parallel::replace_if** (_FIterator __begin, _FIterator __end, _Predicate __pred, const _Tp &__new_value, __gnu_parallel::sequential_tag)
- template<typename _FIterator1 , typename _FIterator2 , typename _BinaryPredicate >
  _FIterator1 **std::__parallel::search** (_FIterator1 __begin1, _FIterator1 __end1, _FIterator2 __begin2, _FIterator2 __end2, _BinaryPredicate __pred)
- template<typename _FIterator1 , typename _FIterator2 , typename _BinaryPredicate >
  _FIterator1 **std::__parallel::search** (_FIterator1 __begin1, _FIterator1 __end1, _FIterator2 __begin2, _FIterator2 __end2, _BinaryPredicate __pred, __gnu_parallel::sequential_tag)
- template<typename _FIterator1 , typename _FIterator2 >
  _FIterator1 **std::__parallel::search** (_FIterator1 __begin1, _FIterator1 __end1, _FIterator2 __begin2, _FIterator2 __end2)
- template<typename _FIterator1 , typename _FIterator2 >
  _FIterator1 **std::__parallel::search** (_FIterator1 __begin1, _FIterator1 __end1, _FIterator2 __begin2, _FIterator2 __end2, __gnu_parallel::sequential_tag)
- template<typename _FIterator , typename _Integer , typename _Tp , typename _BinaryPredicate >
  _FIterator **std::__parallel::search_n** (_FIterator __begin, _FIterator __end, _Integer __count, const _Tp &__val, _BinaryPredicate __binary_pred)
- template<typename _FIterator , typename _Integer , typename _Tp >
  _FIterator **std::__parallel::search_n** (_FIterator __begin, _FIterator __end, _Integer __count, const _Tp &__val)
- template<typename _FIterator , typename _Integer , typename _Tp , typename _BinaryPredicate >
  _FIterator **std::__parallel::search_n** (_FIterator __begin, _FIterator __end, _Integer __count, const _Tp &__val, _BinaryPredicate __binary_pred, __gnu_parallel::sequential_tag)
- template<typename _FIterator , typename _Integer , typename _Tp >
  _FIterator **std::__parallel::search_n** (_FIterator __begin, _FIterator __end, _Integer __count, const _Tp &__val, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _Predicate >
  _OutputIterator **std::__parallel::set_difference** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out, _Predicate __pred)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator >
  _OutputIterator **std::__parallel::set_difference** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out)

- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _Predicate > _OutputIterator **std::__parallel::set_difference** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out, _Predicate __pred, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator > _OutputIterator **std::__parallel::set_difference** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _Predicate > _OutputIterator **std::__parallel::set_intersection** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out, _Predicate __pred)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator > _OutputIterator **std::__parallel::set_intersection** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _Predicate > _OutputIterator **std::__parallel::set_intersection** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out, _Predicate __pred, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator > _OutputIterator **std::__parallel::set_intersection** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _Predicate > _OutputIterator **std::__parallel::set_symmetric_difference** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out, _Predicate __pred)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator > _OutputIterator **std::__parallel::set_symmetric_difference** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _Predicate > _OutputIterator **std::__parallel::set_symmetric_difference** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out, _Predicate __pred, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator > _OutputIterator **std::__parallel::set_symmetric_difference** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _Predicate > _OutputIterator **std::__parallel::set_union** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out, _Predicate __pred)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator > _OutputIterator **std::__parallel::set_union** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out)

- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _Predicate > _OutputIterator **std::__parallel::set_union** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out, _Predicate __pred, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator > _OutputIterator **std::__parallel::set_union** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _OutputIterator __out, __gnu_parallel::sequential_tag)
- template<typename _RAIter , typename _Compare > void **std::__parallel::sort** (_RAIter __begin, _RAIter __end, _Compare __comp)
- template<typename _RAIter > void **std::__parallel::sort** (_RAIter __begin, _RAIter __end, __gnu_parallel::balanced_quicksort_tag __parallelism)
- template<typename _RAIter > void **std::__parallel::sort** (_RAIter __begin, _RAIter __end, __gnu_parallel::quicksort_tag __parallelism)
- template<typename _RAIter > void **std::__parallel::sort** (_RAIter __begin, _RAIter __end, __gnu_parallel::multiway_mergesort_exact_tag __parallelism)
- template<typename _RAIter > void **std::__parallel::sort** (_RAIter __begin, _RAIter __end, __gnu_parallel::multiway_mergesort_sampling_tag __parallelism)
- template<typename _RAIter > void **std::__parallel::sort** (_RAIter __begin, _RAIter __end, __gnu_parallel::multiway_mergesort_tag __parallelism)
- template<typename _RAIter > void **std::__parallel::sort** (_RAIter __begin, _RAIter __end, __gnu_parallel::parallel_tag __parallelism)
- template<typename _RAIter > void **std::__parallel::sort** (_RAIter __begin, _RAIter __end, __gnu_parallel::default_parallel_tag __parallelism)
- template<typename _RAIter > void **std::__parallel::sort** (_RAIter __begin, _RAIter __end)
- template<typename _RAIter , typename _Compare , typename _Parallelism > void **std::__parallel::sort** (_RAIter __begin, _RAIter __end, _Compare __comp, _Parallelism __parallelism)
- template<typename _RAIter , typename _Compare > void **std::__parallel::sort** (_RAIter __begin, _RAIter __end, _Compare __comp, __gnu_parallel::sequential_tag)
- template<typename _RAIter > void **std::__parallel::sort** (_RAIter __begin, _RAIter __end, __gnu_parallel::sequential_tag)

- template<typename _RAIter , typename _Compare >
  void **std::__parallel::stable_sort** (_RAIter __begin, _RAIter __end, _Compare __comp)
- template<typename _RAIter >
  void **std::__parallel::stable_sort** (_RAIter __begin, _RAIter __end, __gnu_parallel::balanced_quicksort_tag __parallelism)
- template<typename _RAIter >
  void **std::__parallel::stable_sort** (_RAIter __begin, _RAIter __end, __gnu_parallel::quicksort_tag __parallelism)
- template<typename _RAIter >
  void **std::__parallel::stable_sort** (_RAIter __begin, _RAIter __end, __gnu_parallel::multiway_mergesort_tag __parallelism)
- template<typename _RAIter >
  void **std::__parallel::stable_sort** (_RAIter __begin, _RAIter __end, __gnu_parallel::parallel_tag __parallelism)
- template<typename _RAIter >
  void **std::__parallel::stable_sort** (_RAIter __begin, _RAIter __end, __gnu_parallel::default_parallel_tag __parallelism)
- template<typename _RAIter >
  void **std::__parallel::stable_sort** (_RAIter __begin, _RAIter __end)
- template<typename _RAIter , typename _Compare , typename _Parallelism >
  void **std::__parallel::stable_sort** (_RAIter __begin, _RAIter __end, _Compare __comp, _Parallelism __parallelism)
- template<typename _RAIter , typename _Compare >
  void **std::__parallel::stable_sort** (_RAIter __begin, _RAIter __end, _Compare __comp, __gnu_parallel::sequential_tag)
- template<typename _RAIter >
  void **std::__parallel::stable_sort** (_RAIter __begin, _RAIter __end, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _BinaryOperation >
  _OutputIterator **std::__parallel::transform** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _OutputIterator __result, _BinaryOperation __binary_op)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _BinaryOperation >
  _OutputIterator **std::__parallel::transform** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _OutputIterator __result, _BinaryOperation __binary_op, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OutputIterator , typename _BinaryOperation >
  _OutputIterator **std::__parallel::transform** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _OutputIterator __result, _BinaryOperation __binary_op, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _OutputIterator , typename _UnaryOperation >
  _OutputIterator **std::__parallel::transform** (_IIter __begin, _IIter __end, _OutputIterator __result, _UnaryOperation __unary_op)

- template<typename _IIter , typename _OutputIterator , typename _UnaryOperation > _OutputIterator **std::__parallel::transform** (_IIter __begin, _IIter __end, _OutputIterator __result, _UnaryOperation __unary_op, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _IIter , typename _OutputIterator , typename _UnaryOperation > _OutputIterator **std::__parallel::transform** (_IIter __begin, _IIter __end, _OutputIterator __result, _UnaryOperation __unary_op, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _OutputIterator , typename _Predicate > _OutputIterator **std::__parallel::unique_copy** (_IIter __begin1, _IIter __end1, _OutputIterator __out, _Predicate __pred)
- template<typename _IIter , typename _OutputIterator > _OutputIterator **std::__parallel::unique_copy** (_IIter __begin1, _IIter __end1, _OutputIterator __out)
- template<typename _IIter , typename _OutputIterator , typename _Predicate > _OutputIterator **std::__parallel::unique_copy** (_IIter __begin1, _IIter __end1, _OutputIterator __out, _Predicate __pred, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _OutputIterator > _OutputIterator **std::__parallel::unique_copy** (_IIter __begin1, _IIter __end1, _OutputIterator __out, __gnu_parallel::sequential_tag)

6.1.1 Detailed Description

Parallel STL function calls corresponding to the stl_algo.h header. The functions defined here mainly do case switches and call the actual parallelized versions in other files. Inlining policy: Functions that basically only contain one function call, are declared inline. This file is a GNU parallel extension to the Standard C++ Library.

Definition in file algo.h.

6.2 algobase.h File Reference

Parallel STL function calls corresponding to the stl_algobase.h header. The functions defined here mainly do case switches and call the actual parallelized versions in other files. Inlining policy: Functions that basically only contain one function call, are declared inline. This file is a GNU parallel extension to the Standard C++ Library.

Namespaces

- namespace std
- namespace std::__parallel

Defines

- #define **_GLIBCXX_PARALLEL_ALGOBASE_H**

Functions

- template<typename _RAIter1 , typename _RAIter2 , typename _Predicate >
  bool **std::__parallel::__lexicographical_compare_switch** (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _RAIter2 __end2, _Predicate __pred, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate , typename _IteratorTag1 , typename _IteratorTag2 >
  bool **std::__parallel::__lexicographical_compare_switch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _Predicate __pred, _IteratorTag1, _IteratorTag2)
- template<typename _RAIter1 , typename _RAIter2 , typename _Predicate >
  pair< _RAIter1, _RAIter2 > **std::__parallel::__mismatch_switch** (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _Predicate __pred, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate , typename _IteratorTag1 , typename _IteratorTag2 >
  pair< _IIter1, _IIter2 > **std::__parallel::__mismatch_switch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _Predicate __pred, _IteratorTag1, _IteratorTag2)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate >
  bool **std::__parallel::equal** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _Predicate __pred)
- template<typename _IIter1 , typename _IIter2 >
  bool **std::__parallel::equal** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2)

- template<typename _IIter1 , typename _IIter2 , typename _Predicate >
  bool **std::__parallel::equal** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _Predicate __pred, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 >
  bool **std::__parallel::equal** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate >
  bool **std::__parallel::lexicographical_compare** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _Predicate __pred)
- template<typename _IIter1 , typename _IIter2 >
  bool **std::__parallel::lexicographical_compare** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate >
  bool **std::__parallel::lexicographical_compare** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _Predicate __pred, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 >
  bool **std::__parallel::lexicographical_compare** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate >
  pair< _IIter1, _IIter2 > **std::__parallel::mismatch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _Predicate __pred)
- template<typename _IIter1 , typename _IIter2 >
  pair< _IIter1, _IIter2 > **std::__parallel::mismatch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate >
  pair< _IIter1, _IIter2 > **std::__parallel::mismatch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _Predicate __pred, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 >
  pair< _IIter1, _IIter2 > **std::__parallel::mismatch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, __gnu_parallel::sequential_tag)

6.2.1 Detailed Description

Parallel STL function calls corresponding to the stl_algobase.h header. The functions defined here mainly do case switches and call the actual parallelized versions in other files. Inlining policy: Functions that basically only contain one function call, are declared inline. This file is a GNU parallel extension to the Standard C++ Library.

Definition in file algobase.h.

6.3 algorithm File Reference

Defines

- #define **_GLIBCXX_ALGORITHM**

6.3.1 Detailed Description

This is a Standard C++ Library header.

Definition in file algorithm.

6.4 algorithm File Reference

Namespaces

- namespace __gnu_cxx

Defines

- #define **_EXT_ALGORITHM**

Functions

- template<typename _RAIterator , typename _Size , typename _OutputIterator >
  pair< _RAIterator, _OutputIterator > **__gnu_cxx::__copy_n** (_RAIterator __first, _Size __count, _OutputIterator __result, random_access_iterator_tag)
- template<typename _InputIterator , typename _Size , typename _OutputIterator >
  pair< _InputIterator, _OutputIterator > **__gnu_cxx::__copy_n** (_InputIterator __first, _Size __count, _OutputIterator __result, input_iterator_tag)
- int **__gnu_cxx::__lexicographical_compare_3way** (const char *__first1, const char *__last1, const char *__first2, const char *__last2)
- int **__gnu_cxx::__lexicographical_compare_3way** (const unsigned char *__first1, const unsigned char *__last1, const unsigned char *__first2, const unsigned char *__last2)
- template<typename _InputIterator1 , typename _InputIterator2 >
  int **__gnu_cxx::__lexicographical_compare_3way** (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2)
- template<typename _Tp , typename _Compare >
  const _Tp & __gnu_cxx::__median (const _Tp &__a, const _Tp &__b, const _Tp &__c, _Compare __comp)
- template<typename _Tp >
  const _Tp & __gnu_cxx::__median (const _Tp &__a, const _Tp &__b, const _Tp &__c)
- template<typename _InputIterator , typename _RandomAccessIterator , typename _RandomNumberGenerator , typename _Distance >
  _RandomAccessIterator **__gnu_cxx::__random_sample** (_InputIterator __first, _InputIterator __last, _RandomAccessIterator __out, _RandomNumberGenerator &__rand, const _Distance __n)
- template<typename _InputIterator , typename _RandomAccessIterator , typename _Distance >
  _RandomAccessIterator **__gnu_cxx::__random_sample** (_InputIterator __first, _InputIterator __last, _RandomAccessIterator __out, const _Distance __n)
- template<typename _InputIterator , typename _Size , typename _OutputIterator >
  pair< _InputIterator, _OutputIterator > __gnu_cxx::copy_n (_InputIterator __first, _Size __count, _OutputIterator __result)

- template<typename _InputIterator , typename _Tp , typename _Size >
  void **__gnu_cxx::count** (_InputIterator __first, _InputIterator __last, const _Tp &__value, _Size &__n)
- template<typename _InputIterator , typename _Predicate , typename _Size >
  void **__gnu_cxx::count_if** (_InputIterator __first, _InputIterator __last, _Predicate __pred, _Size &__n)
- template<typename _RandomAccessIterator , typename _StrictWeakOrdering >
  bool __gnu_cxx::is_heap (_RandomAccessIterator __first, _RandomAccessIterator __last, _StrictWeakOrdering __comp)
- template<typename _RandomAccessIterator >
  bool __gnu_cxx::is_heap (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _ForwardIterator , typename _StrictWeakOrdering >
  bool __gnu_cxx::is_sorted (_ForwardIterator __first, _ForwardIterator __last, _StrictWeakOrdering __comp)
- template<typename _ForwardIterator >
  bool __gnu_cxx::is_sorted (_ForwardIterator __first, _ForwardIterator __last)
- template<typename _InputIterator1 , typename _InputIterator2 >
  int __gnu_cxx::lexicographical_compare_3way (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2)
- template<typename _InputIterator , typename _RandomAccessIterator , typename _RandomNumberGenerator >
  _RandomAccessIterator __gnu_cxx::random_sample (_InputIterator _first, _InputIterator __last, _RandomAccessIterator __out_first, _RandomAccessIterator __out_last, _RandomNumberGenerator &__rand)
- template<typename _InputIterator , typename _RandomAccessIterator >
  _RandomAccessIterator __gnu_cxx::random_sample (_InputIterator _first, _InputIterator __last, _RandomAccessIterator __out_first, _RandomAccessIterator __out_last)
- template<typename _ForwardIterator , typename _OutputIterator , typename _Distance , typename _RandomNumberGenerator >
  _OutputIterator __gnu_cxx::random_sample_n (_ForwardIterator __first, _ForwardIterator __last, _OutputIterator __out, const _Distance __n, _RandomNumberGenerator &__rand)
- template<typename _ForwardIterator , typename _OutputIterator , typename _Distance >
  _OutputIterator __gnu_cxx::random_sample_n (_ForwardIterator __first, _ForwardIterator __last, _OutputIterator __out, const _Distance __n)

6.4.1 Detailed Description

This file is a GNU extension to the Standard C++ Library (possibly containing extensions from the HP/SGI STL subset).

Definition in file ext/algorithm.

6.5 algorithm File Reference

Defines

- #define **_PARALLEL_ALGORITHM**

6.5.1 Detailed Description

This file is a GNU extension to the Standard C++ Library.

Definition in file parallel/algorithm.

6.6 algorithmfwd.h File Reference

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_ALGORITHMFWD_H**

Functions

- template<typename _FIter , typename _BinaryPredicate >
  _FIter **std::adjacent_find** (_FIter, _FIter, _BinaryPredicate)
- template<typename _FIter >
  _FIter **std::adjacent_find** (_FIter, _FIter)
- template<typename _IIter , typename _Predicate >
  bool **std::all_of** (_IIter, _IIter, _Predicate)
- template<typename _IIter , typename _Predicate >
  bool **std::any_of** (_IIter, _IIter, _Predicate)
- template<typename _FIter , typename _Tp , typename _Compare >
  bool **std::binary_search** (_FIter, _FIter, const _Tp &, _Compare)
- template<typename _FIter , typename _Tp >
  bool **std::binary_search** (_FIter, _FIter, const _Tp &)
- template<typename _IIter , typename _OIter >
  _OIter **std::copy** (_IIter, _IIter, _OIter)
- template<typename _BIter1 , typename _BIter2 >
  _BIter2 **std::copy_backward** (_BIter1, _BIter1, _BIter2)
- template<typename _IIter , typename _OIter , typename _Predicate >
  _OIter **std::copy_if** (_IIter, _IIter, _OIter, _Predicate)
- template<typename _IIter , typename _Size , typename _OIter >
  _OIter **std::copy_n** (_IIter, _Size, _OIter)
- template<typename _IIter , typename _Tp >
  iterator_traits< _IIter >::difference_type **std::count** (_IIter, _IIter, const _Tp &)
- template<typename _IIter , typename _Predicate >
  iterator_traits< _IIter >::difference_type **std::count_if** (_IIter, _IIter, _Predicate)
- template<typename _IIter1 , typename _IIter2 , typename _BinaryPredicate >
  bool std::equal (_IIter1 __first1, _IIter1 __last1, _IIter2 __first2, _BinaryPredicate __binary_pred)
- template<typename _IIter1 , typename _IIter2 >
  bool **std::equal** (_IIter1, _IIter1, _IIter2)

- template<typename _FIter , typename _Tp , typename _Compare >
  pair< _FIter, _FIter > **std::equal_range** (_FIter, _FIter, const _Tp &, _Compare)
- template<typename _FIter , typename _Tp >
  pair< _FIter, _FIter > **std::equal_range** (_FIter, _FIter, const _Tp &)
- template<typename _FIter , typename _Tp >
  void **std::fill** (_FIter, _FIter, const _Tp &)
- template<typename _OIter , typename _Size , typename _Tp >
  _OIter **std::fill_n** (_OIter, _Size, const _Tp &)
- template<typename _IIter , typename _Tp >
  _IIter **std::find** (_IIter, _IIter, const _Tp &)
- template<typename _FIter1 , typename _FIter2 , typename _BinaryPredicate >
  _FIter1 **std::find_end** (_FIter1, _FIter1, _FIter2, _FIter2, _BinaryPredicate)
- template<typename _FIter1 , typename _FIter2 >
  _FIter1 **std::find_end** (_FIter1, _FIter1, _FIter2, _FIter2)
- template<typename _FIter1 , typename _FIter2 , typename _BinaryPredicate >
  _FIter1 **std::find_first_of** (_FIter1, _FIter1, _FIter2, _FIter2, _BinaryPredicate)
- template<typename _FIter1 , typename _FIter2 >
  _FIter1 **std::find_first_of** (_FIter1, _FIter1, _FIter2, _FIter2)
- template<typename _IIter , typename _Predicate >
  _IIter **std::find_if** (_IIter, _IIter, _Predicate)
- template<typename _IIter , typename _Predicate >
  _IIter **std::find_if_not** (_IIter, _IIter, _Predicate)
- template<typename _IIter , typename _Funct >
  _Funct **std::for_each** (_IIter, _IIter, _Funct)
- template<typename _FIter , typename _Generator >
  void **std::generate** (_FIter, _FIter, _Generator)
- template<typename _OIter , typename _Size , typename _Generator >
  _OIter **std::generate_n** (_OIter, _Size, _Generator)
- template<typename _IIter1 , typename _IIter2 , typename _Compare >
  bool **std::includes** (_IIter1, _IIter1, _IIter2, _IIter2, _Compare)
- template<typename _IIter1 , typename _IIter2 >
  bool **std::includes** (_IIter1, _IIter1, _IIter2, _IIter2)
- template<typename _BIter , typename _Compare >
  void **std::inplace_merge** (_BIter, _BIter, _BIter, _Compare)
- template<typename _BIter >
  void **std::inplace_merge** (_BIter, _BIter, _BIter)
- template<typename _RAIter , typename _Compare >
  bool **std::is_heap** (_RAIter, _RAIter, _Compare)
- template<typename _RAIter >
  bool **std::is_heap** (_RAIter, _RAIter)
- template<typename _RAIter , typename _Compare >
  _RAIter **std::is_heap_until** (_RAIter, _RAIter, _Compare)

- template<typename _RAIter >
  _RAIter **std::is_heap_until** (_RAIter, _RAIter)
- template<typename _IIter , typename _Predicate >
  bool **std::is_partitioned** (_IIter, _IIter, _Predicate)
- template<typename _FIter , typename _Compare >
  bool **std::is_sorted** (_FIter, _FIter, _Compare)
- template<typename _FIter >
  bool **std::is_sorted** (_FIter, _FIter)
- template<typename _FIter , typename _Compare >
  _FIter **std::is_sorted_until** (_FIter, _FIter, _Compare)
- template<typename _FIter >
  _FIter **std::is_sorted_until** (_FIter, _FIter)
- template<typename _FIter1 , typename _FIter2 >
  void **std::iter_swap** (_FIter1, _FIter2)
- template<typename _IIter1 , typename _IIter2 , typename _Compare >
  bool **std::lexicographical_compare** (_IIter1, _IIter1, _IIter2, _IIter2, _Compare)
- template<typename _IIter1 , typename _IIter2 >
  bool **std::lexicographical_compare** (_IIter1, _IIter1, _IIter2, _IIter2)
- template<typename _FIter , typename _Tp , typename _Compare >
  _FIter **std::lower_bound** (_FIter, _FIter, const _Tp &, _Compare)
- template<typename _FIter , typename _Tp >
  _FIter **std::lower_bound** (_FIter, _FIter, const _Tp &)
- template<typename _RAIter , typename _Compare >
  void **std::make_heap** (_RAIter, _RAIter, _Compare)
- template<typename _RAIter >
  void **std::make_heap** (_RAIter, _RAIter)
- template<typename _Tp , typename _Compare >
  _Tp **std::max** (initializer_list< _Tp >, _Compare)
- template<typename _Tp >
  _Tp **std::max** (initializer_list< _Tp >)
- template<typename _Tp , typename _Compare >
  const _Tp & std::max (const _Tp &__a, const _Tp &__b, _Compare __comp)
- template<typename _Tp >
  const _Tp & std::max (const _Tp &__a, const _Tp &__b)
- template<typename _FIter , typename _Compare >
  _FIter **std::max_element** (_FIter, _FIter, _Compare)
- template<typename _FIter >
  _FIter **std::max_element** (_FIter, _FIter)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Compare >
  _OIter **std::merge** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Compare)
- template<typename _IIter1 , typename _IIter2 , typename _OIter >
  _OIter **std::merge** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter)

- template<typename _Tp , typename _Compare >
  _Tp **std::min** (initializer_list< _Tp >, _Compare)
- template<typename _Tp >
  _Tp **std::min** (initializer_list< _Tp >)
- template<typename _Tp , typename _Compare >
  const _Tp & std::min (const _Tp &__a, const _Tp &__b, _Compare __comp)
- template<typename _Tp >
  const _Tp & std::min (const _Tp &__a, const _Tp &__b)
- template<typename _FIter , typename _Compare >
  _FIter **std::min_element** (_FIter, _FIter, _Compare)
- template<typename _FIter >
  _FIter **std::min_element** (_FIter, _FIter)
- template<typename _Tp , typename _Compare >
  pair< _Tp, _Tp > **std::minmax** (initializer_list< _Tp >, _Compare)
- template<typename _Tp >
  pair< _Tp, _Tp > **std::minmax** (initializer_list< _Tp >)
- template<typename _Tp , typename _Compare >
  pair< const _Tp &, const _Tp & > std::minmax (const _Tp &__a, const _Tp &__b, _Compare __comp)
- template<typename _Tp >
  pair< const _Tp &, const _Tp & > std::minmax (const _Tp &__a, const _Tp &__b)
- template<typename _FIter , typename _Compare >
  pair< _FIter, _FIter > **std::minmax_element** (_FIter, _FIter, _Compare)
- template<typename _FIter >
  pair< _FIter, _FIter > **std::minmax_element** (_FIter, _FIter)
- template<typename _IIter1 , typename _IIter2 , typename _BinaryPredicate >
  pair< _IIter1, _IIter2 > **std::mismatch** (_IIter1, _IIter1, _IIter2, _BinaryPredicate)
- template<typename _IIter1 , typename _IIter2 >
  pair< _IIter1, _IIter2 > **std::mismatch** (_IIter1, _IIter1, _IIter2)
- template<typename _BIter , typename _Compare >
  bool **std::next_permutation** (_BIter, _BIter, _Compare)
- template<typename _BIter >
  bool **std::next_permutation** (_BIter, _BIter)
- template<typename _IIter , typename _Predicate >
  bool **std::none_of** (_IIter, _IIter, _Predicate)
- template<typename _RAIter , typename _Compare >
  void **std::nth_element** (_RAIter, _RAIter, _RAIter, _Compare)
- template<typename _RAIter >
  void **std::nth_element** (_RAIter, _RAIter, _RAIter)
- template<typename _RAIter , typename _Compare >
  void **std::partial_sort** (_RAIter, _RAIter, _RAIter, _Compare)
- template<typename _RAIter >
  void **std::partial_sort** (_RAIter, _RAIter, _RAIter)

- template<typename _IIter , typename _RAIter , typename _Compare >
  _RAIter **std::partial_sort_copy** (_IIter, _IIter, _RAIter, _RAIter, _Compare)
- template<typename _IIter , typename _RAIter >
  _RAIter **std::partial_sort_copy** (_IIter, _IIter, _RAIter, _RAIter)
- template<typename _BIter , typename _Predicate >
  _BIter **std::partition** (_BIter, _BIter, _Predicate)
- template<typename _IIter , typename _OIter1 , typename _OIter2 , typename _Predicate >
  pair< _OIter1, _OIter2 > **std::partition_copy** (_IIter, _IIter, _OIter1, _OIter2, _Predicate)
- template<typename _FIter , typename _Predicate >
  _FIter **std::partition_point** (_FIter, _FIter, _Predicate)
- template<typename _RAIter , typename _Compare >
  void **std::pop_heap** (_RAIter, _RAIter, _Compare)
- template<typename _RAIter >
  void **std::pop_heap** (_RAIter, _RAIter)
- template<typename _BIter , typename _Compare >
  bool **std::prev_permutation** (_BIter, _BIter, _Compare)
- template<typename _BIter >
  bool **std::prev_permutation** (_BIter, _BIter)
- template<typename _RAIter , typename _Compare >
  void **std::push_heap** (_RAIter, _RAIter, _Compare)
- template<typename _RAIter >
  void **std::push_heap** (_RAIter, _RAIter)
- template<typename _RAIter , typename _Generator >
  void **std::random_shuffle** (_RAIter, _RAIter, _Generator &)
- template<typename _RAIter >
  void **std::random_shuffle** (_RAIter, _RAIter)
- template<typename _FIter , typename _Tp >
  _FIter **std::remove** (_FIter, _FIter, const _Tp &)
- template<typename _IIter , typename _OIter , typename _Tp >
  _OIter **std::remove_copy** (_IIter, _IIter, _OIter, const _Tp &)
- template<typename _IIter , typename _OIter , typename _Predicate >
  _OIter **std::remove_copy_if** (_IIter, _IIter, _OIter, _Predicate)
- template<typename _FIter , typename _Predicate >
  _FIter **std::remove_if** (_FIter, _FIter, _Predicate)
- template<typename _FIter , typename _Tp >
  void **std::replace** (_FIter, _FIter, const _Tp &, const _Tp &)
- template<typename _IIter , typename _OIter , typename _Tp >
  _OIter **std::replace_copy** (_IIter, _IIter, _OIter, const _Tp &, const _Tp &)
- template<typename _Iter , typename _OIter , typename _Predicate , typename _Tp >
  _OIter **std::replace_copy_if** (_Iter, _Iter, _OIter, _Predicate, const _Tp &)
- template<typename _FIter , typename _Predicate , typename _Tp >
  void **std::replace_if** (_FIter, _FIter, _Predicate, const _Tp &)

- template<typename _BIter >
  void **std::reverse** (_BIter, _BIter)
- template<typename _BIter , typename _OIter >
  _OIter **std::reverse_copy** (_BIter, _BIter, _OIter)
- template<typename _FIter >
  void **std::rotate** (_FIter, _FIter, _FIter)
- template<typename _FIter , typename _OIter >
  _OIter **std::rotate_copy** (_FIter, _FIter, _FIter, _OIter)
- template<typename _FIter1 , typename _FIter2 , typename _BinaryPredicate >
  _FIter1 **std::search** (_FIter1, _FIter1, _FIter2, _FIter2, _BinaryPredicate)
- template<typename _FIter1 , typename _FIter2 >
  _FIter1 **std::search** (_FIter1, _FIter1, _FIter2, _FIter2)
- template<typename _FIter , typename _Size , typename _Tp , typename _BinaryPredicate >
  _FIter **std::search_n** (_FIter, _FIter, _Size, const _Tp &, _BinaryPredicate)
- template<typename _FIter , typename _Size , typename _Tp >
  _FIter **std::search_n** (_FIter, _FIter, _Size, const _Tp &)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Compare >
  _OIter **std::set_difference** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Compare)
- template<typename _IIter1 , typename _IIter2 , typename _OIter >
  _OIter **std::set_difference** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Compare >
  _OIter **std::set_intersection** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Compare)
- template<typename _IIter1 , typename _IIter2 , typename _OIter >
  _OIter **std::set_intersection** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Compare >
  _OIter **std::set_symmetric_difference** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Compare)
- template<typename _IIter1 , typename _IIter2 , typename _OIter >
  _OIter **std::set_symmetric_difference** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Compare >
  _OIter **std::set_union** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Compare)
- template<typename _IIter1 , typename _IIter2 , typename _OIter >
  _OIter **std::set_union** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter)
- template<typename _RAIter , typename _Compare >
  void **std::sort** (_RAIter, _RAIter, _Compare)
- template<typename _RAIter >
  void **std::sort** (_RAIter, _RAIter)
- template<typename _RAIter , typename _Compare >
  void **std::sort_heap** (_RAIter, _RAIter, _Compare)
- template<typename _RAIter >
  void **std::sort_heap** (_RAIter, _RAIter)
- template<typename _BIter , typename _Predicate >
  _BIter **std::stable_partition** (_BIter, _BIter, _Predicate)

- template<typename _RAIter , typename _Compare >
  void **std::stable_sort** (_RAIter, _RAIter, _Compare)
- template<typename _RAIter >
  void **std::stable_sort** (_RAIter, _RAIter)
- template<typename _Tp , size_t _Nm>
  void **std::swap** (_Tp(&)[_Nm], _Tp(&)[_Nm])
- template<typename _Tp >
  void std::swap (_Tp &__a, _Tp &__b)
- template<typename _FIter1 , typename _FIter2 >
  _FIter2 **std::swap_ranges** (_FIter1, _FIter1, _FIter2)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _BinaryOperation >
  _OIter **std::transform** (_IIter1, _IIter1, _IIter2, _OIter, _BinaryOperation)
- template<typename _IIter , typename _OIter , typename _UnaryOperation >
  _OIter **std::transform** (_IIter, _IIter, _OIter, _UnaryOperation)
- template<typename _FIter , typename _BinaryPredicate >
  _FIter **std::unique** (_FIter, _FIter, _BinaryPredicate)
- template<typename _FIter >
  _FIter **std::unique** (_FIter, _FIter)
- template<typename _IIter , typename _OIter , typename _BinaryPredicate >
  _OIter **std::unique_copy** (_IIter, _IIter, _OIter, _BinaryPredicate)
- template<typename _IIter , typename _OIter >
  _OIter **std::unique_copy** (_IIter, _IIter, _OIter)
- template<typename _FIter , typename _Tp , typename _Compare >
  _FIter **std::upper_bound** (_FIter, _FIter, const _Tp &, _Compare)
- template<typename _FIter , typename _Tp >
  _FIter **std::upper_bound** (_FIter, _FIter, const _Tp &)

6.6.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file bits/algorithmfwd.h.

6.7 algorithmfwd.h File Reference

Namespaces

- namespace std
- namespace std::__parallel

Defines

- #define **_GLIBCXX_PARALLEL_ALGORITHMFWD_H**

Functions

- template<typename _RAIter , typename _BiPredicate >
  _RAIter **std::__parallel::__adjacent_find_switch** (_RAIter, _RAIter, _BiPredicate, random_access_iterator_tag)
- template<typename _FIter , typename _BiPredicate , typename _IterTag >
  _FIter **std::__parallel::__adjacent_find_switch** (_FIter, _FIter, _BiPredicate, _IterTag)
- template<typename _RAIter >
  _RAIter **std::__parallel::__adjacent_find_switch** (_RAIter __begin, _RAIter __end, random_access_iterator_tag)
- template<typename _FIter , typename _IterTag >
  _FIter **std::__parallel::__adjacent_find_switch** (_FIter, _FIter, _IterTag)
- template<typename _RAIter , typename _Predicate >
  iterator_traits< _RAIter >::difference_type **std::__parallel::__count_if_switch** (_RAIter __begin, _RAIter __end, _Predicate __pred, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_unbalanced)
- template<typename _IIter , typename _Predicate , typename _IterTag >
  iterator_traits< _IIter >::difference_type **std::__parallel::__count_if_switch** (_IIter, _IIter, _Predicate, _IterTag)
- template<typename _RAIter , typename _Tp >
  iterator_traits< _RAIter >::difference_type **std::__parallel::__count_switch** (_RAIter __begin, _RAIter __end, const _Tp &__value, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_unbalanced)
- template<typename _IIter , typename _Tp , typename _IterTag >
  iterator_traits< _IIter >::difference_type **std::__parallel::__count_switch** (_IIter, _IIter, const _Tp &, _IterTag)
- template<typename _IIter , typename _FIter , typename _BiPredicate , typename _IterTag1 , typename _IterTag2 >
  _IIter **std::__parallel::__find_first_of_switch** (_IIter, _IIter, _FIter, _FIter, _BiPredicate, _IterTag1, _IterTag2)

- template<typename _RAIter , typename _FIter , typename _BiPredicate , typename _IterTag >
  _RAIter **std::__parallel::__find_first_of_switch** (_RAIter, _RAIter, _FIter, _FIter, _BiPredicate, random_access_iterator_tag, _IterTag)
- template<typename _IIter , typename _FIter , typename _IterTag1 , typename _IterTag2 >
  _IIter **std::__parallel::__find_first_of_switch** (_IIter, _IIter, _FIter, _FIter, _IterTag1, _IterTag2)
- template<typename _RAIter , typename _Predicate >
  _RAIter **std::__parallel::__find_if_switch** (_RAIter __begin, _RAIter __end, _Predicate __pred, random_access_iterator_tag)
- template<typename _IIter , typename _Predicate , typename _IterTag >
  _IIter **std::__parallel::__find_if_switch** (_IIter, _IIter, _Predicate, _IterTag)
- template<typename _RAIter , typename _Tp >
  _RAIter **std::__parallel::__find_switch** (_RAIter __begin, _RAIter __end, const _Tp &__val, random_access_iterator_tag)
- template<typename _IIter , typename _Tp , typename _IterTag >
  _IIter **std::__parallel::__find_switch** (_IIter, _IIter, const _Tp &, _IterTag)
- template<typename _RAIter , typename _Function >
  _Function **std::__parallel::__for_each_switch** (_RAIter __begin, _RAIter __end, _Function __f, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_balanced)
- template<typename _IIter , typename _Function , typename _IterTag >
  _Function **std::__parallel::__for_each_switch** (_IIter, _IIter, _Function, _IterTag)
- template<typename _RAIter , typename _Size , typename _Generator >
  _RAIter **std::__parallel::__generate_n_switch** (_RAIter __begin, _Size __n, _Generator __gen, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_balanced)
- template<typename _OIter , typename _Size , typename _Generator , typename _IterTag >
  _OIter **std::__parallel::__generate_n_switch** (_OIter, _Size, _Generator, _IterTag)
- template<typename _RAIter , typename _Generator >
  void **std::__parallel::__generate_switch** (_RAIter __begin, _RAIter __end, _Generator __gen, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_balanced)
- template<typename _FIter , typename _Generator , typename _IterTag >
  void **std::__parallel::__generate_switch** (_FIter, _FIter, _Generator, _IterTag)
- template<typename _RAIter1 , typename _RAIter2 , typename _Predicate >
  bool **std::__parallel::__lexicographical_compare_switch** (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _RAIter2 __end2, _Predicate __pred, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate , typename _IterTag1 , typename _IterTag2 >
  bool **std::__parallel::__lexicographical_compare_switch** (_IIter1, _IIter1, _IIter2, _IIter2, _Predicate, _IterTag1, _IterTag2)

- template<typename _RAIter , typename _Compare >
  _RAIter **std::__parallel::__max_element_switch** (_RAIter __begin, _RAIter __end, _Compare __comp, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_balanced)
- template<typename _FIter , typename _Compare , typename _IterTag >
  _FIter **std::__parallel::__max_element_switch** (_FIter, _FIter, _Compare, _IterTag)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Compare >
  _OIter **std::__parallel::__merge_switch** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Compare, random_access_iterator_tag, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Compare , typename _IterTag1 , typename _IterTag2 , typename _IterTag3 >
  _OIter **std::__parallel::__merge_switch** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Compare, _IterTag1, _IterTag2, _IterTag3)
- template<typename _RAIter , typename _Compare >
  _RAIter **std::__parallel::__min_element_switch** (_RAIter __begin, _RAIter __end, _Compare __comp, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_balanced)
- template<typename _FIter , typename _Compare , typename _IterTag >
  _FIter **std::__parallel::__min_element_switch** (_FIter, _FIter, _Compare, _IterTag)
- template<typename _RAIter1 , typename _RAIter2 , typename _Predicate >
  pair< _RAIter1, _RAIter2 > **std::__parallel::__mismatch_switch** (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _Predicate __pred, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate , typename _IterTag1 , typename _IterTag2 >
  pair< _IIter1, _IIter2 > **std::__parallel::__mismatch_switch** (_IIter1, _IIter1, _IIter2, _Predicate, _IterTag1, _IterTag2)
- template<typename _RAIter , typename _Predicate >
  _RAIter **std::__parallel::__partition_switch** (_RAIter __begin, _RAIter __end, _Predicate __pred, random_access_iterator_tag)
- template<typename _FIter , typename _Predicate , typename _IterTag >
  _FIter **std::__parallel::__partition_switch** (_FIter, _FIter, _Predicate, _IterTag)
- template<typename _RAIter , typename _Predicate , typename _Tp >
  void **std::__parallel::__replace_if_switch** (_RAIter __begin, _RAIter __end, _Predicate __pred, const _Tp &__new_value, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_balanced)
- template<typename _FIter , typename _Predicate , typename _Tp , typename _IterTag >
  void **std::__parallel::__replace_if_switch** (_FIter, _FIter, _Predicate, const _Tp &, _IterTag)

- template<typename _RAIter , typename _Tp >
  void **std::__parallel::__replace_switch** (_RAIter __begin, _RAIter __end, const _Tp &__old_value, const _Tp &__new_value, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_balanced)
- template<typename _FIter , typename _Tp , typename _IterTag >
  void **std::__parallel::__replace_switch** (_FIter, _FIter, const _Tp &, const _Tp &, _IterTag)
- template<typename _FIter , typename _Integer , typename _Tp , typename _BiPredicate , typename _IterTag >
  _FIter **std::__parallel::__search_n_switch** (_FIter, _FIter, _Integer, const _Tp &, _BiPredicate, _IterTag)
- template<typename _RAIter , typename _Integer , typename _Tp , typename _BiPredicate >
  _RAIter **std::__parallel::__search_n_switch** (_RAIter, _RAIter, _Integer, const _Tp &, _BiPredicate, random_access_iterator_tag)
- template<typename _FIter1 , typename _FIter2 , typename _BiPredicate , typename _IterTag1 , typename _IterTag2 >
  _FIter1 **std::__parallel::__search_switch** (_FIter1, _FIter1, _FIter2, _FIter2, _BiPredicate, _IterTag1, _IterTag2)
- template<typename _RAIter1 , typename _RAIter2 , typename _BiPredicate >
  _RAIter1 **std::__parallel::__search_switch** (_RAIter1, _RAIter1, _RAIter2, _RAIter2, _BiPredicate, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _FIter1 , typename _FIter2 , typename _IterTag1 , typename _IterTag2 >
  _FIter1 **std::__parallel::__search_switch** (_FIter1, _FIter1, _FIter2, _FIter2, _IterTag1, _IterTag2)
- template<typename _RAIter1 , typename _RAIter2 >
  _RAIter1 **std::__parallel::__search_switch** (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _RAIter2 __end2, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _RAIter1 , typename _RAIter2 , typename _Output_RAIter , typename _Predicate >
  _Output_RAIter **std::__parallel::__set_difference_switch** (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _RAIter2 __end2, _Output_RAIter __result, _Predicate __pred, random_access_iterator_tag, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate , typename _OIter , typename _IterTag1 , typename _IterTag2 , typename _IterTag3 >
  _OIter **std::__parallel::__set_difference_switch** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Predicate, _IterTag1, _IterTag2, _IterTag3)
- template<typename _RAIter1 , typename _RAIter2 , typename _Output_RAIter , typename _Predicate >
  _Output_RAIter **std::__parallel::__set_intersection_switch** (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _RAIter2 __end2, _Output_RAIter __result, _Predicate __pred, random_access_iterator_tag, random_access_iterator_tag, random_access_iterator_tag)

- template<typename _IIter1 , typename _IIter2 , typename _Predicate , typename _OIter , typename _IterTag1 , typename _IterTag2 , typename _IterTag3 >
  _OIter **std::__parallel::__set_intersection_switch** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Predicate, _IterTag1, _IterTag2, _IterTag3)
- template<typename _RAIter1 , typename _RAIter2 , typename _Output_RAIter , typename _Predicate >
  _Output_RAIter **std::__parallel::__set_symmetric_difference_switch** (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _RAIter2 __end2, _Output_RAIter __result, _Predicate __pred, random_access_iterator_tag, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate , typename _OIter , typename _IterTag1 , typename _IterTag2 , typename _IterTag3 >
  _OIter **std::__parallel::__set_symmetric_difference_switch** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Predicate, _IterTag1, _IterTag2, _IterTag3)
- template<typename _RAIter1 , typename _RAIter2 , typename _Output_RAIter , typename _Predicate >
  _Output_RAIter **std::__parallel::__set_union_switch** (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _RAIter2 __end2, _Output_RAIter __result, _Predicate __pred, random_access_iterator_tag, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate , typename _OIter , typename _IterTag1 , typename _IterTag2 , typename _IterTag3 >
  _OIter **std::__parallel::__set_union_switch** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Predicate, _IterTag1, _IterTag2, _IterTag3)
- template<typename _RAIIter , typename _RAOIter , typename _UnaryOperation >
  _RAOIter **std::__parallel::__transform1_switch** (_RAIIter, _RAIIter, _RAOIter, _UnaryOperation, random_access_iterator_tag, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism=__gnu_parallel::parallel_balanced)
- template<typename _IIter , typename _OIter , typename _UnaryOperation , typename _IterTag1 , typename _IterTag2 >
  _OIter **std::__parallel::__transform1_switch** (_IIter, _IIter, _OIter, _UnaryOperation, _IterTag1, _IterTag2)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _BiOperation , typename _Tag1 , typename _Tag2 , typename _Tag3 >
  _OIter **std::__parallel::__transform2_switch** (_IIter1, _IIter1, _IIter2, _OIter, _BiOperation, _Tag1, _Tag2, _Tag3)
- template<typename _RAIter1 , typename _RAIter2 , typename _RAIter3 , typename _BiOperation >
  _RAIter3 **std::__parallel::__transform2_switch** (_RAIter1, _RAIter1, _RAIter2, _RAIter3, _BiOperation, random_access_iterator_tag, random_access_iterator_tag, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism=__gnu_parallel::parallel_balanced)
- template<typename _RAIter , typename _RandomAccess_OIter , typename _Predicate >
  _RandomAccess_OIter **std::__parallel::__unique_copy_switch** (_RAIter,

_RAIter, _RandomAccess_OIter, _Predicate, random_access_iterator_tag, random_access_iterator_tag)

- template<typename _IIter , typename _OIter , typename _Predicate , typename _IterTag1 , typename _IterTag2 >
  _OIter **std::__parallel::__unique_copy_switch** (_IIter, _IIter, _OIter, _Predicate, _IterTag1, _IterTag2)
- template<typename _FIter , typename _BiPredicate >
  _FIter **std::__parallel::adjacent_find** (_FIter, _FIter, _BiPredicate, __gnu_parallel::sequential_tag)
- template<typename _FIter , typename _BiPredicate >
  _FIter **std::__parallel::adjacent_find** (_FIter, _FIter, _BiPredicate)
- template<typename _FIter >
  _FIter **std::__parallel::adjacent_find** (_FIter, _FIter, __gnu_parallel::sequential_tag)
- template<typename _FIter >
  _FIter **std::__parallel::adjacent_find** (_FIter, _FIter)
- template<typename _IIter , typename _Tp >
  iterator_traits< _IIter >::difference_type **std::__parallel::count** (_IIter __begin, _IIter __end, const _Tp &__value, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _IIter , typename _Tp >
  iterator_traits< _IIter >::difference_type **std::__parallel::count** (_IIter __begin, _IIter __end, const _Tp &__value, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _Tp >
  iterator_traits< _IIter >::difference_type **std::__parallel::count** (_IIter __begin, _IIter __end, const _Tp &__value)
- template<typename _IIter , typename _Predicate >
  iterator_traits< _IIter >::difference_type **std::__parallel::count_if** (_IIter __begin, _IIter __end, _Predicate __pred, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _IIter , typename _Predicate >
  iterator_traits< _IIter >::difference_type **std::__parallel::count_if** (_IIter __begin, _IIter __end, _Predicate __pred, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _Predicate >
  iterator_traits< _IIter >::difference_type **std::__parallel::count_if** (_IIter __begin, _IIter __end, _Predicate __pred)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate >
  bool **std::__parallel::equal** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _Predicate __pred)
- template<typename _IIter1 , typename _IIter2 >
  bool **std::__parallel::equal** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate >
  bool **std::__parallel::equal** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _Predicate __pred, __gnu_parallel::sequential_tag)

- template<typename _IIter1 , typename _IIter2 >
  bool **std::__parallel::equal** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _Tp >
  _IIter **std::__parallel::find** (_IIter __begin, _IIter __end, const _Tp &__val)
- template<typename _IIter , typename _Tp >
  _IIter **std::__parallel::find** (_IIter __begin, _IIter __end, const _Tp &__val, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _FIter >
  _IIter **std::__parallel::find_first_of** (_IIter, _IIter, _FIter, _FIter)
- template<typename _IIter , typename _FIter , typename _BiPredicate >
  _IIter **std::__parallel::find_first_of** (_IIter, _IIter, _FIter, _FIter, _BiPredicate)
- template<typename _IIter , typename _FIter , typename _BiPredicate >
  _IIter **std::__parallel::find_first_of** (_IIter, _IIter, _FIter, _FIter, _BiPredicate, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _FIter >
  _IIter **std::__parallel::find_first_of** (_IIter, _IIter, _FIter, _FIter, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _Predicate >
  _IIter **std::__parallel::find_if** (_IIter __begin, _IIter __end, _Predicate __pred)
- template<typename _IIter , typename _Predicate >
  _IIter **std::__parallel::find_if** (_IIter __begin, _IIter __end, _Predicate __pred, __gnu_parallel::sequential_tag)
- template<typename _Iterator , typename _Function >
  _Function **std::__parallel::for_each** (_Iterator __begin, _Iterator __end, _Function __f, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _IIter , typename _Function >
  _Function **std::__parallel::for_each** (_IIter __begin, _IIter __end, _Function __f, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _Function >
  _Function **std::__parallel::for_each** (_IIter, _IIter, _Function)
- template<typename _FIter , typename _Generator >
  void **std::__parallel::generate** (_FIter, _FIter, _Generator, __gnu_parallel::_Parallelism)
- template<typename _FIter , typename _Generator >
  void **std::__parallel::generate** (_FIter, _FIter, _Generator, __gnu_parallel::sequential_tag)
- template<typename _FIter , typename _Generator >
  void **std::__parallel::generate** (_FIter, _FIter, _Generator)
- template<typename _OIter , typename _Size , typename _Generator >
  _OIter **std::__parallel::generate_n** (_OIter, _Size, _Generator, __gnu_parallel::_Parallelism)
- template<typename _OIter , typename _Size , typename _Generator >
  _OIter **std::__parallel::generate_n** (_OIter, _Size, _Generator, __gnu_parallel::sequential_tag)

- template<typename _OIter , typename _Size , typename _Generator >
  _OIter **std::__parallel::generate_n** (_OIter, _Size, _Generator)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate >
  bool **std::__parallel::lexicographical_compare** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _Predicate __pred)
- template<typename _IIter1 , typename _IIter2 >
  bool **std::__parallel::lexicographical_compare** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate >
  bool **std::__parallel::lexicographical_compare** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, _Predicate __pred, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 >
  bool **std::__parallel::lexicographical_compare** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _IIter2 __end2, __gnu_parallel::sequential_tag)
- template<typename _FIter , typename _Compare >
  _FIter **std::__parallel::max_element** (_FIter, _FIter, _Compare, __gnu_parallel::_Parallelism)
- template<typename _FIter , typename _Compare >
  _FIter **std::__parallel::max_element** (_FIter, _FIter, _Compare, __gnu_parallel::sequential_tag)
- template<typename _FIter , typename _Compare >
  _FIter **std::__parallel::max_element** (_FIter, _FIter, _Compare)
- template<typename _FIter >
  _FIter **std::__parallel::max_element** (_FIter, _FIter, __gnu_parallel::_Parallelism)
- template<typename _FIter >
  _FIter **std::__parallel::max_element** (_FIter, _FIter, __gnu_parallel::sequential_tag)
- template<typename _FIter >
  _FIter **std::__parallel::max_element** (_FIter, _FIter)
- template<typename _IIter1 , typename _IIter2 , typename _OIter >
  _OIter **std::__parallel::merge** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Compare >
  _OIter **std::__parallel::merge** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Compare)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Compare >
  _OIter **std::__parallel::merge** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Compare, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OIter >
  _OIter **std::__parallel::merge** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, __gnu_parallel::sequential_tag)
- template<typename _FIter , typename _Compare >
  _FIter **std::__parallel::min_element** (_FIter, _FIter, _Compare, __gnu_parallel::_Parallelism)

- template<typename _FIter , typename _Compare >
  _FIter **std::__parallel::min_element** (_FIter, _FIter, _Compare, __gnu_parallel::sequential_tag)
- template<typename _FIter , typename _Compare >
  _FIter **std::__parallel::min_element** (_FIter, _FIter, _Compare)
- template<typename _FIter >
  _FIter **std::__parallel::min_element** (_FIter, _FIter, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _FIter >
  _FIter **std::__parallel::min_element** (_FIter, _FIter, __gnu_parallel::sequential_tag)
- template<typename _FIter >
  _FIter **std::__parallel::min_element** (_FIter, _FIter)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate >
  pair< _IIter1, _IIter2 > **std::__parallel::mismatch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _Predicate __pred)
- template<typename _IIter1 , typename _IIter2 >
  pair< _IIter1, _IIter2 > **std::__parallel::mismatch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2)
- template<typename _IIter1 , typename _IIter2 , typename _Predicate >
  pair< _IIter1, _IIter2 > **std::__parallel::mismatch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, _Predicate __pred, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 >
  pair< _IIter1, _IIter2 > **std::__parallel::mismatch** (_IIter1 __begin1, _IIter1 __end1, _IIter2 __begin2, __gnu_parallel::sequential_tag)
- template<typename _RAIter >
  void **std::__parallel::nth_element** (_RAIter __begin, _RAIter __nth, _RAIter __end)
- template<typename _RAIter , typename _Compare >
  void **std::__parallel::nth_element** (_RAIter __begin, _RAIter __nth, _RAIter __end, _Compare __comp)
- template<typename _RAIter , typename _Compare >
  void **std::__parallel::nth_element** (_RAIter __begin, _RAIter __nth, _RAIter __end, _Compare __comp, __gnu_parallel::sequential_tag)
- template<typename _RAIter >
  void **std::__parallel::nth_element** (_RAIter __begin, _RAIter __nth, _RAIter __end, __gnu_parallel::sequential_tag)
- template<typename _RAIter >
  void **std::__parallel::partial_sort** (_RAIter __begin, _RAIter __middle, _RAIter __end)
- template<typename _RAIter , typename _Compare >
  void **std::__parallel::partial_sort** (_RAIter __begin, _RAIter __middle, _RAIter __end, _Compare __comp)

- template<typename _RAIter >
  void **std::__parallel::partial_sort** (_RAIter __begin, _RAIter __middle, _RAIter __end, __gnu_parallel::sequential_tag)
- template<typename _RAIter , typename _Compare >
  void **std::__parallel::partial_sort** (_RAIter __begin, _RAIter __middle, _RAIter __end, _Compare __comp, __gnu_parallel::sequential_tag)
- template<typename _FIter , typename _Predicate >
  _FIter **std::__parallel::partition** (_FIter, _FIter, _Predicate)
- template<typename _FIter , typename _Predicate >
  _FIter **std::__parallel::partition** (_FIter, _FIter, _Predicate, __gnu_parallel::sequential_tag)
- template<typename _RAIter , typename _RandomNumberGenerator >
  void **std::__parallel::random_shuffle** (_RAIter __begin, _RAIter __end, _RandomNumberGenerator &__rand)
- template<typename _RAIter >
  void **std::__parallel::random_shuffle** (_RAIter __begin, _RAIter __end)
- template<typename _RAIter , typename _RandomNumberGenerator >
  void **std::__parallel::random_shuffle** (_RAIter __begin, _RAIter __end, _RandomNumberGenerator &__rand, __gnu_parallel::sequential_tag)
- template<typename _RAIter >
  void **std::__parallel::random_shuffle** (_RAIter __begin, _RAIter __end, __gnu_parallel::sequential_tag)
- template<typename _FIter , typename _Tp >
  void **std::__parallel::replace** (_FIter, _FIter, const _Tp &, const _Tp &, __gnu_parallel::_Parallelism)
- template<typename _FIter , typename _Tp >
  void **std::__parallel::replace** (_FIter, _FIter, const _Tp &, const _Tp &, __gnu_parallel::sequential_tag)
- template<typename _FIter , typename _Tp >
  void **std::__parallel::replace** (_FIter, _FIter, const _Tp &, const _Tp &)
- template<typename _FIter , typename _Predicate , typename _Tp >
  void **std::__parallel::replace_if** (_FIter, _FIter, _Predicate, const _Tp &, __gnu_parallel::_Parallelism)
- template<typename _FIter , typename _Predicate , typename _Tp >
  void **std::__parallel::replace_if** (_FIter, _FIter, _Predicate, const _Tp &, __gnu_parallel::sequential_tag)
- template<typename _FIter , typename _Predicate , typename _Tp >
  void **std::__parallel::replace_if** (_FIter, _FIter, _Predicate, const _Tp &)
- template<typename _FIter1 , typename _FIter2 , typename _BiPredicate >
  _FIter1 **std::__parallel::search** (_FIter1, _FIter1, _FIter2, _FIter2, _BiPredicate)
- template<typename _FIter1 , typename _FIter2 , typename _BiPredicate >
  _FIter1 **std::__parallel::search** (_FIter1, _FIter1, _FIter2, _FIter2, _BiPredicate, __gnu_parallel::sequential_tag)

- template<typename _FIter1 , typename _FIter2 >
  _FIter1 **std::__parallel::search** (_FIter1, _FIter1, _FIter2, _FIter2)
- template<typename _FIter1 , typename _FIter2 >
  _FIter1 **std::__parallel::search** (_FIter1, _FIter1, _FIter2, _FIter2, __gnu_parallel::sequential_tag)
- template<typename _FIter , typename _Integer , typename _Tp , typename _BiPredicate >
  _FIter **std::__parallel::search_n** (_FIter, _FIter, _Integer, const _Tp &, _BiPredicate)
- template<typename _FIter , typename _Integer , typename _Tp >
  _FIter **std::__parallel::search_n** (_FIter, _FIter, _Integer, const _Tp &)
- template<typename _FIter , typename _Integer , typename _Tp , typename _BiPredicate >
  _FIter **std::__parallel::search_n** (_FIter, _FIter, _Integer, const _Tp &, _BiPredicate, __gnu_parallel::sequential_tag)
- template<typename _FIter , typename _Integer , typename _Tp >
  _FIter **std::__parallel::search_n** (_FIter, _FIter, _Integer, const _Tp &, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Predicate >
  _OIter **std::__parallel::set_difference** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Predicate)
- template<typename _IIter1 , typename _IIter2 , typename _OIter >
  _OIter **std::__parallel::set_difference** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Predicate >
  _OIter **std::__parallel::set_difference** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Predicate, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OIter >
  _OIter **std::__parallel::set_difference** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Predicate >
  _OIter **std::__parallel::set_intersection** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Predicate)
- template<typename _IIter1 , typename _IIter2 , typename _OIter >
  _OIter **std::__parallel::set_intersection** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Predicate >
  _OIter **std::__parallel::set_intersection** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Predicate, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OIter >
  _OIter **std::__parallel::set_intersection** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Predicate >
  _OIter **std::__parallel::set_symmetric_difference** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _Predicate)

- template<typename _IIter1 , typename _IIter2 , typename _OIter >
  _OIter **std::__parallel::set_symmetric_difference** (_IIter1, _IIter1, _IIter2, _-IIter2, _OIter)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Predicate >
  _OIter **std::__parallel::set_symmetric_difference** (_IIter1, _IIter1, _IIter2, _-IIter2, _OIter, _Predicate, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OIter >
  _OIter **std::__parallel::set_symmetric_difference** (_IIter1, _IIter1, _IIter2, _-IIter2, _OIter, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Predicate >
  _OIter **std::__parallel::set_union** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _-Predicate)
- template<typename _IIter1 , typename _IIter2 , typename _OIter >
  _OIter **std::__parallel::set_union** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _Predicate >
  _OIter **std::__parallel::set_union** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, _-Predicate, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OIter >
  _OIter **std::__parallel::set_union** (_IIter1, _IIter1, _IIter2, _IIter2, _OIter, __-gnu_parallel::sequential_tag)
- template<typename _RAIter , typename _Compare >
  void **std::__parallel::sort** (_RAIter __begin, _RAIter __end, _Compare __-comp)
- template<typename _RAIter >
  void **std::__parallel::sort** (_RAIter __begin, _RAIter __end)
- template<typename _RAIter , typename _Compare >
  void **std::__parallel::sort** (_RAIter __begin, _RAIter __end, _Compare __-comp, __gnu_parallel::sequential_tag)
- template<typename _RAIter >
  void **std::__parallel::sort** (_RAIter __begin, _RAIter __end, __gnu_-parallel::sequential_tag)
- template<typename _RAIter , typename _Compare >
  void **std::__parallel::stable_sort** (_RAIter __begin, _RAIter __end, _Compare __comp)
- template<typename _RAIter >
  void **std::__parallel::stable_sort** (_RAIter __begin, _RAIter __end)
- template<typename _RAIter , typename _Compare >
  void **std::__parallel::stable_sort** (_RAIter __begin, _RAIter __end, _Compare __comp, __gnu_parallel::sequential_tag)
- template<typename _RAIter >
  void **std::__parallel::stable_sort** (_RAIter __begin, _RAIter __end, __gnu_-parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _BiOperation >
  _OIter **std::__parallel::transform** (_IIter1, _IIter1, _IIter2, _OIter, _-BiOperation, __gnu_parallel::_Parallelism)

- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _BiOperation > _OIter **std::__parallel::transform** (_IIter1, _IIter1, _IIter2, _OIter, _BiOperation, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _OIter , typename _BiOperation > _OIter **std::__parallel::transform** (_IIter1, _IIter1, _IIter2, _OIter, _BiOperation)
- template<typename _IIter , typename _OIter , typename _UnaryOperation > _OIter **std::__parallel::transform** (_IIter, _IIter, _OIter, _UnaryOperation, __gnu_parallel::_Parallelism)
- template<typename _IIter , typename _OIter , typename _UnaryOperation > _OIter **std::__parallel::transform** (_IIter, _IIter, _OIter, _UnaryOperation, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _OIter , typename _UnaryOperation > _OIter **std::__parallel::transform** (_IIter, _IIter, _OIter, _UnaryOperation)
- template<typename _IIter , typename _OIter , typename _Predicate > _OIter **std::__parallel::unique_copy** (_IIter, _IIter, _OIter, _Predicate)
- template<typename _IIter , typename _OIter > _OIter **std::__parallel::unique_copy** (_IIter, _IIter, _OIter)
- template<typename _IIter , typename _OIter , typename _Predicate > _OIter **std::__parallel::unique_copy** (_IIter, _IIter, _OIter, _Predicate, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _OIter > _OIter **std::__parallel::unique_copy** (_IIter, _IIter, _OIter, __gnu_parallel::sequential_tag)

6.7.1 Detailed Description

This file is a GNU parallel extension to the Standard C++ Library.

Definition in file parallel/algorithmfwd.h.

6.8 allocator.h File Reference

Classes

- class std::allocator< _Tp >

  The standard allocator, as per [20.4].
  Further details: http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt04ch11.html.

- class std::allocator< void >

  allocator<void> specialization.

Namespaces

- namespace std

Defines

- #define **_ALLOCATOR_H**

Functions

- template<typename _Tp >
  bool **std::operator!=** (const allocator< _Tp > &, const allocator< _Tp > &)
- template<typename _T1 , typename _T2 >
  bool **std::operator!=** (const allocator< _T1 > &, const allocator< _T2 > &)
- template<typename _Tp >
  bool **std::operator==** (const allocator< _Tp > &, const allocator< _Tp > &)
- template<typename _T1 , typename _T2 >
  bool **std::operator==** (const allocator< _T1 > &, const allocator< _T2 > &)

6.8.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file allocator.h.

6.9 array File Reference

Defines

- #define **_GLIBCXX_ARRAY**

6.9.1 Detailed Description

This is a Standard C++ Library header.

Definition in file array.

6.10 array File Reference

Classes

- struct std::array< _Tp, _Nm >
  A standard container for storing a fixed size sequence of elements.

Namespaces

- namespace std

Functions

- template<std::size_t _Int, typename _Tp , std::size_t _Nm>
  const _Tp & **std::get** (const array< _Tp, _Nm > &__arr)
- template<std::size_t _Int, typename _Tp , std::size_t _Nm>
  _Tp & **std::get** (array< _Tp, _Nm > &__arr)
- template<typename _Tp , std::size_t _Nm>
  bool **std::operator!=** (const array< _Tp, _Nm > &__one, const array< _Tp, _Nm > &__two)
- template<typename _Tp , std::size_t _Nm>
  bool **std::operator**< (const array< _Tp, _Nm > &__a, const array< _Tp, _Nm > &__b)
- template<typename _Tp , std::size_t _Nm>
  bool **std::operator**<= (const array< _Tp, _Nm > &__one, const array< _Tp, _Nm > &__two)
- template<typename _Tp , std::size_t _Nm>
  bool **std::operator==** (const array< _Tp, _Nm > &__one, const array< _Tp, _Nm > &__two)
- template<typename _Tp , std::size_t _Nm>
  bool **std::operator**> (const array< _Tp, _Nm > &__one, const array< _Tp, _Nm > &__two)
- template<typename _Tp , std::size_t _Nm>
  bool **std::operator**>= (const array< _Tp, _Nm > &__one, const array< _Tp, _Nm > &__two)
- template<typename _Tp , std::size_t _Nm>
  void **std::swap** (array< _Tp, _Nm > &__one, array< _Tp, _Nm > &__two)

6.10.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file tr1_impl/array.

6.11 array_allocator.h File Reference

Classes

- class __gnu_cxx::array_allocator< _Tp, _Array >

  An allocator that uses previously allocated memory. This memory can be externally, globally, or otherwise allocated.

- class __gnu_cxx::array_allocator_base< _Tp >

  Base class.

Namespaces

- namespace __gnu_cxx

Defines

- #define **_ARRAY_ALLOCATOR_H**

Functions

- template<typename _Tp , typename _Array >
  bool **__gnu_cxx::operator!=** (const array_allocator< _Tp, _Array > &, const array_allocator< _Tp, _Array > &)
- template<typename _Tp , typename _Array >
  bool **__gnu_cxx::operator==** (const array_allocator< _Tp, _Array > &, const array_allocator< _Tp, _Array > &)

6.11.1 Detailed Description

This file is a GNU extension to the Standard C++ Library.

Definition in file array_allocator.h.

6.12 assoc_container.hpp File Reference

Classes

- class __gnu_pbds::basic_hash_table< Key, Mapped, Hash_Fn, Eq_Fn, Resize_Policy, Store_Hash, Tag, Policy_TL, Allocator >

  An abstract basic hash-based associative container.

- class __gnu_pbds::basic_tree< Key, Mapped, Tag, Node_Update, Policy_Tl, Allocator >

  An abstract basic tree-like (tree, trie) associative container.

- class __gnu_pbds::cc_hash_table< Key, Mapped, Hash_Fn, Eq_Fn, Comb_Hash_Fn, Resize_Policy, Store_Hash, Allocator >

  A concrete collision-chaining hash-based associative container.

- class __gnu_pbds::container_base< Key, Mapped, Tag, Policy_Tl, Allocator >

  An abstract basic associative container.

- class __gnu_pbds::gp_hash_table< Key, Mapped, Hash_Fn, Eq_Fn, Comb_Probe_Fn, Probe_Fn, Resize_Policy, Store_Hash, Allocator >

  A concrete general-probing hash-based associative container.

- class __gnu_pbds::list_update< Key, Mapped, Eq_Fn, Update_Policy, Allocator >

  A list-update based associative container.

- class __gnu_pbds::tree< Key, Mapped, Cmp_Fn, Tag, Node_Update, Allocator >

  A concrete basic tree-based associative container.

- class __gnu_pbds::trie< Key, Mapped, E_Access_Traits, Tag, Node_Update, Allocator >

  A concrete basic trie-based associative container.

Namespaces

- namespace __gnu_pbds

Defines

- #define **PB_DS_BASE_C_DEC**
- #define **PB_DS_BASE_C_DEC**
- #define **PB_DS_BASE_C_DEC**
- #define **PB_DS_BASE_C_DEC**
- #define **PB_DS_BASE_C_DEC**
- #define **PB_DS_BASE_C_DEC**
- #define **PB_DS_BASE_C_DEC**
- #define **PB_DS_BASE_C_DEC**
- #define **PB_DS_CLASS_NAME**
- #define **PB_DS_CLASS_NAME**
- #define **PB_DS_CLASS_NAME**
- #define **PB_DS_TREE_NODE_AND_IT_TRAITS_C_DEC**
- #define **PB_DS_TRIE_NODE_AND_ITS_TRAITS**

6.12.1 Detailed Description

Contains associative containers.

Definition in file assoc_container.hpp.

6.13 atomic File Reference

Classes

- struct std::atomic< _Tp >

  atomic 29.4.3, Generic *atomic* type, primary class template.

- struct std::atomic< _Tp * >

  Partial specialization for pointer types.

- struct std::atomic< bool >

  Explicit specialization for bool.

- struct std::atomic< char >

  Explicit specialization for char.

- struct std::atomic< char16_t >

  Explicit specialization for char16_t.

- struct std::atomic< char32_t >

  Explicit specialization for char32_t.

- struct std::atomic< int >

  Explicit specialization for int.

- struct std::atomic< long >

  Explicit specialization for long.

- struct std::atomic< long long >

  Explicit specialization for long long.

- struct std::atomic< short >

  Explicit specialization for short.

- struct std::atomic< signed char >

  Explicit specialization for signed char.

- struct std::atomic< unsigned char >

  Explicit specialization for unsigned char.

- struct std::atomic< unsigned int >

  Explicit specialization for unsigned int.

- struct std::atomic< unsigned long >
  Explicit specialization for unsigned long.
- struct std::atomic< unsigned long long >
  Explicit specialization for unsigned long long.
- struct std::atomic< unsigned short >
  Explicit specialization for unsigned short.
- struct std::atomic< void * >
  Explicit specialization for void.*
- struct std::atomic< wchar_t >
  Explicit specialization for wchar_t.

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_ATOMIC**

Functions

- memory_order **std::__calculate_memory_order** (memory_order __m)
- template<typename _ITp >
  bool **std::atomic_compare_exchange_strong** (__atomic_base< _ITp > *__a, _ITp *__i1, _ITp __i2)
- bool **std::atomic_compare_exchange_strong** (atomic_bool *__a, bool *__i1, bool __i2)
- bool **std::atomic_compare_exchange_strong** (atomic_address *__a, void **_-_v1, void *__v2)
- template<typename _ITp >
  bool **std::atomic_compare_exchange_strong_explicit** (__atomic_base< _ITp > *__a, _ITp *__i1, _ITp __i2, memory_order __m1, memory_order __m2)
- bool **std::atomic_compare_exchange_strong_explicit** (atomic_bool *__a, bool *__i1, bool __i2, memory_order __m1, memory_order __m2)
- bool **std::atomic_compare_exchange_strong_explicit** (atomic_address *__a, void **__v1, void *__v2, memory_order __m1, memory_order __m2)

- template<typename _ITp >
  bool **std::atomic_compare_exchange_weak** (__atomic_base< _ITp > *__a, _ITp *__i1, _ITp __i2)
- bool **std::atomic_compare_exchange_weak** (atomic_bool *__a, bool *__i1, bool __i2)
- bool **std::atomic_compare_exchange_weak** (atomic_address *__a, void **__v1, void *__v2)
- template<typename _ITp >
  bool **std::atomic_compare_exchange_weak_explicit** (__atomic_base< _ITp > *__a, _ITp *__i1, _ITp __i2, memory_order __m1, memory_order __m2)
- bool **std::atomic_compare_exchange_weak_explicit** (atomic_bool *__a, bool *__i1, bool __i2, memory_order __m1, memory_order __m2)
- bool **std::atomic_compare_exchange_weak_explicit** (atomic_address *__a, void **__v1, void *__v2, memory_order __m1, memory_order __m2)
- template<typename _ITp >
  _ITp **std::atomic_exchange** (__atomic_base< _ITp > *__a, _ITp __i)
- bool **std::atomic_exchange** (atomic_bool *__a, bool __i)
- void * **std::atomic_exchange** (atomic_address *__a, void *__v)
- template<typename _ITp >
  _ITp **std::atomic_exchange_explicit** (__atomic_base< _ITp > *__a, _ITp __i, memory_order __m)
- bool **std::atomic_exchange_explicit** (atomic_bool *__a, bool __i, memory_order __m)
- void * **std::atomic_exchange_explicit** (atomic_address *__a, void *__v, memory_order __m)
- template<typename _ITp >
  _ITp **std::atomic_fetch_add** (__atomic_base< _ITp > *__a, _ITp __i)
- void * **std::atomic_fetch_add** (atomic_address *__a, ptrdiff_t __d)
- template<typename _ITp >
  _ITp **std::atomic_fetch_add_explicit** (__atomic_base< _ITp > *__a, _ITp __i, memory_order __m)
- void * **std::atomic_fetch_add_explicit** (atomic_address *__a, ptrdiff_t __d, memory_order __m)
- template<typename _ITp >
  _ITp **std::atomic_fetch_and** (__atomic_base< _ITp > *__a, _ITp __i)
- template<typename _ITp >
  _ITp **std::atomic_fetch_and_explicit** (__atomic_base< _ITp > *__a, _ITp __i, memory_order __m)
- template<typename _ITp >
  _ITp **std::atomic_fetch_or** (__atomic_base< _ITp > *__a, _ITp __i)
- template<typename _ITp >
  _ITp **std::atomic_fetch_or_explicit** (__atomic_base< _ITp > *__a, _ITp __i, memory_order __m)

- template<typename _ITp >
  _ITp **std::atomic_fetch_sub** (__atomic_base< _ITp > *__a, _ITp __i)
- void * **std::atomic_fetch_sub** (atomic_address *__a, ptrdiff_t __d)
- template<typename _ITp >
  _ITp **std::atomic_fetch_sub_explicit** (__atomic_base< _ITp > *__a, _ITp __i, memory_order __m)
- void * **std::atomic_fetch_sub_explicit** (atomic_address *__a, ptrdiff_t __d, memory_order __m)
- template<typename _ITp >
  _ITp **std::atomic_fetch_xor** (__atomic_base< _ITp > *__a, _ITp __i)
- template<typename _ITp >
  _ITp **std::atomic_fetch_xor_explicit** (__atomic_base< _ITp > *__a, _ITp __i, memory_order __m)
- void **std::atomic_flag_clear_explicit** (atomic_flag *__a, memory_order __m)
- bool **std::atomic_flag_test_and_set_explicit** (atomic_flag *__a, memory_order __m)
- template<typename _ITp >
  bool **std::atomic_is_lock_free** (const __atomic_base< _ITp > *__a)
- bool **std::atomic_is_lock_free** (const atomic_bool *__a)
- bool **std::atomic_is_lock_free** (const atomic_address *__a)
- template<typename _ITp >
  _ITp **std::atomic_load** (const __atomic_base< _ITp > *__a)
- bool **std::atomic_load** (const atomic_bool *__a)
- void * **std::atomic_load** (const atomic_address *__a)
- template<typename _ITp >
  _ITp **std::atomic_load_explicit** (const __atomic_base< _ITp > *__a, memory_order __m)
- bool **std::atomic_load_explicit** (const atomic_bool *__a, memory_order __m)
- void * **std::atomic_load_explicit** (const atomic_address *__a, memory_order __m)
- template<typename _ITp >
  void **std::atomic_store** (__atomic_base< _ITp > *__a, _ITp __i)
- void **std::atomic_store** (atomic_bool *__a, bool __i)
- void **std::atomic_store** (atomic_address *__a, void *__v)
- template<typename _ITp >
  void **std::atomic_store_explicit** (__atomic_base< _ITp > *__a, _ITp __i, memory_order __m)
- void **std::atomic_store_explicit** (atomic_bool *__a, bool __i, memory_order __m)
- void **std::atomic_store_explicit** (atomic_address *__a, void *__v, memory_order __m)
- template<typename _Tp >
  _Tp std::kill_dependency (_Tp __y)

6.13.1 Detailed Description

This is a Standard C++ Library header.

Definition in file atomic.

6.14 atomic_0.h File Reference

Classes

- struct __atomic0::atomic_address
  29.4.2, address types
- struct __atomic0::atomic_bool
  atomic_bool
- struct __atomic0::atomic_flag
  atomic_flag

Defines

- #define **_ATOMIC_CMPEXCHNG_**(__a, __e, __m, __x)
- #define **_ATOMIC_LOAD_**(__a, __x)
- #define **_ATOMIC_MODIFY_**(__a, __o, __m, __x)
- #define **_ATOMIC_STORE_**(__a, __m, __x)
- #define **_GLIBCXX_ATOMIC_0_H**

6.14.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file atomic_0.h.

6.15 atomic_2.h File Reference

Classes

- struct __atomic2::atomic_address
  29.4.2, address types
- struct __atomic2::atomic_bool
  atomic_bool
- struct __atomic2::atomic_flag
  atomic_flag

Defines

- #define **_GLIBCXX_ATOMIC_2_H**

6.15.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file atomic_2.h.

6.16 atomic_base.h File Reference

Namespaces

- namespace std

Defines

- #define **_ATOMIC_CMPEXCHNG_**(__a, __e, __m, __x)
- #define **_ATOMIC_LOAD_**(__a, __x)
- #define **_ATOMIC_MODIFY_**(__a, __o, __m, __x)
- #define **_ATOMIC_STORE_**(__a, __m, __x)
- #define **_GLIBCXX_ATOMIC_BASE_H**
- #define **_GLIBCXX_ATOMIC_NAMESPACE**
- #define _GLIBCXX_ATOMIC_PROPERTY
- #define **ATOMIC_ADDRESS_LOCK_FREE**
- #define **ATOMIC_FLAG_INIT**
- #define **ATOMIC_INTEGRAL_LOCK_FREE**

Typedefs

- typedef struct std::__atomic_flag_base **std::__atomic_flag_base**
- typedef atomic_short **std::atomic_int_fast16_t**
- typedef atomic_int **std::atomic_int_fast32_t**
- typedef atomic_llong **std::atomic_int_fast64_t**
- typedef atomic_schar **std::atomic_int_fast8_t**
- typedef atomic_short **std::atomic_int_least16_t**
- typedef atomic_int **std::atomic_int_least32_t**
- typedef atomic_llong **std::atomic_int_least64_t**
- typedef atomic_schar **std::atomic_int_least8_t**
- typedef atomic_llong **std::atomic_intmax_t**
- typedef atomic_long **std::atomic_intptr_t**
- typedef atomic_long **std::atomic_ptrdiff_t**
- typedef atomic_ulong **std::atomic_size_t**
- typedef atomic_long **std::atomic_ssize_t**
- typedef atomic_ushort **std::atomic_uint_fast16_t**
- typedef atomic_uint **std::atomic_uint_fast32_t**
- typedef atomic_ullong **std::atomic_uint_fast64_t**
- typedef atomic_uchar **std::atomic_uint_fast8_t**
- typedef atomic_ushort **std::atomic_uint_least16_t**
- typedef atomic_uint **std::atomic_uint_least32_t**
- typedef atomic_ullong **std::atomic_uint_least64_t**

- typedef atomic_uchar **std::atomic_uint_least8_t**
- typedef atomic_ullong **std::atomic_uintmax_t**
- typedef atomic_ulong **std::atomic_uintptr_t**
- typedef enum std::memory_order std::memory_order

Enumerations

- enum std::memory_order {

  memory_order_relaxed, **memory_order_consume**, **memory_order_-acquire**, **memory_order_release**,

  memory_order_acq_rel, **memory_order_seq_cst** }

Functions

- void **std::__atomic_flag_wait_explicit** (__atomic_flag_base *, memory_order) throw ()
- **std::__attribute__** ((__const__)) __atomic_flag_base *__atomic_flag_for_-address(const void *__z) throw ()
- void **std::atomic_flag_clear** (__atomic_flag_base *__a)
- void **std::atomic_flag_clear_explicit** (__atomic_flag_base *, memory_order) throw ()
- bool **std::atomic_flag_test_and_set** (__atomic_flag_base *__a)
- bool **std::atomic_flag_test_and_set_explicit** (__atomic_flag_base *, memory_order) throw ()

6.16.1 Detailed Description

This is a Standard C++ Library header.

Definition in file atomic_base.h.

6.17 atomic_word.h File Reference

Defines

- #define **_GLIBCXX_ATOMIC_WORD_H**

Typedefs

- typedef int **_Atomic_word**

6.17.1 Detailed Description

This file is a GNU extension to the Standard C++ Library.

Definition in file atomic_word.h.

6.18 atomicfwd_c.h File Reference

Defines

- #define **_ATOMIC_MEMBER_**
- #define **atomic_compare_exchange**(__a, __e, __m)
- #define **atomic_compare_exchange_explicit**(__a, __e, __m, __x, __y)
- #define **atomic_exchange**(__a, __m)
- #define **atomic_exchange_explicit**(__a, __m, __x)
- #define **atomic_fetch_add**(__a, __m)
- #define **atomic_fetch_add_explicit**(__a, __m, __x)
- #define **atomic_fetch_and**(__a, __m)
- #define **atomic_fetch_and_explicit**(__a, __m, __x)
- #define **atomic_fetch_or**(__a, __m)
- #define **atomic_fetch_or_explicit**(__a, __m, __x)
- #define **atomic_fetch_sub**(__a, __m)
- #define **atomic_fetch_sub_explicit**(__a, __m, __x)
- #define **atomic_fetch_xor**(__a, __m)
- #define **atomic_fetch_xor_explicit**(__a, __m, __x)
- #define **atomic_is_lock_free**(__a)
- #define **atomic_load**(__a)
- #define **atomic_load_explicit**(__a, __x)
- #define **atomic_store**(__a, __m)
- #define **atomic_store_explicit**(__a, __m, __x)

Typedefs

- typedef struct __atomic_address_base **atomic_address**
- typedef struct __atomic_bool_base **atomic_bool**
- typedef struct __atomic_char_base **atomic_char**
- typedef struct __atomic_short_base **atomic_char16_t**
- typedef struct __atomic_int_base **atomic_char32_t**
- typedef struct __atomic_flag_base **atomic_flag**
- typedef struct __atomic_int_base **atomic_int**
- typedef struct __atomic_llong_base **atomic_llong**
- typedef struct __atomic_long_base **atomic_long**
- typedef struct __atomic_schar_base **atomic_schar**
- typedef struct __atomic_short_base **atomic_short**
- typedef struct __atomic_uchar_base **atomic_uchar**
- typedef struct __atomic_uint_base **atomic_uint**
- typedef struct __atomic_ullong_base **atomic_ullong**
- typedef struct __atomic_ulong_base **atomic_ulong**
- typedef struct __atomic_ushort_base **atomic_ushort**
- typedef struct __atomic_wchar_t_base **atomic_wchar_t**

6.18.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file atomicfwd_c.h.

6.19 atomicfwd_cxx.h File Reference

Defines

- #define **_ATOMIC_MEMBER_**

Typedefs

- typedef __atomic_base< char > atomic_char
- typedef __atomic_base< char16_t > atomic_char16_t
- typedef __atomic_base< char32_t > atomic_char32_t
- typedef __atomic_base< int > atomic_int
- typedef __atomic_base< long long > atomic_llong
- typedef __atomic_base< long > atomic_long
- typedef __atomic_base< signed char > atomic_schar
- typedef __atomic_base< short > atomic_short
- typedef __atomic_base< unsigned char > atomic_uchar
- typedef __atomic_base< unsigned int > atomic_uint
- typedef __atomic_base< unsigned long long > atomic_ullong
- typedef __atomic_base< unsigned long > atomic_ulong
- typedef __atomic_base< unsigned short > atomic_ushort
- typedef __atomic_base< wchar_t > atomic_wchar_t

6.19.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file atomicfwd_cxx.h.

6.20 atomicity.h File Reference

Namespaces

- namespace __gnu_cxx

Defines

- #define **_GLIBCXX_ATOMICITY_H**
- #define **_GLIBCXX_READ_MEM_BARRIER**
- #define **_GLIBCXX_WRITE_MEM_BARRIER**

Functions

- static void **__gnu_cxx::__atomic_add** (volatile _Atomic_word *__mem, int __val)
- static void **__gnu_cxx::__atomic_add_single** (_Atomic_word *__mem, int __val)
- static _Atomic_word **__gnu_cxx::__attribute__** ((__unused__)) __exchange_and_add_dispatch(_Atomic_word *__mem
- static _Atomic_word **__gnu_cxx::__exchange_and_add** (volatile _Atomic_word *__mem, int __val)
- else return **__gnu_cxx::__exchange_and_add_single** (__mem, __val)
- static _Atomic_word **__gnu_cxx::__exchange_and_add_single** (_Atomic_word *__mem, int __val)
- static _Atomic_word int __val **__gnu_cxx::if** (__gthread_active_p()) return __exchange_and_add(__mem

Variables

- static _Atomic_word int __val **__gnu_cxx::__val**

6.20.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file atomicity.h.

6.21 auto_ptr.h File Reference

Classes

- class std::auto_ptr< _Tp >

  A simple smart pointer providing strict ownership semantics.

- struct std::auto_ptr_ref< _Tp1 >

Namespaces

- namespace std

Defines

- #define **_STL_AUTO_PTR_H**

6.21.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file auto_ptr.h.

6.22 balanced_quicksort.h File Reference

Implementation of a dynamically load-balanced parallel quicksort.

Classes

- struct __gnu_parallel::_QSBThreadLocal< _RAIter >

  Information local to one thread in the parallel quicksort run.

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_BALANCED_QUICKSORT_H**

Functions

- template<typename _RAIter , typename _Compare >
  void __gnu_parallel::__parallel_sort_qsb (_RAIter __begin, _RAIter __end, _Compare __comp, _ThreadIndex __num_threads)
- template<typename _RAIter , typename _Compare >
  void __gnu_parallel::__qsb_conquer (_QSBThreadLocal< _RAIter > **__tls, _RAIter __begin, _RAIter __end, _Compare __comp, _ThreadIndex __iam, _ThreadIndex __num_threads, bool __parent_wait)
- template<typename _RAIter , typename _Compare >
  std::iterator_traits< _RAIter >::difference_type __gnu_parallel::__qsb_divide (_RAIter __begin, _RAIter __end, _Compare __comp, _ThreadIndex __num_threads)
- template<typename _RAIter , typename _Compare >
  void __gnu_parallel::__qsb_local_sort_with_helping (_QSBThreadLocal< _RAIter > **__tls, _Compare &__comp, _ThreadIndex __iam, bool __wait)

6.22.1 Detailed Description

Implementation of a dynamically load-balanced parallel quicksort. It works in-place and needs only logarithmic extra memory. The algorithm is similar to the one proposed in

P. Tsigas and Y. Zhang. A simple, fast parallel implementation of quicksort and its performance evaluation on SUN enterprise 10000. In 11th Euromicro Conference on Parallel, Distributed and Network-Based Processing, page 372, 2003.

This file is a GNU parallel extension to the Standard C++ Library.

Definition in file balanced_quicksort.h.

6.23 base.h File Reference

Sequential helper functions. This file is a GNU parallel extension to the Standard C++ Library.

Classes

- class __gnu_parallel::__binder1st< _Operation, _FirstArgumentType, _SecondArgumentType, _ResultType >
  Similar to std::binder1st, but giving the argument types explicitly.
- class __gnu_parallel::__binder2nd< _Operation, _FirstArgumentType, _SecondArgumentType, _ResultType >
  Similar to std::binder2nd, but giving the argument types explicitly.
- class __gnu_parallel::__unary_negate< _Predicate, argument_type >
  Similar to std::unary_negate, but giving the argument types explicitly.
- class __gnu_parallel::_EqualFromLess< _T1, _T2, _Compare >
  Constructs predicate for equality from strict weak ordering predicate.
- struct __gnu_parallel::_EqualTo< _T1, _T2 >
  Similar to std::equal_to, but allows two different types.
- struct __gnu_parallel::_Less< _T1, _T2 >
  Similar to std::less, but allows two different types.
- struct __gnu_parallel::_Multiplies< _Tp1, _Tp2 >
  Similar to std::multiplies, but allows two different types.
- struct __gnu_parallel::_Plus< _Tp1, _Tp2 >
  Similar to std::plus, but allows two different types.
- class __gnu_parallel::_PseudoSequence< _Tp, _DifferenceTp >
  Sequence that conceptually consists of multiple copies of the same element. The copies are not stored explicitly, of course.
- class __gnu_parallel::_PseudoSequenceIterator< _Tp, _DifferenceTp >
  _Iterator associated with __gnu_parallel::_PseudoSequence. If features the usual random-access iterator functionality.
- class __gnu_parallel::_VoidFunctor< _ValueTp >
  Functor that does nothing.

Namespaces

- namespace __gnu_parallel
- namespace __gnu_sequential
- namespace std
- namespace std::__parallel

Defines

- #define **_GLIBCXX_PARALLEL_ASSERT**(_Condition)
- #define **_GLIBCXX_PARALLEL_BASE_H**

Functions

- void __gnu_parallel::__decode2 (_CASable __x, int &__a, int &__b)
- _CASable __gnu_parallel::__encode2 (int __a, int __b)
- _ThreadIndex **__gnu_parallel::__get_max_threads** ()
- bool **__gnu_parallel::__is_parallel** (const _Parallelism __p)
- template<typename _RAIter , typename _Compare >
  _RAIter __gnu_parallel::__median_of_three_iterators (_RAIter __a, _RAIter _-
  _b, _RAIter __c, _Compare &__comp)
- template<typename _Size >
  _Size __gnu_parallel::__rd_log2 (_Size __n)
- template<typename _Tp >
  const _Tp & __gnu_parallel::max (const _Tp &__a, const _Tp &__b)
- template<typename _Tp >
  const _Tp & __gnu_parallel::min (const _Tp &__a, const _Tp &__b)

6.23.1 Detailed Description

Sequential helper functions. This file is a GNU parallel extension to the Standard C++ Library.

Definition in file parallel/base.h.

6.24 base.h File Reference

Sequential helper functions. This file is a GNU profile extension to the Standard C++ Library.

Namespaces

- namespace __gnu_profile
- namespace std
- namespace std::__profile

Defines

- #define **_GLIBCXX_PROFILE_BASE_H**

6.24.1 Detailed Description

Sequential helper functions. This file is a GNU profile extension to the Standard C++ Library.

Definition in file profile/base.h.

6.25 basic_file.h File Reference

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_BASIC_FILE_STDIO_H**

6.25.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file basic_file.h.

6.26 basic_ios.h File Reference

Classes

- class std::basic_ios< _CharT, _Traits >

  Virtual base class for all stream classes.
  Most of the member functions called dispatched on stream objects (e.g., `std::cout.foo(bar);`) are consolidated in this class.

Namespaces

- namespace std

Defines

- #define **_BASIC_IOS_H**

Functions

- template<typename _Facet >
  const _Facet & **std::__check_facet** (const _Facet *__f)

6.26.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file basic_ios.h.

6.27 basic_ios.tcc File Reference

Namespaces

- namespace std

Defines

- #define **_BASIC_IOS_TCC**

6.27.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file basic_ios.tcc.

6.28 basic_iterator.h File Reference

Includes the original header files concerned with iterators except for stream iterators. This file is a GNU parallel extension to the Standard C++ Library.

Defines

- #define **_GLIBCXX_PARALLEL_BASIC_ITERATOR_H**

6.28.1 Detailed Description

Includes the original header files concerned with iterators except for stream iterators. This file is a GNU parallel extension to the Standard C++ Library.

Definition in file basic_iterator.h.

6.29 basic_string.h File Reference

Classes

- class std::basic_string< _CharT, _Traits, _Alloc >
  Managing sequences of characters and character-like objects.
- struct std::hash< string >
  std::hash specialization for string.
- struct std::hash< u16string >
  std::hash specialization for u16string.
- struct std::hash< u32string >
  std::hash specialization for u32string.
- struct std::hash< wstring >
  std::hash specialization for wstring.

Namespaces

- namespace std

Defines

- #define **_BASIC_STRING_H**

Functions

- template<>
  basic_istream< wchar_t > & **std::getline** (basic_istream< wchar_t > &__in, basic_string< wchar_t > &__str, wchar_t __delim)
- template<>
  basic_istream< char > & **std::getline** (basic_istream< char > &__in, basic_string< char > &__str, char __delim)
- template<typename _CharT , typename _Traits , typename _Alloc >
  basic_istream< _CharT, _Traits > & std::getline (basic_istream< _CharT, _Traits > &__is, basic_string< _CharT, _Traits, _Alloc > &__str)
- template<typename _CharT , typename _Traits , typename _Alloc >
  basic_istream< _CharT, _Traits > & std::getline (basic_istream< _CharT, _Traits > &__is, basic_string< _CharT, _Traits, _Alloc > &__str, _CharT __delim)

- template<typename _CharT , typename _Traits , typename _Alloc >
  bool std::operator!= (const basic_string< _CharT, _Traits, _Alloc > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool std::operator!= (const _CharT *__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool std::operator!= (const basic_string< _CharT, _Traits, _Alloc > &__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  basic_string< _CharT, _Traits, _Alloc > std::operator+ (const basic_string< _CharT, _Traits, _Alloc > &__lhs, _CharT __rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  basic_string< _CharT, _Traits, _Alloc > std::operator+ (const basic_string< _CharT, _Traits, _Alloc > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  basic_string< _CharT, _Traits, _Alloc > std::operator+ (_CharT __lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  basic_string< _CharT, _Traits, _Alloc > std::operator+ (const _CharT *__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  basic_string< _CharT, _Traits, _Alloc > std::operator+ (const basic_string< _CharT, _Traits, _Alloc > &__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool std::operator< (const _CharT *__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool std::operator< (const basic_string< _CharT, _Traits, _Alloc > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool std::operator< (const basic_string< _CharT, _Traits, _Alloc > &__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  basic_ostream< _CharT, _Traits > & std::operator<< (basic_ostream< _CharT, _Traits > &__os, const basic_string< _CharT, _Traits, _Alloc > &__str)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool std::operator<= (const _CharT *__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool std::operator<= (const basic_string< _CharT, _Traits, _Alloc > &__lhs, const _CharT *__rhs)

- template<typename _CharT , typename _Traits , typename _Alloc >
  bool std::operator<= (const basic_string< _CharT, _Traits, _Alloc > &__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool std::operator== (const basic_string< _CharT, _Traits, _Alloc > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool std::operator== (const _CharT *__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _CharT >
  __gnu_cxx::__enable_if< __is_char< _CharT >::__value, bool >::__type **std::operator==** (const basic_string< _CharT > &__lhs, const basic_string< _CharT > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool std::operator== (const basic_string< _CharT, _Traits, _Alloc > &__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool std::operator> (const _CharT *__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool std::operator> (const basic_string< _CharT, _Traits, _Alloc > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool std::operator> (const basic_string< _CharT, _Traits, _Alloc > &__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool std::operator>= (const _CharT *__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool std::operator>= (const basic_string< _CharT, _Traits, _Alloc > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc >
  bool std::operator>= (const basic_string< _CharT, _Traits, _Alloc > &__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<>
  basic_istream< char > & **std::operator>>** (basic_istream< char > &__is, basic_string< char > &__str)
- template<typename _CharT , typename _Traits , typename _Alloc >
  basic_istream< _CharT, _Traits > & std::operator>> (basic_istream< _CharT, _Traits > &__is, basic_string< _CharT, _Traits, _Alloc > &__str)
- double **std::stod** (const string &__str, size_t *__idx=0)
- float **std::stof** (const string &__str, size_t *__idx=0)
- int **std::stoi** (const string &__str, size_t *__idx=0, int __base=10)
- long **std::stol** (const string &__str, size_t *__idx=0, int __base=10)

- long double **std::stold** (const string &__str, size_t *__idx=0)
- long long **std::stoll** (const string &__str, size_t *__idx=0, int __base=10)
- unsigned long **std::stoul** (const string &__str, size_t *__idx=0, int __base=10)
- unsigned long long **std::stoull** (const string &__str, size_t *__idx=0, int __base=10)
- template<typename _CharT , typename _Traits , typename _Alloc >
  void std::swap (basic_string< _CharT, _Traits, _Alloc > &__lhs, basic_string< _CharT, _Traits, _Alloc > &__rhs)
- string **std::to_string** (long double __val)
- string **std::to_string** (double __val)
- string **std::to_string** (float __val)
- string **std::to_string** (unsigned long long __val)
- string **std::to_string** (long long __val)
- string **std::to_string** (unsigned long __val)
- string **std::to_string** (long __val)
- string **std::to_string** (unsigned __val)
- string **std::to_string** (int __val)
- wstring **std::to_wstring** (long double __val)
- wstring **std::to_wstring** (double __val)
- wstring **std::to_wstring** (float __val)
- wstring **std::to_wstring** (unsigned long long __val)
- wstring **std::to_wstring** (long long __val)
- wstring **std::to_wstring** (unsigned long __val)
- wstring **std::to_wstring** (long __val)
- wstring **std::to_wstring** (unsigned __val)
- wstring **std::to_wstring** (int __val)

6.29.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file basic_string.h.

6.30 basic_string.tcc File Reference

Namespaces

- namespace std

Defines

- #define **_BASIC_STRING_TCC**

Functions

- template basic_istream< wchar_t > & **std::getline** (basic_istream< wchar_t > &, wstring &)
- template basic_istream< wchar_t > & **std::getline** (basic_istream< wchar_t > &, wstring &, wchar_t)
- template basic_istream< char > & **std::getline** (basic_istream< char > &, string &)
- template basic_istream< char > & **std::getline** (basic_istream< char > &, string &, char)
- template<typename _CharT , typename _Traits , typename _Alloc > basic_istream< _CharT, _Traits > & std::getline (basic_istream< _CharT, _Traits > &__is, basic_string< _CharT, _Traits, _Alloc > &__str, _CharT __delim)
- template<typename _CharT , typename _Traits , typename _Alloc > basic_string< _CharT, _Traits, _Alloc > std::operator+ (_CharT __lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc > basic_string< _CharT, _Traits, _Alloc > std::operator+ (const _CharT *__lhs, const basic_string< _CharT, _Traits, _Alloc > &__rhs)
- template basic_ostream< wchar_t > & **std::operator**<< (basic_ostream< wchar_t > &, const wstring &)
- template basic_ostream< char > & **std::operator**<< (basic_ostream< char > &, const string &)
- template basic_istream< wchar_t > & **std::operator**>> (basic_istream< wchar_t > &, wstring &)
- template basic_istream< char > & **std::operator**>> (basic_istream< char > &, string &)
- template<typename _CharT , typename _Traits , typename _Alloc > basic_istream< _CharT, _Traits > & std::operator>> (basic_istream< _CharT, _Traits > &__is, basic_string< _CharT, _Traits, _Alloc > &__str)

6.30.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file basic_string.tcc.

6.31 basic_types.hpp File Reference

Classes

- struct __gnu_pbds::detail::value_type_base< Key, Mapped, Allocator, false >
- struct __gnu_pbds::detail::value_type_base< Key, Mapped, Allocator, true >
- struct __gnu_pbds::detail::value_type_base< Key, null_mapped_type, Allocator, false >
- struct __gnu_pbds::detail::value_type_base< Key, null_mapped_type, Allocator, true >

Namespaces

- namespace __gnu_pbds

Defines

- #define **PB_DS_CLASS_C_DEC**
- #define **PB_DS_CLASS_C_DEC**
- #define **PB_DS_CLASS_T_DEC**
- #define **PB_DS_CLASS_T_DEC**

6.31.1 Detailed Description

Contains basic types used by containers.

Definition in file basic_types.hpp.

6.32 binders.h File Reference

Classes

- class std::binder1st< _Operation >

  One of the binder functors.

- class std::binder2nd< _Operation >

  One of the binder functors.

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_BINDERS_H**

Functions

- template<typename _Operation , typename _Tp >
  binder1st< _Operation > std::bind1st (const _Operation &__fn, const _Tp &_-
  _x)
- template<typename _Operation , typename _Tp >
  binder2nd< _Operation > std::bind2nd (const _Operation &__fn, const _Tp &_-
  _x)

6.32.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file binders.h.

6.33 bitmap_allocator.h File Reference

Classes

- class __gnu_cxx::__detail::__mini_vector< _Tp >

  __mini_vector<> is a stripped down version of the full-fledged std::vector<>.

- class __gnu_cxx::__detail::_Bitmap_counter< _Tp >

  The bitmap counter which acts as the bitmap manipulator, and manages the bit-manipulation functions and the searching and identification functions on the bit-map.

- class __gnu_cxx::__detail::_Ffit_finder< _Tp >

  The class which acts as a predicate for applying the first-fit memory allocation policy for the bitmap allocator.

- class __gnu_cxx::bitmap_allocator< _Tp >

  Bitmap Allocator, primary template.

- class __gnu_cxx::free_list

  The free list class for managing chunks of memory to be given to and returned by the bitmap_allocator.

Namespaces

- namespace __gnu_cxx
- namespace __gnu_cxx::__detail

Defines

- #define _BALLOC_ALIGN_BYTES
- #define **_BITMAP_ALLOCATOR_H**

Enumerations

- enum { **bits_per_byte**, **bits_per_block** }

Functions

- void __gnu_cxx::__detail::__bit_allocate (size_t *__pbmap, size_t __pos) throw ()

- void __gnu_cxx::__detail::__bit_free (size_t *__pbmap, size_t __pos) throw ()
- template<typename _ForwardIterator , typename _Tp , typename _Compare > _ForwardIterator **__gnu_cxx::__detail::__lower_bound** (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__val, _Compare __comp)
- template<typename _AddrPair > size_t __gnu_cxx::__detail::__num_bitmaps (_AddrPair __ap)
- template<typename _AddrPair > size_t __gnu_cxx::__detail::__num_blocks (_AddrPair __ap)
- size_t __gnu_cxx::_Bit_scan_forward (size_t __num)
- template<typename _Tp1 , typename _Tp2 > bool **__gnu_cxx::operator!=** (const bitmap_allocator< _Tp1 > &, const bitmap_allocator< _Tp2 > &) throw ()
- template<typename _Tp1 , typename _Tp2 > bool **__gnu_cxx::operator==** (const bitmap_allocator< _Tp1 > &, const bitmap_allocator< _Tp2 > &) throw ()

6.33.1 Detailed Description

This file is a GNU extension to the Standard C++ Library.

Definition in file bitmap_allocator.h.

6.33.2 Define Documentation

6.33.2.1 #define _BALLOC_ALIGN_BYTES

The constant in the expression below is the alignment required in bytes.

Definition at line 45 of file bitmap_allocator.h.

6.34 bitset File Reference

Classes

- struct std::_Base_bitset< _Nw >
- struct std::_Base_bitset< 0 >
- struct std::_Base_bitset< 1 >
- class std::bitset< _Nb >

  The bitset class represents a fixed-size sequence of bits.

- class std::bitset< _Nb >::reference
- struct std::hash< ::bitset< _Nb > >

  std::hash specialization for bitset.

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_BITSET**
- #define **_GLIBCXX_BITSET_BITS_PER_WORD**
- #define **_GLIBCXX_BITSET_WORDS**(__n)

Functions

- template<size_t _Nb>
  bitset< _Nb > std::operator& (const bitset< _Nb > &__x, const bitset< _Nb > &__y)
- template<class _CharT , class _Traits , size_t _Nb>
  std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > &__os, const bitset< _Nb > &__x)
- template<class _CharT , class _Traits , size_t _Nb>
  std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > &__is, bitset< _Nb > &__x)
- template<size_t _Nb>
  bitset< _Nb > std::operator^ (const bitset< _Nb > &__x, const bitset< _Nb > &__y)
- template<size_t _Nb>
  bitset< _Nb > std::operator| (const bitset< _Nb > &__x, const bitset< _Nb > &__y)

6.34.1 Detailed Description

This is a Standard C++ Library header.

Definition in file bitset.

6.35 bitset File Reference

Classes

- class std::__debug::bitset< _Nb >

  Class std::bitset with additional safety/checking/debug instrumentation.

- struct std::hash< __debug::bitset< _Nb > >

  std::hash specialization for bitset.

Namespaces

- namespace std
- namespace std::__debug

Functions

- template<size_t _Nb>
  bitset< _Nb > **std::__debug::operator&** (const bitset< _Nb > &__x, const bitset< _Nb > &__y)
- template<typename _CharT , typename _Traits , size_t _Nb>
  std::basic_ostream< _CharT, _Traits > & **std::__debug::operator<<** (std::basic_ostream< _CharT, _Traits > &__os, const bitset< _Nb > &__x)
- template<typename _CharT , typename _Traits , size_t _Nb>
  std::basic_istream< _CharT, _Traits > & **std::__debug::operator>>** (std::basic_istream< _CharT, _Traits > &__is, bitset< _Nb > &__x)
- template<size_t _Nb>
  bitset< _Nb > **std::__debug::operator^** (const bitset< _Nb > &__x, const bitset< _Nb > &__y)
- template<size_t _Nb>
  bitset< _Nb > **std::__debug::operator|** (const bitset< _Nb > &__x, const bitset< _Nb > &__y)

6.35.1 Detailed Description

This file is a GNU debug extension to the Standard C++ Library.

Definition in file debug/bitset.

6.36 bitset File Reference

Classes

- class std::__profile::bitset< _Nb >

  Class std::bitset wrapper with performance instrumentation.

- struct std::hash< __profile::bitset< _Nb > >

  std::hash specialization for bitset.

Namespaces

- namespace std
- namespace std::__profile

Functions

- template<size_t _Nb>
  bitset< _Nb > **std::__profile::operator&** (const bitset< _Nb > &__x, const bitset< _Nb > &__y)
- template<typename _CharT , typename _Traits , size_t _Nb>
  std::basic_ostream< _CharT, _Traits > & **std::__profile::operator<<** (std::basic_ostream< _CharT, _Traits > &__os, const bitset< _Nb > &__x)
- template<typename _CharT , typename _Traits , size_t _Nb>
  std::basic_istream< _CharT, _Traits > & **std::__profile::operator>>** (std::basic_istream< _CharT, _Traits > &__is, bitset< _Nb > &__x)
- template<size_t _Nb>
  bitset< _Nb > **std::__profile::operator^** (const bitset< _Nb > &__x, const bitset< _Nb > &__y)
- template<size_t _Nb>
  bitset< _Nb > **std::__profile::operator|** (const bitset< _Nb > &__x, const bitset< _Nb > &__y)

6.36.1 Detailed Description

This file is a GNU profile extension to the Standard C++ Library.

Definition in file profile/bitset.

6.37 boost_concept_check.h File Reference

Namespaces

- namespace __gnu_cxx

Defines

- #define **_BOOST_CONCEPT_CHECK_H**
- #define **_GLIBCXX_CLASS_REQUIRES**(_type_var, _ns, _concept)
- #define **_GLIBCXX_CLASS_REQUIRES2**(_type_var1, _type_var2, _ns, _concept)
- #define **_GLIBCXX_CLASS_REQUIRES3**(_type_var1, _type_var2, _type_var3, _ns, _concept)
- #define **_GLIBCXX_CLASS_REQUIRES4**(_type_var1, _type_var2, _type_var3, _type_var4, _ns, _concept)
- #define **_GLIBCXX_DEFINE_BINARY_OPERATOR_CONSTRAINT**(_OP, _NAME)
- #define **_GLIBCXX_DEFINE_BINARY_PREDICATE_OP_CONSTRAINT**(_OP, _NAME)
- #define **_IsUnused**

Functions

- template<class _Tp >
  void **__gnu_cxx::__aux_require_boolean_expr** (const _Tp &__t)
- void **__gnu_cxx::__error_type_must_be_a_signed_integer_type** ()
- void **__gnu_cxx::__error_type_must_be_an_integer_type** ()
- void **__gnu_cxx::__error_type_must_be_an_unsigned_integer_type** ()
- template<class _Concept >
  void **__gnu_cxx::__function_requires** ()

6.37.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file boost_concept_check.h.

6.38 boost_sp_counted_base.h File Reference

Classes

- class std::bad_weak_ptr

  Exception possibly thrown by `shared_ptr`.

Namespaces

- namespace std

Functions

- void **std::__throw_bad_weak_ptr** ()

6.38.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file boost_sp_counted_base.h.

6.39 c++0x_warning.h File Reference

Defines

- #define **_CXX0X_WARNING_H**

6.39.1 Detailed Description

This is a Standard C++ Library header.

Definition in file c++0x_warning.h.

6.40 c++allocator.h File Reference

Defines

- #define **__glibcxx_base_allocator**
- #define **_GLIBCXX_CXX_ALLOCATOR_H**

6.40.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file c++allocator.h.

6.41 c++config.h File Reference

Defines

- #define **__GLIBCXX__**
- #define **__glibcxx_assert**(_Condition)
- #define **__N**(msgid)
- #define **_GLIBCXX_ATOMIC_BUILTINS_1**
- #define **_GLIBCXX_ATOMIC_BUILTINS_2**
- #define **_GLIBCXX_ATOMIC_BUILTINS_4**
- #define **_GLIBCXX_ATOMIC_BUILTINS_8**
- #define **_GLIBCXX_BEGIN_EXTERN_C**
- #define **_GLIBCXX_BEGIN_LDBL_NAMESPACE**
- #define **_GLIBCXX_BEGIN_NAMESPACE**(X)
- #define **_GLIBCXX_BEGIN_NESTED_NAMESPACE**(X, Y)
- #define **_GLIBCXX_CONST**
- #define **_GLIBCXX_CXX_CONFIG_H**
- #define **_GLIBCXX_DEPRECATED_ATTR**
- #define **_GLIBCXX_END_EXTERN_C**
- #define **_GLIBCXX_END_LDBL_NAMESPACE**
- #define **_GLIBCXX_END_NAMESPACE**
- #define **_GLIBCXX_END_NESTED_NAMESPACE**
- #define **_GLIBCXX_EXTERN_TEMPLATE**
- #define **_GLIBCXX_FAST_MATH**
- #define **_GLIBCXX_HAS_GTHREADS**
- #define **_GLIBCXX_HAVE_ACOSF**
- #define **_GLIBCXX_HAVE_ACOSL**
- #define **_GLIBCXX_HAVE_AS_SYMVER_DIRECTIVE**
- #define **_GLIBCXX_HAVE_ASINF**
- #define **_GLIBCXX_HAVE_ASINL**
- #define **_GLIBCXX_HAVE_ATAN2F**
- #define **_GLIBCXX_HAVE_ATAN2L**
- #define **_GLIBCXX_HAVE_ATANF**
- #define **_GLIBCXX_HAVE_ATANL**
- #define **_GLIBCXX_HAVE_ATTRIBUTE_VISIBILITY**
- #define **_GLIBCXX_HAVE_CEILF**
- #define **_GLIBCXX_HAVE_CEILL**
- #define **_GLIBCXX_HAVE_COMPLEX_H**
- #define **_GLIBCXX_HAVE_COSF**
- #define **_GLIBCXX_HAVE_COSHF**
- #define **_GLIBCXX_HAVE_COSHL**
- #define **_GLIBCXX_HAVE_COSL**

- #define **_GLIBCXX_HAVE_DLFCN_H**
- #define **_GLIBCXX_HAVE_EBADMSG**
- #define **_GLIBCXX_HAVE_ECANCELED**
- #define **_GLIBCXX_HAVE_EIDRM**
- #define **_GLIBCXX_HAVE_ENDIAN_H**
- #define **_GLIBCXX_HAVE_ENODATA**
- #define **_GLIBCXX_HAVE_ENOLINK**
- #define **_GLIBCXX_HAVE_ENOSR**
- #define **_GLIBCXX_HAVE_ENOSTR**
- #define **_GLIBCXX_HAVE_ENOTRECOVERABLE**
- #define **_GLIBCXX_HAVE_ENOTSUP**
- #define **_GLIBCXX_HAVE_EOVERFLOW**
- #define **_GLIBCXX_HAVE_EOWNERDEAD**
- #define **_GLIBCXX_HAVE_EPROTO**
- #define **_GLIBCXX_HAVE_ETIME**
- #define **_GLIBCXX_HAVE_ETXTBSY**
- #define **_GLIBCXX_HAVE_EXECINFO_H**
- #define **_GLIBCXX_HAVE_EXPF**
- #define **_GLIBCXX_HAVE_EXPL**
- #define **_GLIBCXX_HAVE_FABSF**
- #define **_GLIBCXX_HAVE_FABSL**
- #define **_GLIBCXX_HAVE_FENV_H**
- #define **_GLIBCXX_HAVE_FINITE**
- #define **_GLIBCXX_HAVE_FINITEF**
- #define **_GLIBCXX_HAVE_FINITEL**
- #define **_GLIBCXX_HAVE_FLOAT_H**
- #define **_GLIBCXX_HAVE_FLOORF**
- #define **_GLIBCXX_HAVE_FLOORL**
- #define **_GLIBCXX_HAVE_FMODF**
- #define **_GLIBCXX_HAVE_FMODL**
- #define **_GLIBCXX_HAVE_FREXPF**
- #define **_GLIBCXX_HAVE_FREXPL**
- #define **_GLIBCXX_HAVE_GETIPINFO**
- #define **_GLIBCXX_HAVE_GTHR_DEFAULT**
- #define **_GLIBCXX_HAVE_HYPOT**
- #define **_GLIBCXX_HAVE_HYPOTF**
- #define **_GLIBCXX_HAVE_HYPOTL**
- #define **_GLIBCXX_HAVE_ICONV**
- #define **_GLIBCXX_HAVE_INT64_T**
- #define **_GLIBCXX_HAVE_INT64_T_LONG**
- #define **_GLIBCXX_HAVE_INTTYPES_H**
- #define **_GLIBCXX_HAVE_ISINF**
- #define **_GLIBCXX_HAVE_ISINFF**

- #define **_GLIBCXX_HAVE_ISINFL**
- #define **_GLIBCXX_HAVE_ISNAN**
- #define **_GLIBCXX_HAVE_ISNANF**
- #define **_GLIBCXX_HAVE_ISNANL**
- #define **_GLIBCXX_HAVE_ISWBLANK**
- #define **_GLIBCXX_HAVE_LC_MESSAGES**
- #define **_GLIBCXX_HAVE_LDEXPF**
- #define **_GLIBCXX_HAVE_LDEXPL**
- #define **_GLIBCXX_HAVE_LIBINTL_H**
- #define **_GLIBCXX_HAVE_LIMIT_AS**
- #define **_GLIBCXX_HAVE_LIMIT_DATA**
- #define **_GLIBCXX_HAVE_LIMIT_FSIZE**
- #define **_GLIBCXX_HAVE_LIMIT_RSS**
- #define **_GLIBCXX_HAVE_LIMIT_VMEM**
- #define **_GLIBCXX_HAVE_LINUX_FUTEX**
- #define **_GLIBCXX_HAVE_LOCALE_H**
- #define **_GLIBCXX_HAVE_LOG10F**
- #define **_GLIBCXX_HAVE_LOG10L**
- #define **_GLIBCXX_HAVE_LOGF**
- #define **_GLIBCXX_HAVE_LOGL**
- #define **_GLIBCXX_HAVE_MBSTATE_T**
- #define **_GLIBCXX_HAVE_MEMORY_H**
- #define **_GLIBCXX_HAVE_MODF**
- #define **_GLIBCXX_HAVE_MODFF**
- #define **_GLIBCXX_HAVE_MODFL**
- #define **_GLIBCXX_HAVE_POLL**
- #define **_GLIBCXX_HAVE_POWF**
- #define **_GLIBCXX_HAVE_POWL**
- #define **_GLIBCXX_HAVE_S_ISREG**
- #define **_GLIBCXX_HAVE_SETENV**
- #define **_GLIBCXX_HAVE_SINCOS**
- #define **_GLIBCXX_HAVE_SINCOSF**
- #define **_GLIBCXX_HAVE_SINCOSL**
- #define **_GLIBCXX_HAVE_SINF**
- #define **_GLIBCXX_HAVE_SINHF**
- #define **_GLIBCXX_HAVE_SINHL**
- #define **_GLIBCXX_HAVE_SINL**
- #define **_GLIBCXX_HAVE_SQRTF**
- #define **_GLIBCXX_HAVE_SQRTL**
- #define **_GLIBCXX_HAVE_STDBOOL_H**
- #define **_GLIBCXX_HAVE_STDINT_H**
- #define **_GLIBCXX_HAVE_STDLIB_H**
- #define **_GLIBCXX_HAVE_STRERROR_L**

- #define **_GLIBCXX_HAVE_STRERROR_R**
- #define **_GLIBCXX_HAVE_STRING_H**
- #define **_GLIBCXX_HAVE_STRINGS_H**
- #define **_GLIBCXX_HAVE_STRTOF**
- #define **_GLIBCXX_HAVE_STRTOLD**
- #define **_GLIBCXX_HAVE_STRXFRM_L**
- #define **_GLIBCXX_HAVE_SYS_IOCTL_H**
- #define **_GLIBCXX_HAVE_SYS_IPC_H**
- #define **_GLIBCXX_HAVE_SYS_PARAM_H**
- #define **_GLIBCXX_HAVE_SYS_RESOURCE_H**
- #define **_GLIBCXX_HAVE_SYS_SEM_H**
- #define **_GLIBCXX_HAVE_SYS_STAT_H**
- #define **_GLIBCXX_HAVE_SYS_TIME_H**
- #define **_GLIBCXX_HAVE_SYS_TYPES_H**
- #define **_GLIBCXX_HAVE_SYS_UIO_H**
- #define **_GLIBCXX_HAVE_TANF**
- #define **_GLIBCXX_HAVE_TANHF**
- #define **_GLIBCXX_HAVE_TANHL**
- #define **_GLIBCXX_HAVE_TANL**
- #define **_GLIBCXX_HAVE_TGMATH_H**
- #define **_GLIBCXX_HAVE_TLS**
- #define **_GLIBCXX_HAVE_UNISTD_H**
- #define **_GLIBCXX_HAVE_VFWSCANF**
- #define **_GLIBCXX_HAVE_VSWSCANF**
- #define **_GLIBCXX_HAVE_VWSCANF**
- #define **_GLIBCXX_HAVE_WCHAR_H**
- #define **_GLIBCXX_HAVE_WCSTOF**
- #define **_GLIBCXX_HAVE_WCTYPE_H**
- #define **_GLIBCXX_HAVE_WRITEV**
- #define **_GLIBCXX_HOSTED**
- #define **_GLIBCXX_ICONV_CONST**
- #define **_GLIBCXX_LDBL_NAMESPACE**
- #define **_GLIBCXX_NAMESPACE_ASSOCIATION_VERSION**
- #define **_GLIBCXX_NORETURN**
- #define **_GLIBCXX_PACKAGE__GLIBCXX_VERSION**
- #define **_GLIBCXX_PACKAGE_BUGREPORT**
- #define **_GLIBCXX_PACKAGE_NAME**
- #define **_GLIBCXX_PACKAGE_STRING**
- #define **_GLIBCXX_PACKAGE_TARNAME**
- #define **_GLIBCXX_PACKAGE_URL**
- #define **_GLIBCXX_PSEUDO_VISIBILITY**(V)
- #define **_GLIBCXX_PURE**
- #define **_GLIBCXX_RES_LIMITS**

- #define **_GLIBCXX_STD**
- #define **_GLIBCXX_STD_D**
- #define **_GLIBCXX_STD_P**
- #define **_GLIBCXX_STD_PR**
- #define **_GLIBCXX_STDIO_MACROS**
- #define **_GLIBCXX_SYMVER**
- #define **_GLIBCXX_SYMVER_GNU**
- #define **_GLIBCXX_USE_C99**
- #define **_GLIBCXX_USE_C99_COMPLEX**
- #define **_GLIBCXX_USE_C99_COMPLEX_TR1**
- #define **_GLIBCXX_USE_C99_CTYPE_TR1**
- #define **_GLIBCXX_USE_C99_FENV_TR1**
- #define **_GLIBCXX_USE_C99_INTTYPES_TR1**
- #define **_GLIBCXX_USE_C99_INTTYPES_WCHAR_T_TR1**
- #define **_GLIBCXX_USE_C99_MATH**
- #define **_GLIBCXX_USE_C99_MATH_TR1**
- #define **_GLIBCXX_USE_C99_STDINT_TR1**
- #define **_GLIBCXX_USE_DECIMAL_FLOAT**
- #define **_GLIBCXX_USE_GETTIMEOFDAY**
- #define **_GLIBCXX_USE_LFS**
- #define **_GLIBCXX_USE_LONG_LONG**
- #define **_GLIBCXX_USE_NLS**
- #define **_GLIBCXX_USE_RANDOM_TR1**
- #define **_GLIBCXX_USE_WCHAR_T**
- #define **_GLIBCXX_VISIBILITY_ATTR**(V)
- #define **LT_OBJDIR**
- #define **STDC_HEADERS**

6.41.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file c++config.h.

6.42 c++io.h File Reference

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_CXX_IO_H**

Typedefs

- typedef FILE **std::__c_file**
- typedef __gthread_mutex_t **std::__c_lock**

6.42.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file c++io.h.

6.43 c++locale.h File Reference

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_C_LOCALE_GNU**
- #define **_GLIBCXX_CXX_LOCALE_H**
- #define **_GLIBCXX_NUM_CATEGORIES**

Typedefs

- typedef __locale_t **std::__c_locale**

Functions

- int **std::__convert_from_v** (const __c_locale &__cloc __attribute__((__unused__)), char *__out, const int __size __attribute__((__unused__)), const char *__fmt,...)

6.43.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file c++locale.h.

6.44 c++locale_internal.h File Reference

6.44.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file c++locale_internal.h.

6.45 cassert File Reference

6.45.1 Detailed Description

This is a Standard C++ Library file. You should `#include` this file in your programs, rather than any of the *.h implementation files.

This is the C++ version of the Standard C Library header `assert.h`, and its contents are (mostly) the same as that header, but are all contained in the namespace `std` (except for names which are defined as macros in C).

Definition in file cassert.

6.46 ccomplex File Reference

Defines

- #define **_GLIBCXX_CCOMPLEX**

6.46.1 Detailed Description

This is a Standard C++ Library header.

Definition in file ccomplex.

6.47 ccomplex File Reference

Defines

- #define **_GLIBCXX_TR1_CCOMPLEX**

6.47.1 Detailed Description

This is a TR1 C++ Library header.

Definition in file tr1/ccomplex.

6.48 cctype File Reference

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_CCTYPE**

6.48.1 Detailed Description

This is a Standard C++ Library file. You should `#include` this file in your programs, rather than any of the ∗.h implementation files.

This is the C++ version of the Standard C Library header `ctype.h`, and its contents are (mostly) the same as that header, but are all contained in the namespace `std` (except for names which are defined as macros in C).

Definition in file cctype.

6.49 cctype File Reference

Defines

- #define **_GLIBCXX_BEGIN_NAMESPACE_TR1**
- #define **_GLIBCXX_END_NAMESPACE_TR1**
- #define **_GLIBCXX_INCLUDE_AS_TR1**
- #define **_GLIBCXX_TR1**
- #define **_GLIBCXX_TR1_CCTYPE**

6.49.1 Detailed Description

This is a TR1 C++ Library header.

Definition in file tr1/cctype.

6.50 cctype File Reference

6.50.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file tr1_impl/cctype.

6.51 cerrno File Reference

Defines

- #define **_GLIBCXX_CERRNO**
- #define **errno**

6.51.1 Detailed Description

This is a Standard C++ Library file. You should `#include` this file in your programs, rather than any of the ∗.h implementation files.

This is the C++ version of the Standard C Library header `errno.h`, and its contents are (mostly) the same as that header, but are all contained in the namespace `std` (except for names which are defined as macros in C).

Definition in file cerrno.

6.52 cfenv File Reference

Defines

- #define **_GLIBCXX_CFENV**

6.52.1 Detailed Description

This is a Standard C++ Library header.

Definition in file cfenv.

6.53 cfenv File Reference

Defines

- #define **_GLIBCXX_BEGIN_NAMESPACE_TR1**
- #define **_GLIBCXX_END_NAMESPACE_TR1**
- #define **_GLIBCXX_INCLUDE_AS_TR1**
- #define **_GLIBCXX_TR1**
- #define **_GLIBCXX_TR1_CFENV**

6.53.1 Detailed Description

This is a TR1 C++ Library header.

Definition in file tr1/cfenv.

6.54 cfenv File Reference

6.54.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file tr1_impl/cfenv.

6.55 cfloat File Reference

Defines

- #define **_GLIBCXX_CFLOAT**
- #define **DECIMAL_DIG**
- #define **FLT_EVAL_METHOD**

6.55.1 Detailed Description

This is a Standard C++ Library file. You should `#include` this file in your programs, rather than any of the ∗.h implementation files.

This is the C++ version of the Standard C Library header `float.h`, and its contents are (mostly) the same as that header, but are all contained in the namespace `std` (except for names which are defined as macros in C).

Definition in file cfloat.

6.56 cfloat File Reference

Defines

- #define **_GLIBCXX_TR1_CFLOAT**

6.56.1 Detailed Description

This is a TR1 C++ Library header.

Definition in file tr1/cfloat.

6.57 char_traits.h File Reference

Classes

- struct __gnu_cxx::_Char_types< _CharT >
  Mapping from character type to associated types.
- struct __gnu_cxx::char_traits< _CharT >
  Base class used to implement std::char_traits.
- struct std::char_traits< _CharT >
  Basis for explicit traits specializations.
- struct std::char_traits< char >
  21.1.3.1 char_traits specializations
- struct std::char_traits< wchar_t >
  21.1.3.2 char_traits specializations

Namespaces

- namespace __gnu_cxx
- namespace std

Defines

- #define **_CHAR_TRAITS_EOF**
- #define **_CHAR_TRAITS_H**

6.57.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file char_traits.h.

6.58 checkers.h File Reference

Routines for checking the correctness of algorithm results. This file is a GNU parallel extension to the Standard C++ Library.

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_CHECKERS_H**

Functions

- template<typename _IIter , typename _Compare >
  bool __gnu_parallel::__is_sorted (_IIter __begin, _IIter __end, _Compare __comp)

6.58.1 Detailed Description

Routines for checking the correctness of algorithm results. This file is a GNU parallel extension to the Standard C++ Library.

Definition in file checkers.h.

6.59 chrono File Reference

Classes

- struct std::chrono::duration< _Rep, _Period >
  duration
- struct std::chrono::duration_values< _Rep >
  duration_values
- struct std::chrono::system_clock
  system_clock
- struct std::chrono::time_point< _Clock, _Duration >
  time_point
- struct std::chrono::treat_as_floating_point< _Rep >
  treat_as_floating_point

Namespaces

- namespace std
- namespace std::chrono

Defines

- #define **_GLIBCXX_CHRONO**

Typedefs

- typedef system_clock **std::chrono::high_resolution_clock**
- typedef duration< int, ratio< 3600 > > std::chrono::hours
- typedef duration< int64_t, micro > std::chrono::microseconds
- typedef duration< int64_t, milli > std::chrono::milliseconds
- typedef duration< int, ratio< 60 > > std::chrono::minutes
- typedef system_clock **std::chrono::monotonic_clock**
- typedef duration< int64_t, nano > std::chrono::nanoseconds
- typedef duration< int64_t > std::chrono::seconds

Functions

- template<typename _ToDuration , typename _Rep , typename _Period >
  enable_if< __is_duration< _ToDuration >::value, _ToDuration >::type std::chrono::duration_cast (const duration< _Rep, _Period > &__d)
- template<typename _Clock , typename _Duration1 , typename _Duration2 >
  bool **std::chrono::operator!=** (const time_point< _Clock, _Duration1 > &__lhs, const time_point< _Clock, _Duration2 > &__rhs)
- template<typename _Rep1 , typename _Period1 , typename _Rep2 , typename _Period2 >
  bool **std::chrono::operator!=** (const duration< _Rep1, _Period1 > &__lhs, const duration< _Rep2, _Period2 > &__rhs)
- template<typename _Rep1 , typename _Period1 , typename _Rep2 , typename _Period2 >
  common_type< duration< _Rep1, _Period1 >, duration< _Rep2, _Period2 > >::type **std::chrono::operator%** (const duration< _Rep1, _Period1 > &__lhs, const duration< _Rep2, _Period2 > &__rhs)
- template<typename _Rep1 , typename _Period , typename _Rep2 >
  duration< typename __common_rep_type< _Rep1, typename enable_if<!__is_duration< _Rep2 >::value, _Rep2 >::type >::type, _Period > **std::chrono::operator%** (const duration< _Rep1, _Period > &__d, const _Rep2 &__s)
- template<typename _Rep1 , typename _Period , typename _Rep2 >
  duration< typename __common_rep_type< _Rep2, _Rep1 >::type, _Period > **std::chrono::operator*** (const _Rep1 &__s, const duration< _Rep2, _Period > &__d)
- template<typename _Rep1 , typename _Period , typename _Rep2 >
  duration< typename __common_rep_type< _Rep1, _Rep2 >::type, _Period > **std::chrono::operator*** (const duration< _Rep1, _Period > &__d, const _Rep2 &__s)
- template<typename _Rep1 , typename _Period1 , typename _Clock , typename _Duration2 >
  time_point< _Clock, typename common_type< duration< _Rep1, _Period1 >, _Duration2 >::type > **std::chrono::operator+** (const duration< _Rep1, _Period1 > &__lhs, const time_point< _Clock, _Duration2 > &__rhs)
- template<typename _Clock , typename _Duration1 , typename _Rep2 , typename _Period2 >
  time_point< _Clock, typename common_type< _Duration1, duration< _Rep2, _Period2 > >::type > **std::chrono::operator+** (const time_point< _Clock, _Duration1 > &__lhs, const duration< _Rep2, _Period2 > &__rhs)
- template<typename _Rep1 , typename _Period1 , typename _Rep2 , typename _Period2 >
  common_type< duration< _Rep1, _Period1 >, duration< _Rep2, _Period2 > >::type **std::chrono::operator+** (const duration< _Rep1, _Period1 > &__lhs, const duration< _Rep2, _Period2 > &__rhs)
- template<typename _Clock , typename _Duration1 , typename _Duration2 >
  common_type< _Duration1, _Duration2 >::type **std::chrono::operator-** (const time_point< _Clock, _Duration1 > &__lhs, const time_point< _Clock, _Duration2 > &__rhs)

- template<typename _Clock , typename _Duration1 , typename _Rep2 , typename _Period2 > time_point< _Clock, typename common_type< _Duration1, duration< _Rep2, _Period2 > >::type > **std::chrono::operator-** (const time_point< _Clock, _Duration1 > &__lhs, const duration< _Rep2, _Period2 > &__rhs)
- template<typename _Rep1 , typename _Period1 , typename _Rep2 , typename _Period2 > common_type< duration< _Rep1, _Period1 >, duration< _Rep2, _Period2 > >::type **std::chrono::operator-** (const duration< _Rep1, _Period1 > &__lhs, const duration< _Rep2, _Period2 > &__rhs)
- template<typename _Rep1 , typename _Period1 , typename _Rep2 , typename _Period2 > common_type< _Rep1, _Rep2 >::type **std::chrono::operator/** (const duration< _Rep1, _Period1 > &__lhs, const duration< _Rep2, _Period2 > &__rhs)
- template<typename _Rep1 , typename _Period , typename _Rep2 > duration< typename __common_rep_type< _Rep1, typename enable_if<!__is_duration< _Rep2 >::value, _Rep2 >::type >::type, _Period > **std::chrono::operator/** (const duration< _Rep1, _Period > &__d, const _Rep2 &__s)
- template<typename _Clock , typename _Duration1 , typename _Duration2 > bool **std::chrono::operator<** (const time_point< _Clock, _Duration1 > &__lhs, const time_point< _Clock, _Duration2 > &__rhs)
- template<typename _Rep1 , typename _Period1 , typename _Rep2 , typename _Period2 > bool **std::chrono::operator<** (const duration< _Rep1, _Period1 > &__lhs, const duration< _Rep2, _Period2 > &__rhs)
- template<typename _Clock , typename _Duration1 , typename _Duration2 > bool **std::chrono::operator<=** (const time_point< _Clock, _Duration1 > &__lhs, const time_point< _Clock, _Duration2 > &__rhs)
- template<typename _Rep1 , typename _Period1 , typename _Rep2 , typename _Period2 > bool **std::chrono::operator<=** (const duration< _Rep1, _Period1 > &__lhs, const duration< _Rep2, _Period2 > &__rhs)
- template<typename _Clock , typename _Duration1 , typename _Duration2 > bool **std::chrono::operator==** (const time_point< _Clock, _Duration1 > &__lhs, const time_point< _Clock, _Duration2 > &__rhs)
- template<typename _Rep1 , typename _Period1 , typename _Rep2 , typename _Period2 > bool **std::chrono::operator==** (const duration< _Rep1, _Period1 > &__lhs, const duration< _Rep2, _Period2 > &__rhs)
- template<typename _Clock , typename _Duration1 , typename _Duration2 > bool **std::chrono::operator>** (const time_point< _Clock, _Duration1 > &__lhs, const time_point< _Clock, _Duration2 > &__rhs)
- template<typename _Rep1 , typename _Period1 , typename _Rep2 , typename _Period2 > bool **std::chrono::operator>** (const duration< _Rep1, _Period1 > &__lhs, const duration< _Rep2, _Period2 > &__rhs)
- template<typename _Clock , typename _Duration1 , typename _Duration2 > bool **std::chrono::operator>=** (const time_point< _Clock, _Duration1 > &__lhs, const time_point< _Clock, _Duration2 > &__rhs)

- template<typename _Rep1 , typename _Period1 , typename _Rep2 , typename _Period2 > bool **std::chrono::operator>=** (const duration< _Rep1, _Period1 > &__lhs, const duration< _Rep2, _Period2 > &__rhs)
- template<typename _ToDuration , typename _Clock , typename _Duration > enable_if< __is_duration< _ToDuration >::value, time_point< _Clock, _ToDuration > >::type std::chrono::time_point_cast (const time_point< _Clock, _Duration > &__t)

6.59.1 Detailed Description

This is a Standard C++ Library header.

Definition in file chrono.

6.60 cinttypes File Reference

Defines

- #define **_GLIBCXX_CINTTYPES**

6.60.1 Detailed Description

This is a Standard C++ Library header.

Definition in file cinttypes.

6.61 cinttypes File Reference

Defines

- #define **_GLIBCXX_BEGIN_NAMESPACE_TR1**
- #define **_GLIBCXX_END_NAMESPACE_TR1**
- #define **_GLIBCXX_INCLUDE_AS_TR1**
- #define **_GLIBCXX_TR1**
- #define **_GLIBCXX_TR1_CINTTYPES**

6.61.1 Detailed Description

This is a TR1 C++ Library header.

Definition in file tr1/cinttypes.

6.62 cinttypes File Reference

6.62.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file tr1_impl/cinttypes.

6.63 ciso646 File Reference

6.63.1 Detailed Description

This is a Standard C++ Library file. You should `#include` this file in your programs, rather than any of the *.h implementation files.

This is the C++ version of the Standard C Library header `iso646.h`, and its contents are (mostly) the same as that header, but are all contained in the namespace `std` (except for names which are defined as macros in C).

Definition in file ciso646.

6.64 climits File Reference

Defines

- #define **_GLIBCXX_CLIMITS**
- #define **LLONG_MAX**
- #define **LLONG_MIN**
- #define **ULLONG_MAX**

6.64.1 Detailed Description

This is a Standard C++ Library file. You should `#include` this file in your programs, rather than any of the ∗.h implementation files.

This is the C++ version of the Standard C Library header `limits.h`, and its contents are (mostly) the same as that header, but are all contained in the namespace `std` (except for names which are defined as macros in C).

Definition in file climits.

6.65 climits File Reference

Defines

- #define **_GLIBCXX_TR1_CLIMITS**

6.65.1 Detailed Description

This is a TR1 C++ Library header.

Definition in file tr1/climits.

6.66 clocale File Reference

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_CLOCALE**

6.66.1 Detailed Description

This is a Standard C++ Library file. You should `#include` this file in your programs, rather than any of the ∗.h implementation files.

This is the C++ version of the Standard C Library header `locale.h`, and its contents are (mostly) the same as that header, but are all contained in the namespace `std` (except for names which are defined as macros in C).

Definition in file clocale.

6.67 cmath File Reference

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_CMATH**

Functions

- template<typename _Tp >
  _Tp **std::__cmath_power** (_Tp, unsigned int)
- template<typename _Tp >
  _Tp **std::__pow_helper** (_Tp __x, int __n)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **std::abs** (_Tp __x)
- long double **std::abs** (long double __x)
- float **std::abs** (float __x)
- double **std::abs** (double __x)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **std::acos** (_Tp __x)
- long double **std::acos** (long double __x)
- float **std::acos** (float __x)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **std::asin** (_Tp __x)
- long double **std::asin** (long double __x)
- float **std::asin** (float __x)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **std::atan** (_Tp __x)
- long double **std::atan** (long double __x)
- float **std::atan** (float __x)
- template<typename _Tp , typename _Up >
  __gnu_cxx::__promote_2< typename __gnu_cxx::__enable_if< __is_arithmetic< _Tp >::__value &&__is_arithmetic< _Up >::__value, _Tp >::__type, _Up >::__type **std::atan2** (_Tp __y, _Up __x)
- long double **std::atan2** (long double __y, long double __x)
- float **std::atan2** (float __y, float __x)

- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **std::ceil** (_Tp __x)
- long double **std::ceil** (long double __x)
- float **std::ceil** (float __x)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **std::cos** (_Tp __x)
- long double **std::cos** (long double __x)
- float **std::cos** (float __x)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **std::cosh** (_Tp __x)
- long double **std::cosh** (long double __x)
- float **std::cosh** (float __x)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **std::exp** (_Tp __x)
- long double **std::exp** (long double __x)
- float **std::exp** (float __x)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **std::fabs** (_Tp __x)
- long double **std::fabs** (long double __x)
- float **std::fabs** (float __x)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **std::floor** (_Tp __x)
- long double **std::floor** (long double __x)
- float **std::floor** (float __x)
- long double **std::fmod** (long double __x, long double __y)
- float **std::fmod** (float __x, float __y)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **std::frexp** (_Tp __x, int *__exp)
- long double **std::frexp** (long double __x, int *__exp)
- float **std::frexp** (float __x, int *__exp)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **std::ldexp** (_Tp __x, int __exp)
- long double **std::ldexp** (long double __x, int __exp)
- float **std::ldexp** (float __x, int __exp)

- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **std::log** (_Tp __x)
- long double **std::log** (long double __x)
- float **std::log** (float __x)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **std::log10** (_Tp __x)
- long double **std::log10** (long double __x)
- float **std::log10** (float __x)
- long double **std::modf** (long double __x, long double *__iptr)
- float **std::modf** (float __x, float *__iptr)
- template<typename _Tp , typename _Up >
  __gnu_cxx::__promote_2< typename __gnu_cxx::__enable_if< __is_arithmetic< _Tp >::__value &&__is_arithmetic< _Up >::__value, _Tp >::__type, _Up >::__type **std::pow** (_Tp __x, _Up __y)
- long double **std::pow** (long double __x, long double __y)
- float **std::pow** (float __x, float __y)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **std::sin** (_Tp __x)
- long double **std::sin** (long double __x)
- float **std::sin** (float __x)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **std::sinh** (_Tp __x)
- long double **std::sinh** (long double __x)
- float **std::sinh** (float __x)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **std::sqrt** (_Tp __x)
- long double **std::sqrt** (long double __x)
- float **std::sqrt** (float __x)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **std::tan** (_Tp __x)
- long double **std::tan** (long double __x)
- float **std::tan** (float __x)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_integer< _Tp >::__value, double >::__type **std::tanh** (_Tp __x)
- long double **std::tanh** (long double __x)
- float **std::tanh** (float __x)

6.67.1 Detailed Description

This is a Standard C++ Library file. You should `#include` this file in your programs, rather than any of the ∗.h implementation files.

This is the C++ version of the Standard C Library header `math.h`, and its contents are (mostly) the same as that header, but are all contained in the namespace `std` (except for names which are defined as macros in C).

Definition in file cmath.

6.68 cmath File Reference

Namespaces

- namespace std
- namespace std::tr1

Defines

- #define **_GLIBCXX_BEGIN_NAMESPACE_TR1**
- #define **_GLIBCXX_END_NAMESPACE_TR1**
- #define **_GLIBCXX_INCLUDE_AS_TR1**
- #define **_GLIBCXX_TR1**
- #define **_GLIBCXX_TR1_CMATH**

Functions

- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type std::tr1::assoc_laguerre (unsigned int __n, unsigned int __m, _Tp __x)
- float **std::tr1::assoc_laguerref** (unsigned int __n, unsigned int __m, float __x)
- long double **std::tr1::assoc_laguerrel** (unsigned int __n, unsigned int __m, long double __x)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type std::tr1::assoc_legendre (unsigned int __l, unsigned int __m, _Tp __x)
- float **std::tr1::assoc_legendref** (unsigned int __l, unsigned int __m, float __x)
- long double **std::tr1::assoc_legendrel** (unsigned int __l, unsigned int __m, long double __x)
- template<typename _Tpx , typename _Tpy >
  __gnu_cxx::__promote_2< _Tpx, _Tpy >::__type std::tr1::beta (_Tpx __x, _Tpy __y)
- float **std::tr1::betaf** (float __x, float __y)
- long double **std::tr1::betal** (long double __x, long double __y)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type std::tr1::comp_ellint_1 (_Tp __k)
- float **std::tr1::comp_ellint_1f** (float __k)
- long double **std::tr1::comp_ellint_1l** (long double __k)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type std::tr1::comp_ellint_2 (_Tp __k)
- float **std::tr1::comp_ellint_2f** (float __k)
- long double **std::tr1::comp_ellint_2l** (long double __k)

- template<typename _Tp , typename _Tpn >
  __gnu_cxx::__promote_2< _Tp, _Tpn >::__type std::tr1::comp_ellint_3 (_Tp __k, _Tpn __nu)
- float **std::tr1::comp_ellint_3f** (float __k, float __nu)
- long double **std::tr1::comp_ellint_3l** (long double __k, long double __nu)
- template<typename _Tpa , typename _Tpc , typename _Tp >
  __gnu_cxx::__promote_3< _Tpa, _Tpc, _Tp >::__type std::tr1::conf_hyperg (_Tpa __a, _Tpc __c, _Tp __x)
- float **std::tr1::conf_hypergf** (float __a, float __c, float __x)
- long double **std::tr1::conf_hypergl** (long double __a, long double __c, long double __x)
- template<typename _Tpnu , typename _Tp >
  __gnu_cxx::__promote_2< _Tpnu, _Tp >::__type std::tr1::cyl_bessel_i (_Tpnu __nu, _Tp __x)
- float **std::tr1::cyl_bessel_if** (float __nu, float __x)
- long double **std::tr1::cyl_bessel_il** (long double __nu, long double __x)
- template<typename _Tpnu , typename _Tp >
  __gnu_cxx::__promote_2< _Tpnu, _Tp >::__type std::tr1::cyl_bessel_j (_Tpnu __nu, _Tp __x)
- float **std::tr1::cyl_bessel_jf** (float __nu, float __x)
- long double **std::tr1::cyl_bessel_jl** (long double __nu, long double __x)
- template<typename _Tpnu , typename _Tp >
  __gnu_cxx::__promote_2< _Tpnu, _Tp >::__type std::tr1::cyl_bessel_k (_Tpnu __nu, _Tp __x)
- float **std::tr1::cyl_bessel_kf** (float __nu, float __x)
- long double **std::tr1::cyl_bessel_kl** (long double __nu, long double __x)
- template<typename _Tpnu , typename _Tp >
  __gnu_cxx::__promote_2< _Tpnu, _Tp >::__type std::tr1::cyl_neumann (_Tpnu __nu, _Tp __x)
- float **std::tr1::cyl_neumannf** (float __nu, float __x)
- long double **std::tr1::cyl_neumannl** (long double __nu, long double __x)
- template<typename _Tp , typename _Tpp >
  __gnu_cxx::__promote_2< _Tp, _Tpp >::__type std::tr1::ellint_1 (_Tp __k, _Tpp __phi)
- float **std::tr1::ellint_1f** (float __k, float __phi)
- long double **std::tr1::ellint_1l** (long double __k, long double __phi)
- template<typename _Tp , typename _Tpp >
  __gnu_cxx::__promote_2< _Tp, _Tpp >::__type std::tr1::ellint_2 (_Tp __k, _Tpp __phi)
- float **std::tr1::ellint_2f** (float __k, float __phi)
- long double **std::tr1::ellint_2l** (long double __k, long double __phi)
- template<typename _Tp , typename _Tpn , typename _Tpp >
  __gnu_cxx::__promote_3< _Tp, _Tpn, _Tpp >::__type std::tr1::ellint_3 (_Tp __k, _Tpn __nu, _Tpp __phi)

- float **std::tr1::ellint_3f** (float __k, float __nu, float __phi)
- long double **std::tr1::ellint_3l** (long double __k, long double __nu, long double __phi)
- template<typename _Tp > __gnu_cxx::__promote< _Tp >::__type std::tr1::expint (_Tp __x)
- float **std::tr1::expintf** (float __x)
- long double **std::tr1::expintl** (long double __x)
- template<typename _Tp > __gnu_cxx::__promote< _Tp >::__type std::tr1::hermite (unsigned int __n, _Tp __x)
- float **std::tr1::hermitef** (unsigned int __n, float __x)
- long double **std::tr1::hermitel** (unsigned int __n, long double __x)
- template<typename _Tpa , typename _Tpb , typename _Tpc , typename _Tp > __gnu_cxx::__promote_4< _Tpa, _Tpb, _Tpc, _Tp >::__type std::tr1::hyperg (_Tpa __a, _Tpb __b, _Tpc __c, _Tp __x)
- float **std::tr1::hypergf** (float __a, float __b, float __c, float __x)
- long double **std::tr1::hypergl** (long double __a, long double __b, long double __c, long double __x)
- template<typename _Tp > __gnu_cxx::__promote< _Tp >::__type std::tr1::laguerre (unsigned int __n, _Tp __x)
- float **std::tr1::laguerref** (unsigned int __n, float __x)
- long double **std::tr1::laguerrel** (unsigned int __n, long double __x)
- template<typename _Tp > __gnu_cxx::__promote< _Tp >::__type std::tr1::legendre (unsigned int __n, _Tp __x)
- float **std::tr1::legendref** (unsigned int __n, float __x)
- long double **std::tr1::legendrel** (unsigned int __n, long double __x)
- template<typename _Tp , typename _Up > __gnu_cxx::__promote_2< _Tp, _Up >::__type **std::tr1::pow** (_Tp __x, _Up __y)
- long double **std::tr1::pow** (long double __x, long double __y)
- float **std::tr1::pow** (float __x, float __y)
- double **std::tr1::pow** (double __x, double __y)
- template<typename _Tp > __gnu_cxx::__promote< _Tp >::__type std::tr1::riemann_zeta (_Tp __x)
- float **std::tr1::riemann_zetaf** (float __x)
- long double **std::tr1::riemann_zetal** (long double __x)
- template<typename _Tp > __gnu_cxx::__promote< _Tp >::__type std::tr1::sph_bessel (unsigned int __n, _Tp __x)
- float **std::tr1::sph_besself** (unsigned int __n, float __x)
- long double **std::tr1::sph_bessell** (unsigned int __n, long double __x)

- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type std::tr1::sph_legendre (unsigned int __l, unsigned int __m, _Tp __theta)
- float **std::tr1::sph_legendref** (unsigned int __l, unsigned int __m, float __theta)
- long double **std::tr1::sph_legendrel** (unsigned int __l, unsigned int __m, long double __theta)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type std::tr1::sph_neumann (unsigned int __n, _Tp __x)
- float **std::tr1::sph_neumannf** (unsigned int __n, float __x)
- long double **std::tr1::sph_neumannl** (unsigned int __n, long double __x)

6.68.1 Detailed Description

This is a TR1 C++ Library header.

Definition in file tr1/cmath.

6.69 cmath File Reference

Namespaces

- namespace std

6.69.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file tr1_impl/cmath.

6.70 cmath.tcc File Reference

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_CMATH_TCC**

Functions

- template<typename _Tp >
  _Tp **std::__cmath_power** (_Tp, unsigned int)

6.70.1 Detailed Description

This is a Standard C++ Library file.

Definition in file cmath.tcc.

6.71 codecvt.h File Reference

Classes

- class std::__codecvt_abstract_base< _InternT, _ExternT, _StateT >
  Common base for codecvt functions.
- class std::codecvt< _InternT, _ExternT, _StateT >
  Primary class template codecvt.
  NB: Generic, mostly useless implementation.
- class std::codecvt< char, char, mbstate_t >
  class codecvt<char, char, mbstate_t> specialization.
- class std::codecvt< wchar_t, char, mbstate_t >
  class codecvt<wchar_t, char, mbstate_t> specialization.
- class std::codecvt_base
  Empty base class for codecvt facet [22.2.1.5].
- class std::codecvt_byname< _InternT, _ExternT, _StateT >
  class codecvt_byname [22.2.1.6].

Namespaces

- namespace std

Defines

- #define **_CODECVT_H**

Functions

- template bool **std::has_facet**< **codecvt**< **char, char, mbstate_t** > > (const locale &)
- template bool **std::has_facet**< **codecvt**< **wchar_t, char, mbstate_t** > > (const locale &)
- template const codecvt< char, char, mbstate_t > & **std::use_facet**< **codecvt**< **char, char, mbstate_t** > > (const locale &)
- template const codecvt< wchar_t, char, mbstate_t > & **std::use_facet**< **codecvt**< **wchar_t, char, mbstate_t** > > (const locale &)

6.71.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file codecvt.h.

6.72 codecvt_specializations.h File Reference

Classes

- struct __gnu_cxx::encoding_char_traits< _CharT >
  encoding_char_traits
- class __gnu_cxx::encoding_state
  Extension to use iconv for dealing with character encodings.
- class std::codecvt< _InternT, _ExternT, encoding_state >
  codecvt<InternT, _ExternT, encoding_state> specialization.

Namespaces

- namespace __gnu_cxx
- namespace std

Defines

- #define **_EXT_CODECVT_SPECIALIZATIONS_H**

Functions

- template<typename _Tp >
  size_t **std::__iconv_adaptor** (size_t(*__func)(iconv_t, _Tp, size_t *, char **, size_t *), iconv_t __cd, char **__inbuf, size_t *__inbytes, char **__outbuf, size_t *__outbytes)

6.72.1 Detailed Description

This file is a GNU extension to the Standard C++ Library.

Definition in file codecvt_specializations.h.

6.73 compatibility.h File Reference

6.73.1 Detailed Description

This is an internal header file, included by other library sources. You should not attempt to use it directly.

Definition in file x86_64-unknown-linux-gnu/bits/compatibility.h.

6.74 compatibility.h File Reference

Compatibility layer, mostly concerned with atomic operations. This file is a GNU parallel extension to the Standard C++ Library.

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_COMPATIBILITY_H**

Functions

- template<typename _Tp >
  bool __gnu_parallel::__compare_and_swap (volatile _Tp *__ptr, _Tp __comparand, _Tp __replacement)
- bool __gnu_parallel::__compare_and_swap_32 (volatile int32_t *__ptr, int32_t __comparand, int32_t __replacement)
- bool __gnu_parallel::__compare_and_swap_64 (volatile int64_t *__ptr, int64_t __comparand, int64_t __replacement)
- template<typename _Tp >
  _Tp __gnu_parallel::__fetch_and_add (volatile _Tp *__ptr, _Tp __addend)
- int32_t __gnu_parallel::__fetch_and_add_32 (volatile int32_t *__ptr, int32_t __addend)
- int64_t __gnu_parallel::__fetch_and_add_64 (volatile int64_t *__ptr, int64_t __addend)
- void __gnu_parallel::__yield ()

6.74.1 Detailed Description

Compatibility layer, mostly concerned with atomic operations. This file is a GNU parallel extension to the Standard C++ Library.

Definition in file parallel/compatibility.h.

6.75 compiletime_settings.h File Reference

Defines on options concerning debugging and performance, at compile-time. This file is a GNU parallel extension to the Standard C++ Library.

Defines

- #define _GLIBCXX_ASSERTIONS
- #define _GLIBCXX_CALL(__n)
- #define _GLIBCXX_RANDOM_SHUFFLE_CONSIDER_L1
- #define _GLIBCXX_RANDOM_SHUFFLE_CONSIDER_TLB
- #define _GLIBCXX_SCALE_DOWN_FPU
- #define _GLIBCXX_VERBOSE_LEVEL

6.75.1 Detailed Description

Defines on options concerning debugging and performance, at compile-time. This file is a GNU parallel extension to the Standard C++ Library.

Definition in file compiletime_settings.h.

6.75.2 Define Documentation

6.75.2.1 #define _GLIBCXX_ASSERTIONS

Switch on many _GLIBCXX_PARALLEL_ASSERTions in parallel code. Should be switched on only locally.

Definition at line 61 of file compiletime_settings.h.

Referenced by __gnu_parallel::__qsb_local_sort_with_helping().

6.75.2.2 #define _GLIBCXX_CALL(__n)

Macro to produce log message when entering a function.

Parameters:

__n Input size.

See also:

_GLIBCXX_VERBOSE_LEVEL

Definition at line 44 of file compiletime_settings.h.

Referenced by __gnu_parallel::__find_template(), __gnu_parallel::__for_each_-template_random_access_workstealing(), __gnu_parallel::__merge_advance(), __gnu_parallel::__parallel_nth_element(), __gnu_parallel::__parallel_partial_-sum(), __gnu_parallel::__parallel_partition(), __gnu_parallel::__parallel_random_-shuffle_drs(), __gnu_parallel::__parallel_sort(), __gnu_parallel::__parallel_sort_qs(), __gnu_parallel::__parallel_sort_qsb(), __gnu_parallel::__parallel_unique_copy(), __-gnu_parallel::__search_template(), __gnu_parallel::__sequential_multiway_merge(), __gnu_parallel::multiseq_partition(), __gnu_parallel::multiseq_selection(), __gnu_-parallel::multiway_merge(), __gnu_parallel::multiway_merge_3_variant(), __gnu_-parallel::multiway_merge_4_variant(), __gnu_parallel::multiway_merge_loser_tree(), __gnu_parallel::multiway_merge_loser_tree_sentinel(), __gnu_parallel::multiway_-merge_loser_tree_unguarded(), __gnu_parallel::multiway_merge_sentinels(), __-gnu_parallel::parallel_multiway_merge(), and __gnu_parallel::parallel_sort_mwms().

6.75.2.3 #define _GLIBCXX_RANDOM_SHUFFLE_CONSIDER_L1

Switch on many _GLIBCXX_PARALLEL_ASSERTions in parallel code. Consider the size of the L1 cache for gnu_parallel::__parallel_random_shuffle().

Definition at line 68 of file compiletime_settings.h.

6.75.2.4 #define _GLIBCXX_RANDOM_SHUFFLE_CONSIDER_TLB

Switch on many _GLIBCXX_PARALLEL_ASSERTions in parallel code. Consider the size of the TLB for gnu_parallel::__parallel_random_shuffle().

Definition at line 74 of file compiletime_settings.h.

6.75.2.5 #define _GLIBCXX_SCALE_DOWN_FPU

Use floating-point scaling instead of modulo for mapping random numbers to a range. This can be faster on certain CPUs.

Definition at line 55 of file compiletime_settings.h.

6.75.2.6 #define _GLIBCXX_VERBOSE_LEVEL

Determine verbosity level of the parallel mode. Level 1 prints a message each time a parallel-mode function is entered.

Definition at line 37 of file compiletime_settings.h.

6.76 complex File Reference

Classes

- struct std::complex< _Tp >

Namespaces

- namespace __gnu_cxx
- namespace std

Defines

- #define **_GLIBCXX_COMPLEX**

Functions

- template<typename _Tp >
  _Tp **std::__complex_abs** (const complex< _Tp > &__z)
- template<typename _Tp >
  _Tp **std::__complex_arg** (const complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > **std::__complex_cos** (const complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > **std::__complex_cosh** (const complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > **std::__complex_exp** (const complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > **std::__complex_log** (const complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > **std::__complex_pow** (const complex< _Tp > &__x, const complex< _Tp > &__y)
- template<typename _Tp >
  std::complex< _Tp > **std::__complex_proj** (const std::complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > **std::__complex_sin** (const complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > **std::__complex_sinh** (const complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > **std::__complex_sqrt** (const complex< _Tp > &__z)

- template<typename _Tp >
  complex< _Tp > **std::__complex_tan** (const complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > **std::__complex_tanh** (const complex< _Tp > &__z)
- template<typename _Tp >
  _Tp std::abs (const complex< _Tp > &)
- template<typename _Tp >
  _Tp std::arg (const complex< _Tp > &)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type **std::conj** (_Tp __x)
- template<typename _Tp >
  complex< _Tp > std::conj (const complex< _Tp > &)
- template<typename _Tp >
  complex< _Tp > std::cos (const complex< _Tp > &)
- template<typename _Tp >
  complex< _Tp > std::cosh (const complex< _Tp > &)
- template<typename _Tp >
  complex< _Tp > std::exp (const complex< _Tp > &)
- template<typename _Tp >
  _Tp **std::imag** (const complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > std::log (const complex< _Tp > &)
- template<typename _Tp >
  complex< _Tp > std::log10 (const complex< _Tp > &)
- template<typename _Tp >
  _Tp std::norm (const complex< _Tp > &)
- template<typename _Tp >
  complex< _Tp > std::operator+ (const complex< _Tp > &__x)
- template<typename _Tp >
  complex< _Tp > std::operator- (const complex< _Tp > &__x)
- template<typename _Tp , typename _CharT , class _Traits >
  basic_ostream< _CharT, _Traits > & std::operator<< (basic_ostream< _CharT, _Traits > &__os, const complex< _Tp > &__x)
- template<typename _Tp , typename _CharT , class _Traits >
  basic_istream< _CharT, _Traits > & std::operator>> (basic_istream< _CharT, _Traits > &__is, complex< _Tp > &__x)
- template<typename _Tp >
  complex< _Tp > std::polar (const _Tp &, const _Tp &=0)
- template<typename _Tp >
  complex< _Tp > std::pow (const _Tp &, const complex< _Tp > &)
- template<typename _Tp >
  complex< _Tp > std::pow (const complex< _Tp > &, const complex< _Tp > &)
- template<typename _Tp >
  complex< _Tp > std::pow (const complex< _Tp > &, const _Tp &)

- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type **std::proj** (_Tp __x)
- template<typename _Tp >
  std::complex< _Tp > **std::proj** (const std::complex< _Tp > &)
- template<typename _Tp >
  _Tp **std::real** (const complex< _Tp > &__z)
- template<typename _Tp >
  complex< _Tp > std::sin (const complex< _Tp > &)
- template<typename _Tp >
  complex< _Tp > std::sinh (const complex< _Tp > &)
- template<typename _Tp >
  complex< _Tp > std::sqrt (const complex< _Tp > &)
- template<typename _Tp >
  complex< _Tp > std::tan (const complex< _Tp > &)
- template<typename _Tp >
  complex< _Tp > std::tanh (const complex< _Tp > &)

- template<typename _Tp >
  bool std::operator!= (const _Tp &__x, const complex< _Tp > &__y)
- template<typename _Tp >
  bool std::operator!= (const complex< _Tp > &__x, const _Tp &__y)
- template<typename _Tp >
  bool std::operator!= (const complex< _Tp > &__x, const complex< _Tp > &__y)
- template<typename _Tp >
  complex< _Tp > std::operator* (const _Tp &__x, const complex< _Tp > &__y)
- template<typename _Tp >
  complex< _Tp > std::operator* (const complex< _Tp > &__x, const _Tp &__y)
- template<typename _Tp >
  complex< _Tp > std::operator* (const complex< _Tp > &__x, const complex< _Tp > &__y)
- template<typename _Tp >
  complex< _Tp > std::operator+ (const _Tp &__x, const complex< _Tp > &__y)
- template<typename _Tp >
  complex< _Tp > std::operator+ (const complex< _Tp > &__x, const _Tp &__y)
- template<typename _Tp >
  complex< _Tp > std::operator+ (const complex< _Tp > &__x, const complex< _Tp > &__y)
- template<typename _Tp >
  complex< _Tp > std::operator- (const _Tp &__x, const complex< _Tp > &__y)

- template<typename _Tp >
  complex< _Tp > std::operator- (const complex< _Tp > &__x, const _Tp &__y)
- template<typename _Tp >
  complex< _Tp > std::operator- (const complex< _Tp > &__x, const complex< _Tp > &__y)
- template<typename _Tp >
  complex< _Tp > std::operator/ (const _Tp &__x, const complex< _Tp > &__y)
- template<typename _Tp >
  complex< _Tp > std::operator/ (const complex< _Tp > &__x, const _Tp &__y)
- template<typename _Tp >
  complex< _Tp > std::operator/ (const complex< _Tp > &__x, const complex< _Tp > &__y)
- template<typename _Tp >
  bool std::operator== (const _Tp &__x, const complex< _Tp > &__y)
- template<typename _Tp >
  bool std::operator== (const complex< _Tp > &__x, const _Tp &__y)
- template<typename _Tp >
  bool std::operator== (const complex< _Tp > &__x, const complex< _Tp > &__y)

6.76.1 Detailed Description

This is a Standard C++ Library header.

Definition in file complex.

6.77 complex File Reference

Namespaces

- namespace std
- namespace std::tr1

Defines

- #define **_GLIBCXX_BEGIN_NAMESPACE_TR1**
- #define **_GLIBCXX_END_NAMESPACE_TR1**
- #define **_GLIBCXX_INCLUDE_AS_TR1**
- #define **_GLIBCXX_TR1**
- #define **_GLIBCXX_TR1_COMPLEX**

Functions

- template<typename _Tp >
  std::complex< typename __gnu_cxx::__promote< _Tp >::__type > **std::tr1::conj** (_Tp __x)
- template<typename _Tp >
  std::complex< _Tp > **std::tr1::conj** (const std::complex< _Tp > &__z)
- template<typename _Tp , typename _Up >
  std::complex< typename __gnu_cxx::__promote_2< _Tp, _Up >::__type > **std::tr1::polar** (const _Tp &__rho, const _Up &__theta)
- template<typename _Tp >
  std::complex< _Tp > **std::tr1::pow** (const std::complex< _Tp > &__x, const std::complex< _Tp > &__y)
- template<typename _Tp >
  std::complex< _Tp > **std::tr1::pow** (const _Tp &__x, const std::complex< _Tp > &__y)
- template<typename _Tp >
  std::complex< _Tp > **std::tr1::pow** (const std::complex< _Tp > &__x, const _Tp &__y)

6.77.1 Detailed Description

This is a TR1 C++ Library header.

Definition in file tr1/complex.

6.78 complex File Reference

Namespaces

- namespace std

Functions

- template<typename _Tp >
std::complex< _Tp > **std::__complex_acos** (const std::complex< _Tp > &__z)
- template<typename _Tp >
std::complex< _Tp > **std::__complex_acosh** (const std::complex< _Tp > &__z)
- template<typename _Tp >
std::complex< _Tp > **std::__complex_asin** (const std::complex< _Tp > &__z)
- template<typename _Tp >
std::complex< _Tp > **std::__complex_asinh** (const std::complex< _Tp > &__z)
- template<typename _Tp >
std::complex< _Tp > **std::__complex_atan** (const std::complex< _Tp > &__z)
- template<typename _Tp >
std::complex< _Tp > **std::__complex_atanh** (const std::complex< _Tp > &__z)
- template<typename _Tp >
std::complex< _Tp > std::acos (const std::complex< _Tp > &__z)
- template<typename _Tp >
std::complex< _Tp > std::acosh (const std::complex< _Tp > &__z)
- template<typename _Tp >
__gnu_cxx::__promote< _Tp >::__type std::arg (_Tp __x)
- template<typename _Tp >
std::complex< _Tp > std::asin (const std::complex< _Tp > &__z)
- template<typename _Tp >
std::complex< _Tp > std::asinh (const std::complex< _Tp > &__z)
- template<typename _Tp >
std::complex< _Tp > std::atan (const std::complex< _Tp > &__z)
- template<typename _Tp >
std::complex< _Tp > std::atanh (const std::complex< _Tp > &__z)
- template<typename _Tp >
_Tp std::fabs (const std::complex< _Tp > &__z)
- template<typename _Tp >
__gnu_cxx::__promote< _Tp >::__type **std::imag** (_Tp)

- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type **std::norm** (_Tp __x)
- template<typename _Tp , typename _Up >
  std::complex< typename __gnu_cxx::__promote_2< _Tp, _Up >::__type > **std::pow** (const std::complex< _Tp > &__x, const std::complex< _Up > &_-
  _y)
- template<typename _Tp , typename _Up >
  std::complex< typename __gnu_cxx::__promote_2< _Tp, _Up >::__type > **std::pow** (const _Tp &__x, const std::complex< _Up > &__y)
- template<typename _Tp , typename _Up >
  std::complex< typename __gnu_cxx::__promote_2< _Tp, _Up >::__type > **std::pow** (const std::complex< _Tp > &__x, const _Up &__y)
- template<typename _Tp >
  __gnu_cxx::__promote< _Tp >::__type **std::real** (_Tp __x)

6.78.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file tr1_impl/complex.

6.79 complex.h File Reference

Defines

- #define **_GLIBCXX_COMPLEX_H**

6.79.1 Detailed Description

This is a Standard C++ Library header.

Definition in file complex.h.

6.80 concept_check.h File Reference

Defines

- #define **__glibcxx_class_requires**(_a, _b)
- #define **__glibcxx_class_requires2**(_a, _b, _c)
- #define **__glibcxx_class_requires3**(_a, _b, _c, _d)
- #define **__glibcxx_class_requires4**(_a, _b, _c, _d, _e)
- #define **__glibcxx_function_requires**(...)
- #define **_CONCEPT_CHECK_H**

6.80.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file concept_check.h.

6.81 concurrence.h File Reference

Classes

- class __gnu_cxx::__scoped_lock

  Scoped lock idiom.

Namespaces

- namespace __gnu_cxx

Defines

- #define **_CONCURRENCE_H**

Enumerations

- enum **_Lock_policy** { **_S_single**, **_S_mutex**, **_S_atomic** }

Functions

- void **__gnu_cxx::__throw_concurrence_broadcast_error** ()
- void **__gnu_cxx::__throw_concurrence_lock_error** ()
- void **__gnu_cxx::__throw_concurrence_unlock_error** ()
- void **__gnu_cxx::__throw_concurrence_wait_error** ()

Variables

- static const _Lock_policy **__gnu_cxx::__default_lock_policy**

6.81.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file concurrence.h.

6.82 cond_dealtor.hpp File Reference

Namespaces

- namespace __gnu_pbds

Defines

- #define **PB_DS_COND_DEALTOR_CLASS_C_DEC**
- #define **PB_DS_COND_DEALTOR_CLASS_T_DEC**

6.82.1 Detailed Description

Contains a conditional deallocator.

Definition in file cond_dealtor.hpp.

6.83 condition_variable File Reference

Classes

- class std::condition_variable
  condition_variable
- class std::condition_variable_any
  condition_variable_any

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_CONDITION_VARIABLE**

Enumerations

- enum std::cv_status { **no_timeout**, **timeout** }

6.83.1 Detailed Description

This is a Standard C++ Library header.

Definition in file condition_variable.

6.84 constructors_destructor_fn_imps.hpp File Reference

Functions

- template<typename T0 , typename T1 , typename T2 , typename T3 , typename T4 , typename T5 , typename T6 , typename T7 , typename T8 >
  PB_DS_CLASS_NAME (T0 t0, T1 t1, T2 t2, T3 t3, T4 t4, T5 t5, T6 t6, T7 t7, T8 t8)
- template<typename T0 , typename T1 , typename T2 , typename T3 , typename T4 , typename T5 , typename T6 , typename T7 >
  PB_DS_CLASS_NAME (T0 t0, T1 t1, T2 t2, T3 t3, T4 t4, T5 t5, T6 t6, T7 t7)
- template<typename T0 , typename T1 , typename T2 , typename T3 , typename T4 , typename T5 , typename T6 >
  PB_DS_CLASS_NAME (T0 t0, T1 t1, T2 t2, T3 t3, T4 t4, T5 t5, T6 t6)
- template<typename T0 , typename T1 , typename T2 , typename T3 , typename T4 , typename T5 >
  PB_DS_CLASS_NAME (T0 t0, T1 t1, T2 t2, T3 t3, T4 t4, T5 t5)
- template<typename T0 , typename T1 , typename T2 , typename T3 , typename T4 >
  PB_DS_CLASS_NAME (T0 t0, T1 t1, T2 t2, T3 t3, T4 t4)
- template<typename T0 , typename T1 , typename T2 , typename T3 >
  PB_DS_CLASS_NAME (T0 t0, T1 t1, T2 t2, T3 t3)
- template<typename T0 , typename T1 , typename T2 >
  PB_DS_CLASS_NAME (T0 t0, T1 t1, T2 t2)
- template<typename T0 , typename T1 >
  PB_DS_CLASS_NAME (T0 t0, T1 t1)
- template<typename T0 >
  PB_DS_CLASS_NAME (T0 t0)
- **PB_DS_CLASS_NAME** (const PB_DS_CLASS_NAME &other)
- **PB_DS_CLASS_NAME** ()

6.84.1 Detailed Description

Contains constructors_destructor_fn_imps applicable to different containers.

Definition in file constructors_destructor_fn_imps.hpp.

6.85 container_base_dispatch.hpp File Reference

Namespaces

- namespace __gnu_pbds

6.85.1 Detailed Description

Contains an associative container dispatching base.

Definition in file container_base_dispatch.hpp.

6.86 cpp_type_traits.h File Reference

Namespaces

- namespace __gnu_cxx
- namespace std

Defines

- #define **_CPP_TYPE_TRAITS_H**

6.86.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file cpp_type_traits.h.

6.87 cpu_defines.h File Reference

Defines

- #define **_GLIBCXX_CPU_DEFINES**

6.87.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file cpu_defines.h.

6.88 csetjmp File Reference

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_CSETJMP**
- #define **setjmp**(env)

6.88.1 Detailed Description

This is a Standard C++ Library file. You should `#include` this file in your programs, rather than any of the *.h implementation files.

This is the C++ version of the Standard C Library header `setjmp.h`, and its contents are (mostly) the same as that header, but are all contained in the namespace `std` (except for names which are defined as macros in C).

Definition in file csetjmp.

6.89 csignal File Reference

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_CSIGNAL**

6.89.1 Detailed Description

This is a Standard C++ Library file. You should `#include` this file in your programs, rather than any of the ∗.h implementation files.

This is the C++ version of the Standard C Library header `signal.h`, and its contents are (mostly) the same as that header, but are all contained in the namespace `std` (except for names which are defined as macros in C).

Definition in file csignal.

6.90 cstdarg File Reference

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_CSTDARG**
- #define **va_end**(ap)

6.90.1 Detailed Description

This is a Standard C++ Library file. You should `#include` this file in your programs, rather than any of the *.h implementation files.

This is the C++ version of the Standard C Library header `stdarg.h`, and its contents are (mostly) the same as that header, but are all contained in the namespace `std` (except for names which are defined as macros in C).

Definition in file cstdarg.

6.91 cstdarg File Reference

Defines

- #define **_GLIBCXX_TR1_CSTDARG**

6.91.1 Detailed Description

This is a TR1 C++ Library header.

Definition in file tr1/cstdarg.

6.92 cstdbool File Reference

Defines

- #define **_GLIBCXX_CSTDBOOL**

6.92.1 Detailed Description

This is a Standard C++ Library header.

Definition in file cstdbool.

6.93 cstdbool File Reference

Defines

- #define **_GLIBCXX_TR1_CSTDBOOL**

6.93.1 Detailed Description

This is a TR1 C++ Library header.

Definition in file tr1/cstdbool.

6.94 cstddef File Reference

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_CSTDDEF**

6.94.1 Detailed Description

This is a Standard C++ Library file. You should `#include` this file in your programs, rather than any of the *.h implementation files.

This is the C++ version of the Standard C Library header `stddef.h`, and its contents are (mostly) the same as that header, but are all contained in the namespace `std` (except for names which are defined as macros in C).

Definition in file cstddef.

6.95 cstdint File Reference

Defines

- #define **_GLIBCXX_CSTDINT**

6.95.1 Detailed Description

This is a Standard C++ Library header.

Definition in file cstdint.

6.96 cstdint File Reference

Defines

- #define **_GLIBCXX_BEGIN_NAMESPACE_TR1**
- #define **_GLIBCXX_END_NAMESPACE_TR1**
- #define **_GLIBCXX_INCLUDE_AS_TR1**
- #define **_GLIBCXX_TR1**
- #define **_GLIBCXX_TR1_CSTDINT**

6.96.1 Detailed Description

This is a TR1 C++ Library header.

Definition in file tr1/cstdint.

6.97 cstdint File Reference

Namespaces

- namespace std

6.97.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file tr1_impl/cstdint.

6.98 cstdio File Reference

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_CSTDIO**

6.98.1 Detailed Description

This is a Standard C++ Library file. You should `#include` this file in your programs, rather than any of the ∗.h implementation files.

This is the C++ version of the Standard C Library header `stdio.h`, and its contents are (mostly) the same as that header, but are all contained in the namespace `std` (except for names which are defined as macros in C).

Definition in file cstdio.

6.99 cstdio File Reference

Defines

- #define **_GLIBCXX_BEGIN_NAMESPACE_TR1**
- #define **_GLIBCXX_END_NAMESPACE_TR1**
- #define **_GLIBCXX_INCLUDE_AS_TR1**
- #define **_GLIBCXX_TR1**
- #define **_GLIBCXX_TR1_CSTDIO**

6.99.1 Detailed Description

This is a TR1 C++ Library header.

Definition in file tr1/cstdio.

6.100 cstdio File Reference

Namespaces

- namespace std

6.100.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file tr1_impl/cstdio.

6.101 cstdlib File Reference

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_CSTDLIB**
- #define **EXIT_FAILURE**
- #define **EXIT_SUCCESS**

Functions

- void **std::abort** (void) _GLIBC_NORETURN throw ()
- int **std::atexit** (void(∗)()) throw ()
- void **std::exit** (int) _GLIBC_NORETURN throw ()

6.101.1 Detailed Description

This is a Standard C++ Library file. You should `#include` this file in your programs, rather than any of the ∗.h implementation files.

This is the C++ version of the Standard C Library header `stdlib.h`, and its contents are (mostly) the same as that header, but are all contained in the namespace `std` (except for names which are defined as macros in C).

Definition in file cstdlib.

6.102 cstdlib File Reference

Defines

- #define **_GLIBCXX_BEGIN_NAMESPACE_TR1**
- #define **_GLIBCXX_END_NAMESPACE_TR1**
- #define **_GLIBCXX_INCLUDE_AS_TR1**
- #define **_GLIBCXX_TR1**
- #define **_GLIBCXX_TR1_CSTDLIB**

6.102.1 Detailed Description

This is a TR1 C++ Library header.

Definition in file tr1/cstdlib.

6.103 cstdlib File Reference

6.103.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file tr1_impl/cstdlib.

6.104 cstring File Reference

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_CSTRING**

Functions

- void * **std::memchr** (void *__s, int __c, size_t __n)
- char * **std::strchr** (char *__s, int __n)
- char * **std::strpbrk** (char *__s1, const char *__s2)
- char * **std::strrchr** (char *__s, int __n)
- char * **std::strstr** (char *__s1, const char *__s2)

6.104.1 Detailed Description

This is a Standard C++ Library file. You should `#include` this file in your programs, rather than any of the *.h implementation files.

This is the C++ version of the Standard C Library header `string.h`, and its contents are (mostly) the same as that header, but are all contained in the namespace `std` (except for names which are defined as macros in C).

Definition in file cstring.

6.105 ctgmath File Reference

Defines

- #define **_GLIBCXX_CTGMATH**

6.105.1 Detailed Description

This is a Standard C++ Library header.

Definition in file ctgmath.

6.106 ctgmath File Reference

Defines

- #define **_GLIBCXX_TR1_CTGMATH**

6.106.1 Detailed Description

This is a TR1 C++ Library header.

Definition in file tr1/ctgmath.

6.107 ctime File Reference

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_CTIME**

6.107.1 Detailed Description

This is a Standard C++ Library file. You should `#include` this file in your programs, rather than any of the ∗.h implementation files.

This is the C++ version of the Standard C Library header `time.h`, and its contents are (mostly) the same as that header, but are all contained in the namespace `std` (except for names which are defined as macros in C).

Definition in file ctime.

6.108 ctime File Reference

Defines

- #define **_GLIBCXX_TR1_CTIME**

6.108.1 Detailed Description

This is a TR1 C++ Library header.

Definition in file tr1/ctime.

6.109 ctype_base.h File Reference

Classes

- struct std::ctype_base

  Base class for ctype.

Namespaces

- namespace std

6.109.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file ctype_base.h.

6.110 ctype_inline.h File Reference

Namespaces

- namespace std

6.110.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file ctype_inline.h.

6.111 ctype_noninline.h File Reference

6.111.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file ctype_noninline.h.

6.112 cwchar File Reference

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_CWCHAR**

Functions

- wchar_t * **std::wcschr** (wchar_t *__p, wchar_t __c)
- wchar_t * **std::wcspbrk** (wchar_t *__s1, const wchar_t *__s2)
- wchar_t * **std::wcsrchr** (wchar_t *__p, wchar_t __c)
- wchar_t * **std::wcsstr** (wchar_t *__s1, const wchar_t *__s2)
- wchar_t * **std::wmemchr** (wchar_t *__p, wchar_t __c, size_t __n)

6.112.1 Detailed Description

This is a Standard C++ Library file. You should `#include` this file in your programs, rather than any of the *.h implementation files.

This is the C++ version of the Standard C Library header `wchar.h`, and its contents are (mostly) the same as that header, but are all contained in the namespace `std` (except for names which are defined as macros in C).

Definition in file cwchar.

6.113 cwchar File Reference

Defines

- #define **_GLIBCXX_BEGIN_NAMESPACE_TR1**
- #define **_GLIBCXX_END_NAMESPACE_TR1**
- #define **_GLIBCXX_INCLUDE_AS_TR1**
- #define **_GLIBCXX_TR1**
- #define **_GLIBCXX_TR1_CWCHAR**

6.113.1 Detailed Description

This is a TR1 C++ Library header.

Definition in file tr1/cwchar.

6.114 cwchar File Reference

Namespaces

- namespace std

6.114.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file tr1_impl/cwchar.

6.115 cwctype File Reference

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_CWCTYPE**

6.115.1 Detailed Description

This is a Standard C++ Library file. You should `#include` this file in your programs, rather than any of the ∗.h implementation files.

This is the C++ version of the Standard C Library header `wctype.h`, and its contents are (mostly) the same as that header, but are all contained in the namespace `std` (except for names which are defined as macros in C).

Definition in file cwctype.

6.116 cwctype File Reference

Defines

- #define **_GLIBCXX_BEGIN_NAMESPACE_TR1**
- #define **_GLIBCXX_END_NAMESPACE_TR1**
- #define **_GLIBCXX_INCLUDE_AS_TR1**
- #define **_GLIBCXX_TR1**
- #define **_GLIBCXX_TR1_CWCTYPE**

6.116.1 Detailed Description

This is a TR1 C++ Library header.

Definition in file tr1/cwctype.

6.117 cwctype File Reference

Namespaces

- namespace std

6.117.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file tr1_impl/cwctype.

6.118 cxxabi-forced.h File Reference

Classes

- class __cxxabiv1::__forced_unwind

  Thrown as part of forced unwinding.
  A magic placeholder class that can be caught by reference to recognize forced unwinding.

Defines

- #define **_CXXABI_FORCED_H**

6.118.1 Detailed Description

The header provides an interface to the C++ ABI.

Definition in file cxxabi-forced.h.

6.119 cxxabi.h File Reference

Classes

- class __gnu_cxx::recursive_init_error

  Exception thrown by __cxa_guard_acquire.
  6.7[stmt.dcl]/4: If control re-enters the declaration (recursively) while the object is being initialized, the behavior is undefined.

Namespaces

- namespace __gnu_cxx
- namespace abi

Defines

- #define **_CXXABI_H**
- #define **_GLIBCXX_NOTHROW**

Typedefs

- typedef __cxa_cdtor_return_type(∗ **__cxxabiv1::__cxa_cdtor_type**)(void ∗)

Functions

- int **__cxxabiv1::__cxa_atexit** (void(∗)(void ∗), void ∗, void ∗) throw ()
- void **__cxxabiv1::__cxa_bad_cast** ()
- void **__cxxabiv1::__cxa_bad_typeid** ()
- std::type_info ∗ **__cxxabiv1::__cxa_current_exception_type** () __attribute__-((__pure__)) throw ()
- char ∗ __cxxabiv1::__cxa_demangle (const char ∗__mangled_name, char ∗__-output_buffer, size_t ∗__length, int ∗__status)
- int **__cxxabiv1::__cxa_finalize** (void ∗)
- void **__cxxabiv1::__cxa_guard_abort** (__guard ∗) throw ()
- int **__cxxabiv1::__cxa_guard_acquire** (__guard ∗)
- void **__cxxabiv1::__cxa_guard_release** (__guard ∗) throw ()
- void **__cxxabiv1::__cxa_pure_virtual** (void) __attribute__((__noreturn__))
- __cxa_vec_ctor_return_type **__cxxabiv1::__cxa_vec_cctor** (void ∗dest_array, void ∗src_array, size_t element_count, size_t element_size, __cxa_cdtor_-return_type(∗constructor)(void ∗, void ∗), __cxa_cdtor_type destructor)

- void **__cxxabiv1::__cxa_vec_cleanup** (void *__array_address, size_t __element_count, size_t __s, __cxa_cdtor_type destructor) throw ()
- __cxa_vec_ctor_return_type **__cxxabiv1::__cxa_vec_ctor** (void *__array_address, size_t __element_count, size_t __element_size, __cxa_cdtor_type constructor, __cxa_cdtor_type destructor)
- void **__cxxabiv1::__cxa_vec_delete** (void *__array_address, size_t __element_size, size_t __padding_size, __cxa_cdtor_type destructor)
- void **__cxxabiv1::__cxa_vec_delete2** (void *__array_address, size_t __element_size, size_t __padding_size, __cxa_cdtor_type destructor, void(*__dealloc)(void *))
- void **__cxxabiv1::__cxa_vec_delete3** (void *__array_address, size_t __element_size, size_t __padding_size, __cxa_cdtor_type destructor, void(*__dealloc)(void *, size_t))
- void **__cxxabiv1::__cxa_vec_dtor** (void *__array_address, size_t __element_count, size_t __element_size, __cxa_cdtor_type destructor)
- void * **__cxxabiv1::__cxa_vec_new** (size_t __element_count, size_t __element_size, size_t __padding_size, __cxa_cdtor_type constructor, __cxa_cdtor_type destructor)
- void * **__cxxabiv1::__cxa_vec_new2** (size_t __element_count, size_t __element_size, size_t __padding_size, __cxa_cdtor_type constructor, __cxa_cdtor_type destructor, void *(*__alloc)(size_t), void(*__dealloc)(void *))
- void * **__cxxabiv1::__cxa_vec_new3** (size_t __element_count, size_t __element_size, size_t __padding_size, __cxa_cdtor_type constructor, __cxa_cdtor_type destructor, void *(*__alloc)(size_t), void(*__dealloc)(void *, size_t))

- void * **__cxxabiv1::__dynamic_cast** (const void *__src_ptr, const __class_type_info *__src_type, const __class_type_info *__dst_type, ptrdiff_t __src2dst)

6.119.1 Detailed Description

The header provides an interface to the C++ ABI.

Definition in file cxxabi.h.

6.120 cxxabi_tweaks.h File Reference

Defines

- #define **_CXXABI_TWEAKS_H**
- #define **_GLIBCXX_CXA_VEC_CTOR_RETURN**(x)
- #define **_GLIBCXX_GUARD_BIT**
- #define **_GLIBCXX_GUARD_PENDING_BIT**
- #define **_GLIBCXX_GUARD_SET**(x)
- #define **_GLIBCXX_GUARD_TEST**(x)
- #define **_GLIBCXX_GUARD_WAITING_BIT**

Typedefs

- typedef void **__cxxabiv1::__cxa_cdtor_return_type**
- typedef void **__cxxabiv1::__cxa_vec_ctor_return_type**

Functions

- __extension__ typedef int __guard **__cxxabiv1::__attribute__** ((mode(__DI_-_)))

6.120.1 Detailed Description

The header provides an CPU-variable interface to the C++ ABI.

Definition in file cxxabi_tweaks.h.

6.121 debug.h File Reference

Namespaces

- namespace __gnu_debug
- namespace std
- namespace std::__debug

Defines

- #define **__glibcxx_requires_cond**(_Cond, _Msg)
- #define **__glibcxx_requires_heap**(_First, _Last)
- #define **__glibcxx_requires_heap_pred**(_First, _Last, _Pred)
- #define **__glibcxx_requires_nonempty**()
- #define **__glibcxx_requires_partitioned_lower**(_First, _Last, _Value)
- #define **__glibcxx_requires_partitioned_lower_pred**(_First, _Last, _Value, _Pred)
- #define **__glibcxx_requires_partitioned_upper**(_First, _Last, _Value)
- #define **__glibcxx_requires_partitioned_upper_pred**(_First, _Last, _Value, _Pred)
- #define **__glibcxx_requires_sorted**(_First, _Last)
- #define **__glibcxx_requires_sorted_pred**(_First, _Last, _Pred)
- #define **__glibcxx_requires_sorted_set**(_First1, _Last1, _First2)
- #define **__glibcxx_requires_sorted_set_pred**(_First1, _Last1, _First2, _Pred)
- #define **__glibcxx_requires_string**(_String)
- #define **__glibcxx_requires_string_len**(_String, _Len)
- #define **__glibcxx_requires_subscript**(_N)
- #define **__glibcxx_requires_valid_range**(_First, _Last)
- #define **_GLIBCXX_DEBUG_ASSERT**(_Condition)
- #define **_GLIBCXX_DEBUG_MACRO_SWITCH_H**
- #define **_GLIBCXX_DEBUG_ONLY**(_Statement)
- #define **_GLIBCXX_DEBUG_PEDASSERT**(_Condition)

6.121.1 Detailed Description

This file is a GNU debug extension to the Standard C++ Library.

Definition in file debug.h.

6.122 debug_allocator.h File Reference

Classes

- class __gnu_cxx::debug_allocator< _Alloc >

  A meta-allocator with debugging bits, as per [20.4].
  This is precisely the allocator defined in the C++ Standard.
  - *all allocation calls operator new*
  - *all deallocation calls operator delete.*

Namespaces

- namespace __gnu_cxx

Defines

- #define **_DEBUG_ALLOCATOR_H**

6.122.1 Detailed Description

This file is a GNU extension to the Standard C++ Library. You should only include this header if you are using GCC 3 or later.

Definition in file debug_allocator.h.

6.123 debug_map_base.hpp File Reference

6.123.1 Detailed Description

Contains a debug-mode base for all maps.

Definition in file debug_map_base.hpp.

6.124 decimal File Reference

Classes

- class std::decimal::decimal128

  3.2.4 Class decimal128.

- class std::decimal::decimal32

  3.2.2 Class decimal32.

- class std::decimal::decimal64

  3.2.3 Class decimal64.

Namespaces

- namespace std
- namespace std::decimal

Defines

- #define **_DECLARE_DECIMAL128_COMPOUND_ASSIGNMENT**(_Op)
- #define **_DECLARE_DECIMAL32_COMPOUND_ASSIGNMENT**(_Op)
- #define **_DECLARE_DECIMAL64_COMPOUND_ASSIGNMENT**(_Op)
- #define **_DECLARE_DECIMAL_BINARY_OP_WITH_DEC**(_Op, _T1, _T2, _T3)
- #define **_DECLARE_DECIMAL_BINARY_OP_WITH_INT**(_Op, _Tp)
- #define **_DECLARE_DECIMAL_COMPARISON**(_Op, _Tp)
- #define **_GLIBCXX_DECIMAL**
- #define **_GLIBCXX_USE_DECIMAL_**

Functions

- double **std::decimal::decimal128_to_double** (decimal128 __d)
- float **std::decimal::decimal128_to_float** (decimal128 __d)
- long double **std::decimal::decimal128_to_long_double** (decimal128 __d)
- long long **std::decimal::decimal128_to_long_long** (decimal128 __d)
- double **std::decimal::decimal32_to_double** (decimal32 __d)
- float **std::decimal::decimal32_to_float** (decimal32 __d)
- long double **std::decimal::decimal32_to_long_double** (decimal32 __d)
- long long std::decimal::decimal32_to_long_long (decimal32 __d)

- double **std::decimal::decimal64_to_double** (decimal64 __d)
- float **std::decimal::decimal64_to_float** (decimal64 __d)
- long double **std::decimal::decimal64_to_long_double** (decimal64 __d)
- long long **std::decimal::decimal64_to_long_long** (decimal64 __d)
- double **std::decimal::decimal_to_double** (decimal128 __d)
- double **std::decimal::decimal_to_double** (decimal64 __d)
- double **std::decimal::decimal_to_double** (decimal32 __d)
- float **std::decimal::decimal_to_float** (decimal128 __d)
- float **std::decimal::decimal_to_float** (decimal64 __d)
- float **std::decimal::decimal_to_float** (decimal32 __d)
- long double **std::decimal::decimal_to_long_double** (decimal128 __d)
- long double **std::decimal::decimal_to_long_double** (decimal64 __d)
- long double **std::decimal::decimal_to_long_double** (decimal32 __d)
- long long **std::decimal::decimal_to_long_long** (decimal128 __d)
- long long **std::decimal::decimal_to_long_long** (decimal64 __d)
- long long **std::decimal::decimal_to_long_long** (decimal32 __d)
- static decimal128 **std::decimal::make_decimal128** (unsigned long long __coeff, int __exp)
- static decimal128 **std::decimal::make_decimal128** (long long __coeff, int __exp)
- static decimal32 **std::decimal::make_decimal32** (unsigned long long __coeff, int __exp)
- static decimal32 **std::decimal::make_decimal32** (long long __coeff, int __exp)

- static decimal64 **std::decimal::make_decimal64** (unsigned long long __coeff, int __exp)
- static decimal64 **std::decimal::make_decimal64** (long long __coeff, int __exp)

- bool **std::decimal::operator!=** (unsigned long long __lhs, decimal128 __rhs)
- bool **std::decimal::operator!=** (long long __lhs, decimal128 __rhs)
- bool **std::decimal::operator!=** (unsigned long __lhs, decimal128 __rhs)
- bool **std::decimal::operator!=** (long __lhs, decimal128 __rhs)
- bool **std::decimal::operator!=** (unsigned int __lhs, decimal128 __rhs)
- bool **std::decimal::operator!=** (int __lhs, decimal128 __rhs)
- bool **std::decimal::operator!=** (decimal128 __lhs, unsigned long long __rhs)
- bool **std::decimal::operator!=** (decimal128 __lhs, long long __rhs)
- bool **std::decimal::operator!=** (decimal128 __lhs, unsigned long __rhs)
- bool **std::decimal::operator!=** (decimal128 __lhs, long __rhs)
- bool **std::decimal::operator!=** (decimal128 __lhs, unsigned int __rhs)
- bool **std::decimal::operator!=** (decimal128 __lhs, int __rhs)
- bool **std::decimal::operator!=** (decimal128 __lhs, decimal128 __rhs)
- bool **std::decimal::operator!=** (decimal128 __lhs, decimal64 __rhs)
- bool **std::decimal::operator!=** (decimal128 __lhs, decimal32 __rhs)

- bool **std::decimal::operator!=** (unsigned long long __lhs, decimal64 __rhs)
- bool **std::decimal::operator!=** (long long __lhs, decimal64 __rhs)
- bool **std::decimal::operator!=** (unsigned long __lhs, decimal64 __rhs)
- bool **std::decimal::operator!=** (long __lhs, decimal64 __rhs)
- bool **std::decimal::operator!=** (unsigned int __lhs, decimal64 __rhs)
- bool **std::decimal::operator!=** (int __lhs, decimal64 __rhs)
- bool **std::decimal::operator!=** (decimal64 __lhs, unsigned long long __rhs)
- bool **std::decimal::operator!=** (decimal64 __lhs, long long __rhs)
- bool **std::decimal::operator!=** (decimal64 __lhs, unsigned long __rhs)
- bool **std::decimal::operator!=** (decimal64 __lhs, long __rhs)
- bool **std::decimal::operator!=** (decimal64 __lhs, unsigned int __rhs)
- bool **std::decimal::operator!=** (decimal64 __lhs, int __rhs)
- bool **std::decimal::operator!=** (decimal64 __lhs, decimal128 __rhs)
- bool **std::decimal::operator!=** (decimal64 __lhs, decimal64 __rhs)
- bool **std::decimal::operator!=** (decimal64 __lhs, decimal32 __rhs)
- bool **std::decimal::operator!=** (unsigned long long __lhs, decimal32 __rhs)
- bool **std::decimal::operator!=** (long long __lhs, decimal32 __rhs)
- bool **std::decimal::operator!=** (unsigned long __lhs, decimal32 __rhs)
- bool **std::decimal::operator!=** (long __lhs, decimal32 __rhs)
- bool **std::decimal::operator!=** (unsigned int __lhs, decimal32 __rhs)
- bool **std::decimal::operator!=** (int __lhs, decimal32 __rhs)
- bool **std::decimal::operator!=** (decimal32 __lhs, unsigned long long __rhs)
- bool **std::decimal::operator!=** (decimal32 __lhs, long long __rhs)
- bool **std::decimal::operator!=** (decimal32 __lhs, unsigned long __rhs)
- bool **std::decimal::operator!=** (decimal32 __lhs, long __rhs)
- bool **std::decimal::operator!=** (decimal32 __lhs, unsigned int __rhs)
- bool **std::decimal::operator!=** (decimal32 __lhs, int __rhs)
- bool **std::decimal::operator!=** (decimal32 __lhs, decimal128 __rhs)
- bool **std::decimal::operator!=** (decimal32 __lhs, decimal64 __rhs)
- bool **std::decimal::operator!=** (decimal32 __lhs, decimal32 __rhs)
- decimal128 **std::decimal::operator∗** (unsigned long long __lhs, decimal128 _-_rhs)
- decimal128 **std::decimal::operator∗** (long long __lhs, decimal128 __rhs)
- decimal128 **std::decimal::operator∗** (unsigned long __lhs, decimal128 __rhs)
- decimal128 **std::decimal::operator∗** (long __lhs, decimal128 __rhs)
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- decimal128 **std::decimal::operator∗** (int __lhs, decimal128 __rhs)
- decimal128 **std::decimal::operator∗** (decimal128 __lhs, unsigned long long _-_rhs)
- decimal128 **std::decimal::operator∗** (decimal128 __lhs, long long __rhs)
- decimal128 **std::decimal::operator∗** (decimal128 __lhs, unsigned long __rhs)
- decimal128 **std::decimal::operator∗** (decimal128 __lhs, long __rhs)
- decimal128 **std::decimal::operator∗** (decimal128 __lhs, unsigned int __rhs)

- decimal128 **std::decimal::operator∗** (decimal128 __lhs, int __rhs)
- decimal128 **std::decimal::operator∗** (decimal128 __lhs, decimal128 __rhs)
- decimal128 **std::decimal::operator∗** (decimal128 __lhs, decimal64 __rhs)
- decimal128 **std::decimal::operator∗** (decimal128 __lhs, decimal32 __rhs)
- decimal128 **std::decimal::operator∗** (decimal64 __lhs, decimal128 __rhs)
- decimal128 **std::decimal::operator∗** (decimal32 __lhs, decimal128 __rhs)
- decimal64 **std::decimal::operator∗** (unsigned long long __lhs, decimal64 __rhs)
- decimal64 **std::decimal::operator∗** (long long __lhs, decimal64 __rhs)
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- decimal32 **std::decimal::operator∗** (unsigned long long __lhs, decimal32 __rhs)
- decimal32 **std::decimal::operator∗** (long long __lhs, decimal32 __rhs)
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- decimal128 **std::decimal::operator+** (unsigned long long __lhs, decimal128 __rhs)
- decimal128 **std::decimal::operator+** (long long __lhs, decimal128 __rhs)
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- decimal64 **std::decimal::operator+** (long long __lhs, decimal64 __rhs)
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- decimal64 **std::decimal::operator+** (decimal64 __lhs, unsigned long long __-rhs)
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- decimal32 **std::decimal::operator+** (decimal32 __lhs, unsigned int __rhs)
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- decimal128 **std::decimal::operator+** (decimal128 __rhs)
- decimal64 **std::decimal::operator+** (decimal64 __rhs)
- decimal32 **std::decimal::operator+** (decimal32 __rhs)
- decimal128 **std::decimal::operator-** (unsigned long long __lhs, decimal128 _-_rhs)
- decimal128 **std::decimal::operator-** (long long __lhs, decimal128 __rhs)
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- decimal128 **std::decimal::operator-** (decimal128 __lhs, unsigned long long _-_rhs)
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- decimal128 **std::decimal::operator-** (decimal128 __lhs, decimal64 __rhs)
- decimal128 **std::decimal::operator-** (decimal128 __lhs, decimal32 __rhs)
- decimal128 **std::decimal::operator-** (decimal64 __lhs, decimal128 __rhs)
- decimal128 **std::decimal::operator-** (decimal32 __lhs, decimal128 __rhs)
- decimal64 **std::decimal::operator-** (unsigned long long __lhs, decimal64 __-rhs)
- decimal64 **std::decimal::operator-** (long long __lhs, decimal64 __rhs)
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- decimal64 **std::decimal::operator-** (decimal64 __lhs, unsigned long __rhs)
- decimal64 **std::decimal::operator-** (decimal64 __lhs, long __rhs)
- decimal64 **std::decimal::operator-** (decimal64 __lhs, unsigned int __rhs)
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- decimal64 **std::decimal::operator-** (decimal64 __lhs, decimal64 __rhs)
- decimal64 **std::decimal::operator-** (decimal64 __lhs, decimal32 __rhs)
- decimal64 **std::decimal::operator-** (decimal32 __lhs, decimal64 __rhs)

- decimal32 **std::decimal::operator-** (unsigned long long __lhs, decimal32 __rhs)
- decimal32 **std::decimal::operator-** (long long __lhs, decimal32 __rhs)
- decimal32 **std::decimal::operator-** (unsigned long __lhs, decimal32 __rhs)
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- decimal32 **std::decimal::operator-** (decimal32 __lhs, unsigned long long __rhs)
- decimal32 **std::decimal::operator-** (decimal32 __lhs, long long __rhs)
- decimal32 **std::decimal::operator-** (decimal32 __lhs, unsigned long __rhs)
- decimal32 **std::decimal::operator-** (decimal32 __lhs, long __rhs)
- decimal32 **std::decimal::operator-** (decimal32 __lhs, unsigned int __rhs)
- decimal32 **std::decimal::operator-** (decimal32 __lhs, int __rhs)
- decimal32 **std::decimal::operator-** (decimal32 __lhs, decimal32 __rhs)
- decimal128 **std::decimal::operator-** (decimal128 __rhs)
- decimal64 **std::decimal::operator-** (decimal64 __rhs)
- decimal32 **std::decimal::operator-** (decimal32 __rhs)
- decimal128 **std::decimal::operator/** (unsigned long long __lhs, decimal128 __rhs)
- decimal128 **std::decimal::operator/** (long long __lhs, decimal128 __rhs)
- decimal128 **std::decimal::operator/** (unsigned long __lhs, decimal128 __rhs)
- decimal128 **std::decimal::operator/** (long __lhs, decimal128 __rhs)
- decimal128 **std::decimal::operator/** (unsigned int __lhs, decimal128 __rhs)
- decimal128 **std::decimal::operator/** (int __lhs, decimal128 __rhs)
- decimal128 **std::decimal::operator/** (decimal128 __lhs, unsigned long long __rhs)
- decimal128 **std::decimal::operator/** (decimal128 __lhs, long long __rhs)
- decimal128 **std::decimal::operator/** (decimal128 __lhs, unsigned long __rhs)
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- decimal128 **std::decimal::operator/** (decimal128 __lhs, unsigned int __rhs)
- decimal128 **std::decimal::operator/** (decimal128 __lhs, int __rhs)
- decimal128 **std::decimal::operator/** (decimal128 __lhs, decimal128 __rhs)
- decimal128 **std::decimal::operator/** (decimal128 __lhs, decimal64 __rhs)
- decimal128 **std::decimal::operator/** (decimal128 __lhs, decimal32 __rhs)
- decimal128 **std::decimal::operator/** (decimal64 __lhs, decimal128 __rhs)
- decimal128 **std::decimal::operator/** (decimal32 __lhs, decimal128 __rhs)
- decimal64 **std::decimal::operator/** (unsigned long long __lhs, decimal64 __rhs)
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6.124.1 Detailed Description

This is a Standard C++ Library header.

Definition in file decimal.

6.125 deque File Reference

Defines

- #define **_GLIBCXX_DEQUE**

6.125.1 Detailed Description

This is a Standard C++ Library header.

Definition in file deque.

6.126 deque File Reference

Classes

- class std::__debug::deque< _Tp, _Allocator >

  Class std::deque with safety/checking/debug instrumentation.

Namespaces

- namespace std
- namespace std::__debug

Defines

- #define **_GLIBCXX_DEBUG_DEQUE**

Functions

- template<typename _Tp , typename _Alloc >
  bool **std::__debug::operator!=** (const deque< _Tp, _Alloc > &__lhs, const deque< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__debug::operator**< (const deque< _Tp, _Alloc > &__lhs, const deque< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__debug::operator<=** (const deque< _Tp, _Alloc > &__lhs, const deque< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__debug::operator==** (const deque< _Tp, _Alloc > &__lhs, const deque< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__debug::operator**> (const deque< _Tp, _Alloc > &__lhs, const deque< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__debug::operator>=** (const deque< _Tp, _Alloc > &__lhs, const deque< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  void **std::__debug::swap** (deque< _Tp, _Alloc > &__lhs, deque< _Tp, _Alloc > &__rhs)

6.126.1 Detailed Description

This file is a GNU debug extension to the Standard C++ Library.

Definition in file debug/deque.

6.127 deque File Reference

Classes

- class std::__profile::deque< _Tp, _Allocator >

  Class std::deque wrapper with performance instrumentation.

Namespaces

- namespace std
- namespace std::__profile

Defines

- #define **_GLIBCXX_PROFILE_DEQUE**

Functions

- template<typename _Tp , typename _Alloc >
  bool **std::__profile::operator!=** (const deque< _Tp, _Alloc > &__lhs, const deque< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__profile::operator**< (const deque< _Tp, _Alloc > &__lhs, const deque< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__profile::operator<=** (const deque< _Tp, _Alloc > &__lhs, const deque< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__profile::operator==** (const deque< _Tp, _Alloc > &__lhs, const deque< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__profile::operator**> (const deque< _Tp, _Alloc > &__lhs, const deque< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__profile::operator>=** (const deque< _Tp, _Alloc > &__lhs, const deque< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  void **std::__profile::swap** (deque< _Tp, _Alloc > &__lhs, deque< _Tp, _Alloc > &__rhs)

6.127.1 Detailed Description

This file is a GNU profile extension to the Standard C++ Library.

Definition in file profile/deque.

6.128 deque.tcc File Reference

Namespaces

- namespace std

Defines

- #define **_DEQUE_TCC**

Functions

- template<typename _Tp >
  _Deque_iterator< _Tp, _Tp &, _Tp * > **std::copy** (_Deque_iterator< _Tp, const _Tp &, const _Tp * > __first, _Deque_iterator< _Tp, const _Tp &, const _Tp * > __last, _Deque_iterator< _Tp, _Tp &, _Tp * > __result)
- template<typename _Tp >
  _Deque_iterator< _Tp, _Tp &, _Tp * > **std::copy_backward** (_Deque_iterator< _Tp, const _Tp &, const _Tp * > __first, _Deque_iterator< _Tp, const _Tp &, const _Tp * > __last, _Deque_iterator< _Tp, _Tp &, _Tp * > __result)
- template<typename _Tp >
  void **std::fill** (const _Deque_iterator< _Tp, _Tp &, _Tp * > &__first, const _Deque_iterator< _Tp, _Tp &, _Tp * > &__last, const _Tp &__value)
- template<typename _Tp >
  _Deque_iterator< _Tp, _Tp &, _Tp * > **std::move** (_Deque_iterator< _Tp, const _Tp &, const _Tp * > __first, _Deque_iterator< _Tp, const _Tp &, const _Tp * > __last, _Deque_iterator< _Tp, _Tp &, _Tp * > __result)
- template<typename _Tp >
  _Deque_iterator< _Tp, _Tp &, _Tp * > **std::move_backward** (_Deque_iterator< _Tp, const _Tp &, const _Tp * > __first, _Deque_iterator< _Tp, const _Tp &, const _Tp * > __last, _Deque_iterator< _Tp, _Tp &, _Tp * > __result)

6.128.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file deque.tcc.

6.129 enc_filebuf.h File Reference

Classes

- class __gnu_cxx::enc_filebuf< _CharT > *class enc_filebuf.*

Namespaces

- namespace __gnu_cxx

Defines

- #define **_EXT_ENC_FILEBUF_H**

6.129.1 Detailed Description

This file is a GNU extension to the Standard C++ Library.

Definition in file enc_filebuf.h.

6.130 equally_split.h File Reference

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_EQUALLY_SPLIT_H**

Functions

- template<typename _DifferenceType , typename _OutputIterator >
  _OutputIterator __gnu_parallel::equally_split (_DifferenceType __n, _-
  ThreadIndex __num_threads, _OutputIterator __s)
- template<typename _DifferenceType >
  _DifferenceType __gnu_parallel::equally_split_point (_DifferenceType __n, _-
  ThreadIndex __num_threads, _ThreadIndex __thread_no)

6.130.1 Detailed Description

This file is a GNU parallel extension to the Standard C++ Library.

Definition in file equally_split.h.

6.131 error_constants.h File Reference

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_ERROR_CONSTANTS**

Enumerations

- enum **errc** {

  address_family_not_supported, **address_in_use**, **address_not_available**, **already_connected**,

  argument_list_too_long, **argument_out_of_domain**, **bad_address**, **bad_file_descriptor**,

  bad_message, **broken_pipe**, **connection_aborted**, **connection_already_in_progress**,

  connection_refused, **connection_reset**, **cross_device_link**, **destination_address_required**,

  device_or_resource_busy, **directory_not_empty**, **executable_format_error**, **file_exists**,

  file_too_large, **filename_too_long**, **function_not_supported**, **host_unreachable**,

  identifier_removed, **illegal_byte_sequence**, **inappropriate_io_control_operation**, **interrupted**,

  invalid_argument, **invalid_seek**, **io_error**, **is_a_directory**,

  message_size, **network_down**, **network_reset**, **network_unreachable**,

  no_buffer_space, **no_child_process**, **no_link**, **no_lock_available**,

  no_message_available, **no_message**, **no_protocol_option**, **no_space_on_device**,

  no_stream_resources, **no_such_device_or_address**, **no_such_device**, **no_such_file_or_directory**,

  no_such_process, **not_a_directory**, **not_a_socket**, **not_a_stream**,

  not_connected, **not_enough_memory**, **not_supported**, **operation_canceled**,

  operation_in_progress, **operation_not_permitted**, **operation_not_supported**, **operation_would_block**,

  owner_dead, **permission_denied**, **protocol_error**, **protocol_not_supported**,

read_only_file_system, **resource_deadlock_would_occur**, **resource_-unavailable_try_again**, **result_out_of_range**,

state_not_recoverable, **stream_timeout**, **text_file_busy**, **timed_out**,

too_many_files_open_in_system, **too_many_files_open**, **too_many_links**, **too_many_symbolic_link_levels**,

value_too_large, **wrong_protocol_type** }

6.131.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file error_constants.h.

6.132 exception File Reference

Classes

- class std::bad_exception
- class std::exception

  Base class for all library exceptions.

Namespaces

- namespace __gnu_cxx
- namespace std

Typedefs

- typedef void(∗ std::terminate_handler)()
- typedef void(∗ std::unexpected_handler)()

Functions

- void __gnu_cxx::__verbose_terminate_handler ()
- terminate_handler std::set_terminate (terminate_handler) throw ()
- unexpected_handler std::set_unexpected (unexpected_handler) throw ()
- void std::terminate () __attribute__((__noreturn__)) throw ()
- bool std::uncaught_exception () __attribute__((__pure__)) throw ()
- void std::unexpected () __attribute__((__noreturn__))

6.132.1 Detailed Description

This is a Standard C++ Library header.

Definition in file exception.

6.133 exception.hpp File Reference

Namespaces

- namespace __gnu_pbds

Functions

- void **__gnu_pbds::__throw_container_error** (void)
- void **__gnu_pbds::__throw_insert_error** (void)
- void **__gnu_pbds::__throw_join_error** (void)
- void **__gnu_pbds::__throw_resize_error** (void)

6.133.1 Detailed Description

Contains exception classes.

Definition in file exception.hpp.

6.134 exception_ptr.h File Reference

Classes

- class std::__exception_ptr::exception_ptr

  An opaque pointer to an arbitrary exception.

Namespaces

- namespace std

Functions

- template<typename _Ex >
  exception_ptr std::copy_exception (_Ex __ex) throw ()
- exception_ptr std::current_exception () throw ()
- bool **std::__exception_ptr::operator!=** (const exception_ptr &, const exception_ptr &) __attribute__((__pure__)) throw ()
- bool **std::__exception_ptr::operator==** (const exception_ptr &, const exception_ptr &) __attribute__((__pure__)) throw ()
- void std::rethrow_exception (exception_ptr) __attribute__((__noreturn__))

6.134.1 Detailed Description

This is an internal header file, included by other headers and the implementation. You should not attempt to use it directly.

Definition in file exception_ptr.h.

6.135 extptr_allocator.h File Reference

Classes

- class __gnu_cxx::_ExtPtr_allocator< _Tp >

  An example allocator which uses a non-standard pointer type.
  This allocator specifies that containers use a 'relative pointer' as it's pointer type. (See ext/pointer.h) Memory allocation in this example is still performed using std::allocator.

Namespaces

- namespace __gnu_cxx

Defines

- #define **_EXTPTR_ALLOCATOR_H**

Functions

- template<typename _Tp >
  void **__gnu_cxx::swap** (_ExtPtr_allocator< _Tp > &__larg, _ExtPtr_allocator< _Tp > &__rarg)

6.135.1 Detailed Description

Author:

Bob Walters

An example allocator which uses an alternative pointer type from bits/pointer.h. Supports test cases which confirm container support for alternative pointers.

Definition in file extptr_allocator.h.

6.136 features.h File Reference

Defines on whether to include algorithm variants.

Defines

- #define _GLIBCXX_BAL_QUICKSORT
- #define _GLIBCXX_FIND_CONSTANT_SIZE_BLOCKS
- #define _GLIBCXX_FIND_EQUAL_SPLIT
- #define _GLIBCXX_FIND_GROWING_BLOCKS
- #define _GLIBCXX_MERGESORT
- #define **_GLIBCXX_PARALLEL_FEATURES_H**
- #define _GLIBCXX_QUICKSORT
- #define _GLIBCXX_TREE_DYNAMIC_BALANCING
- #define _GLIBCXX_TREE_FULL_COPY
- #define _GLIBCXX_TREE_INITIAL_SPLITTING

6.136.1 Detailed Description

Defines on whether to include algorithm variants. Less variants reduce executable size and compile time. This file is a GNU parallel extension to the Standard C++ Library.

Definition in file features.h.

6.136.2 Define Documentation

6.136.2.1 #define _GLIBCXX_BAL_QUICKSORT

Include parallel dynamically load-balanced quicksort.

See also:

__gnu_parallel::_Settings::sort_algorithm

Definition at line 55 of file features.h.

6.136.2.2 #define _GLIBCXX_FIND_CONSTANT_SIZE_BLOCKS

Include the equal-sized blocks variant for std::find.

See also:

__gnu_parallel::_Settings::find_algorithm

Definition at line 67 of file features.h.

6.136.2.3 #define _GLIBCXX_FIND_EQUAL_SPLIT

Include the equal splitting variant for std::find.

See also:

__gnu_parallel::_Settings::find_algorithm

Definition at line 74 of file features.h.

6.136.2.4 #define _GLIBCXX_FIND_GROWING_BLOCKS

Include the growing blocks variant for std::find.

See also:

__gnu_parallel::_Settings::find_algorithm

Definition at line 61 of file features.h.

6.136.2.5 #define _GLIBCXX_MERGESORT

Include parallel multi-way mergesort.

See also:

__gnu_parallel::_Settings::sort_algorithm

Definition at line 41 of file features.h.

6.136.2.6 #define _GLIBCXX_QUICKSORT

Include parallel unbalanced quicksort.

See also:

__gnu_parallel::_Settings::sort_algorithm

Definition at line 48 of file features.h.

6.136.2.7 #define _GLIBCXX_TREE_DYNAMIC_BALANCING

Include the dynamic balancing variant for _Rb_tree::insert_unique(_IIter beg, _IIter __end).

See also:

__gnu_parallel::_Rb_tree

Definition at line 91 of file features.h.

6.136.2.8 #define _GLIBCXX_TREE_FULL_COPY

In order to sort the input sequence of _Rb_tree::insert_unique(_IIter beg, _IIter __end) a full copy of the input elements is done.

See also:

__gnu_parallel::_Rb_tree

Definition at line 100 of file features.h.

6.136.2.9 #define _GLIBCXX_TREE_INITIAL_SPLITTING

Include the initial splitting variant for _Rb_tree::insert_unique(_IIter beg, _IIter __end).

See also:

__gnu_parallel::_Rb_tree

Definition at line 83 of file features.h.

6.137 fenv.h File Reference

Defines

- #define **_GLIBCXX_FENV_H**

6.137.1 Detailed Description

This is a Standard C++ Library header.

Definition in file fenv.h.

6.138 find.h File Reference

Parallel implementation base for std::find(), std::equal() and related functions. This file is a GNU parallel extension to the Standard C++ Library.

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_FIND_H**

Functions

- template<typename _RAIter1 , typename _RAIter2 , typename _Pred , typename _Selector > std::pair< _RAIter1, _RAIter2 > __gnu_parallel::__find_template (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _Pred __pred, _Selector __selector, constant_size_blocks_tag)
- template<typename _RAIter1 , typename _RAIter2 , typename _Pred , typename _Selector > std::pair< _RAIter1, _RAIter2 > __gnu_parallel::__find_template (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _Pred __pred, _Selector __selector, growing_blocks_tag)
- template<typename _RAIter1 , typename _RAIter2 , typename _Pred , typename _Selector > std::pair< _RAIter1, _RAIter2 > __gnu_parallel::__find_template (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _Pred __pred, _Selector __selector, equal_split_tag)
- template<typename _RAIter1 , typename _RAIter2 , typename _Pred , typename _Selector > std::pair< _RAIter1, _RAIter2 > __gnu_parallel::__find_template (_RAIter1 __begin1, _RAIter1 __end1, _RAIter2 __begin2, _Pred __pred, _Selector __selector)

6.138.1 Detailed Description

Parallel implementation base for std::find(), std::equal() and related functions. This file is a GNU parallel extension to the Standard C++ Library.

Definition in file find.h.

6.139 find_selectors.h File Reference

_Function objects representing different tasks to be plugged into the parallel find algorithm. This file is a GNU parallel extension to the Standard C++ Library.

Classes

- struct __gnu_parallel::__adjacent_find_selector

  Test predicate on two adjacent elements.

- struct __gnu_parallel::__find_first_of_selector< _FIterator >

  Test predicate on several elements.

- struct __gnu_parallel::__find_if_selector

  Test predicate on a single element, used for std::find() and std::find_if ().

- struct __gnu_parallel::__generic_find_selector

  Base class of all __gnu_parallel::__find_template selectors.

- struct __gnu_parallel::__mismatch_selector

  Test inverted predicate on a single element.

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_FIND_SELECTORS_H**

6.139.1 Detailed Description

_Function objects representing different tasks to be plugged into the parallel find algorithm. This file is a GNU parallel extension to the Standard C++ Library.

Definition in file find_selectors.h.

6.140 for_each.h File Reference

Main interface for embarrassingly parallel functions.

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_FOR_EACH_H**

Functions

- template<typename _IIter , typename _UserOp , typename _Functionality , typename _Red , typename _Result >
  _UserOp __gnu_parallel::__for_each_template_random_access (_IIter __begin, _IIter __end, _UserOp __user_op, _Functionality &__functionality, _Red __reduction, _Result __reduction_start, _Result &__output, typename std::iterator_traits< _IIter >::difference_type __bound, _Parallelism __parallelism_tag)

6.140.1 Detailed Description

Main interface for embarrassingly parallel functions. The explicit implementation are in other header files, like workstealing.h, par_loop.h, omp_loop.h, and omp_loop_static.h. This file is a GNU parallel extension to the Standard C++ Library.

Definition in file for_each.h.

6.141 for_each_selectors.h File Reference

Functors representing different tasks to be plugged into the generic parallelization methods for embarrassingly parallel functions. This file is a GNU parallel extension to the Standard C++ Library.

Classes

- struct __gnu_parallel::__accumulate_binop_reduct< _BinOp >
  General reduction, using a binary operator.
- struct __gnu_parallel::__accumulate_selector< _It >
  std::accumulate() selector.
- struct __gnu_parallel::__adjacent_difference_selector< _It >
  Selector that returns the difference between two adjacent __elements.
- struct __gnu_parallel::__count_if_selector< _It, _Diff >
  std::count_if () selector.
- struct __gnu_parallel::__count_selector< _It, _Diff >
  std::count() selector.
- struct __gnu_parallel::__fill_selector< _It >
  std::fill() selector.
- struct __gnu_parallel::__for_each_selector< _It >
  std::for_each() selector.
- struct __gnu_parallel::__generate_selector< _It >
  std::generate() selector.
- struct __gnu_parallel::__generic_for_each_selector< _It >
  Generic __selector for embarrassingly parallel functions.
- struct __gnu_parallel::__identity_selector< _It >
  Selector that just returns the passed iterator.
- struct __gnu_parallel::__inner_product_selector< _It, _It2, _Tp >
  std::inner_product() selector.
- struct __gnu_parallel::__max_element_reduct< _Compare, _It >

Reduction for finding the maximum element, using a comparator.

- struct __gnu_parallel::__min_element_reduct< _Compare, _It >
  Reduction for finding the maximum element, using a comparator.
- struct __gnu_parallel::__replace_if_selector< _It, _Op, _Tp >
  std::replace() selector.
- struct __gnu_parallel::__replace_selector< _It, _Tp >
  std::replace() selector.
- struct __gnu_parallel::__transform1_selector< _It >
  std::transform() __selector, one input sequence variant.
- struct __gnu_parallel::__transform2_selector< _It >
  std::transform() __selector, two input sequences variant.
- struct __gnu_parallel::_DummyReduct
  Reduction function doing nothing.
- struct __gnu_parallel::_Nothing
  Functor doing nothing.

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_FOR_EACH_SELECTORS_H**

6.141.1 Detailed Description

Functors representing different tasks to be plugged into the generic parallelization methods for embarrassingly parallel functions. This file is a GNU parallel extension to the Standard C++ Library.

Definition in file for_each_selectors.h.

6.142 formatter.h File Reference

Classes

- struct __gnu_debug::__is_same< _Type1, _Type2 >

Namespaces

- namespace __gnu_debug

Defines

- #define **_GLIBCXX_DEBUG_FORMATTER_H**

Enumerations

- enum **_Debug_msg_id** {

  __msg_valid_range, **__msg_insert_singular**, **__msg_insert_different**, **__msg_erase_bad**,

  __msg_erase_different, **__msg_subscript_oob**, **__msg_empty**, **__msg_unpartitioned**,

  __msg_unpartitioned_pred, **__msg_unsorted**, **__msg_unsorted_pred**, **__msg_not_heap**,

  __msg_not_heap_pred, **__msg_bad_bitset_write**, **__msg_bad_bitset_read**, **__msg_bad_bitset_flip**,

  __msg_self_splice, **__msg_splice_alloc**, **__msg_splice_bad**, **__msg_splice_other**,

  __msg_splice_overlap, **__msg_init_singular**, **__msg_init_copy_singular**, **__msg_init_const_singular**,

  __msg_copy_singular, **__msg_bad_deref**, **__msg_bad_inc**, **__msg_bad_dec**,

  __msg_iter_subscript_oob, **__msg_advance_oob**, **__msg_retreat_oob**, **__msg_iter_compare_bad**,

  __msg_compare_different, **__msg_iter_order_bad**, **__msg_order_different**, **__msg_distance_bad**,

  __msg_distance_different, **__msg_deref_istream**, **__msg_inc_istream**, **__msg_output_ostream**,

  __msg_deref_istreambuf, **__msg_inc_istreambuf** }

6.142.1 Detailed Description

This file is a GNU debug extension to the Standard C++ Library.

Definition in file formatter.h.

6.143 forward_list.h File Reference

Classes

- struct std::_Fwd_list_base< _Tp, _Alloc >

  Base class for forward_list.

- struct std::_Fwd_list_const_iterator< _Tp, _Alloc >

  A forward_list::const_iterator.

- struct std::_Fwd_list_iterator< _Tp, _Alloc >

  A forward_list::iterator.

- struct std::_Fwd_list_node< _Tp, _Alloc >

  A helper node class for forward_list. This is just a linked list with a data value in each node. There is a sorting utility method.

- struct std::_Fwd_list_node_base< _Alloc >

  A helper basic node class for forward_list. This is just a linked list with nothing inside it. There are purely list shuffling utility methods here.

- class std::forward_list< _Tp, _Alloc >

  A standard container with linear time access to elements, and fixed time insertion/deletion at any point in the sequence.

Namespaces

- namespace std

Defines

- #define **_FORWARD_LIST_H**

Functions

- template<typename _Tp , typename _Alloc >
  bool std::operator!= (const forward_list< _Tp, _Alloc > &__lx, const forward_list< _Tp, _Alloc > &__ly)
- template<typename _Tp , typename _Alloc >
  bool std::operator!= (const _Fwd_list_iterator< _Tp, _Alloc > &__x, const _Fwd_list_const_iterator< _Tp, _Alloc > &__y)

- template<typename _Tp , typename _Alloc >
  bool std::operator< (const forward_list< _Tp, _Alloc > &__lx, const forward_list< _Tp, _Alloc > &__ly)
- template<typename _Tp , typename _Alloc >
  bool std::operator<= (const forward_list< _Tp, _Alloc > &__lx, const forward_list< _Tp, _Alloc > &__ly)
- template<typename _Tp , typename _Alloc >
  bool std::operator== (const forward_list< _Tp, _Alloc > &__lx, const forward_list< _Tp, _Alloc > &__ly)
- template<typename _Tp , typename _Alloc >
  bool std::operator== (const _Fwd_list_iterator< _Tp, _Alloc > &__x, const _Fwd_list_const_iterator< _Tp, _Alloc > &__y)
- template<typename _Tp , typename _Alloc >
  bool std::operator> (const forward_list< _Tp, _Alloc > &__lx, const forward_list< _Tp, _Alloc > &__ly)
- template<typename _Tp , typename _Alloc >
  bool std::operator>= (const forward_list< _Tp, _Alloc > &__lx, const forward_list< _Tp, _Alloc > &__ly)
- template<typename _Tp , typename _Alloc >
  void std::swap (forward_list< _Tp, _Alloc > &__lx, forward_list< _Tp, _Alloc > &__ly)

6.143.1 Detailed Description

This is a Standard C++ Library header.

Definition in file forward_list.h.

6.144 forward_list.tcc File Reference

Namespaces

- namespace std

Defines

- #define **_FORWARD_LIST_TCC**

Functions

- template<typename _Tp , typename _Alloc >
  bool std::operator== (const forward_list< _Tp, _Alloc > &__lx, const forward_list< _Tp, _Alloc > &__ly)

6.144.1 Detailed Description

This is a Standard C++ Library header.

Definition in file forward_list.tcc.

6.145 fstream File Reference

Classes

- class std::basic_filebuf< _CharT, _Traits >

  The actual work of input and output (for files).
  This class associates both its input and output sequence with an external disk file, and maintains a joint file position for both sequences. Many of its semantics are described in terms of similar behavior in the Standard C Library's `FILE` *streams.*

- class std::basic_fstream< _CharT, _Traits >

  Controlling input and output for files.
  This class supports reading from and writing to named files, using the inherited functions from std::basic_iostream. To control the associated sequence, an instance of std::basic_filebuf is used, which this page refers to as `sb`.

- class std::basic_ifstream< _CharT, _Traits >

  Controlling input for files.
  This class supports reading from named files, using the inherited functions from std::basic_istream. To control the associated sequence, an instance of std::basic_filebuf is used, which this page refers to as `sb`.

- class std::basic_ofstream< _CharT, _Traits >

  Controlling output for files.
  This class supports reading from named files, using the inherited functions from std::basic_ostream. To control the associated sequence, an instance of std::basic_filebuf is used, which this page refers to as `sb`.

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_FSTREAM**

6.145.1 Detailed Description

This is a Standard C++ Library header.

Definition in file fstream.

6.146 fstream.tcc File Reference

Namespaces

- namespace std

Defines

- #define **_FSTREAM_TCC**

6.146.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file fstream.tcc.

6.147 functexcept.h File Reference

Namespaces

- namespace std

Defines

- #define **_FUNCTEXCEPT_H**

Functions

- void **std::__throw_bad_alloc** (void) __attribute__((__noreturn__))
- void **std::__throw_bad_cast** (void) __attribute__((__noreturn__))
- void **std::__throw_bad_exception** (void) __attribute__((__noreturn__))
- void **std::__throw_bad_function_call** () __attribute__((__noreturn__))
- void **std::__throw_bad_typeid** (void) __attribute__((__noreturn__))
- void **std::__throw_domain_error** (const char *) __attribute__((__noreturn__))

- void **std::__throw_future_error** (int) __attribute__((__noreturn__))
- void **std::__throw_invalid_argument** (const char *) __attribute__((__noreturn__))
- void **std::__throw_ios_failure** (const char *) __attribute__((__noreturn__))
- void **std::__throw_length_error** (const char *) __attribute__((__noreturn__))
- void **std::__throw_logic_error** (const char *) __attribute__((__noreturn__))
- void **std::__throw_out_of_range** (const char *) __attribute__((__noreturn__))
- void **std::__throw_overflow_error** (const char *) __attribute__((__noreturn__))
- void **std::__throw_range_error** (const char *) __attribute__((__noreturn__))
- void **std::__throw_runtime_error** (const char *) __attribute__((__noreturn__))

- void **std::__throw_system_error** (int) __attribute__((__noreturn__))
- void **std::__throw_underflow_error** (const char *) __attribute__((__noreturn__))

6.147.1 Detailed Description

This header provides support for -fno-exceptions.

Definition in file functexcept.h.

6.148 functional File Reference

Classes

- struct std::__is_location_invariant< _Tp >
- struct std::_Build_index_tuple< _Num >

  Builds an _Index_tuple<0, 1, 2, ..., _Num-1>.

- struct std::_Derives_from_binary_function< _Tp >

  Determines if the type _Tp derives from binary_function.

- struct std::_Derives_from_unary_function< _Tp >

  Determines if the type _Tp derives from unary_function.

- class std::_Function_base

  Base class of all polymorphic function object wrappers.

- struct std::_Function_to_function_pointer< _Tp, _IsFunctionType >

  Turns a function type into a function pointer type.

- class std::_Has_result_type_helper< _Tp >
- struct std::_Index_tuple< _Indexes >
- struct std::_Maybe_get_result_type< _Has_result_type, _Functor >

  If we have found a result_type, extract it.

- struct std::_Maybe_unary_or_binary_function< _Res, _ArgTypes >
- struct std::_Maybe_unary_or_binary_function< _Res, _T1 >

  Derives from `unary_function`, as appropriate.

- struct std::_Maybe_unary_or_binary_function< _Res, _T1, _T2 >

  Derives from `binary_function`, as appropriate.

- struct std::_Maybe_wrap_member_pointer< _Tp >
- struct std::_Maybe_wrap_member_pointer< _Tp _Class::* >
- class std::_Mem_fn< _Res(_Class::*)(_ArgTypes...) const >

  Implementation of `mem_fn` for const member function pointers.

- class std::_Mem_fn< _Res(_Class::*)(_ArgTypes...) const volatile >

  Implementation of `mem_fn` for const volatile member function pointers.

- class std::_Mem_fn< _Res(_Class::*)(_ArgTypes...) volatile >

  Implementation of `mem_fn` for volatile member function pointers.

- class std::_Mem_fn< _Res(_Class::*)(_ArgTypes...)>

  Implementation of `mem_fn` *for member function pointers.*

- class std::_Mu< _Arg, false, false >
- class std::_Mu< _Arg, false, true >
- class std::_Mu< _Arg, true, false >
- class std::_Mu< reference_wrapper< _Tp >, false, false >
- struct std::_Placeholder< _Num >

  The type of placeholder objects defined by libstdc++.

- struct std::_Reference_wrapper_base< _Tp >
- struct std::_Safe_tuple_element< __i, _Tuple >
- struct std::_Safe_tuple_element_impl< __i, _Tuple, _IsSafe >
- struct std::_Safe_tuple_element_impl< __i, _Tuple, false >
- struct std::_Weak_result_type< _Functor >
- struct std::_Weak_result_type_impl< _Functor >
- struct std::_Weak_result_type_impl< _Res(&)(_ArgTypes...)>

  Retrieve the result type for a function reference.

- struct std::_Weak_result_type_impl< _Res(*)(_ArgTypes...)>

  Retrieve the result type for a function pointer.

- struct std::_Weak_result_type_impl< _Res(_ArgTypes...)>

  Retrieve the result type for a function type.

- struct std::_Weak_result_type_impl< _Res(_Class::*)(_ArgTypes...) const >

  Retrieve result type for a const member function pointer.

- struct std::_Weak_result_type_impl< _Res(_Class::*)(_ArgTypes...) const volatile >

  Retrieve result type for a const volatile member function pointer.

- struct std::_Weak_result_type_impl< _Res(_Class::*)(_ArgTypes...) volatile >

  Retrieve result type for a volatile member function pointer.

- struct std::_Weak_result_type_impl< _Res(_Class::*)(_ArgTypes...)>

  Retrieve result type for a member function pointer.

- class std::bad_function_call

  Exception class thrown when class template function's operator() is called with an empty target.

- class std::function< _Res(_ArgTypes...)>

  Primary class template for std::function.
  Polymorphic function wrapper.

- struct std::is_bind_expression< _Tp >

  Determines if the given type _Tp is a function object should be treated as a subexpression when evaluating calls to function objects returned by bind(). [TR1 3.6.1].

- struct std::is_bind_expression< _Bind< _Signature > >

  Class template _Bind is always a bind expression.

- struct std::is_bind_expression< _Bind_result< _Result, _Signature > >

  Class template _Bind is always a bind expression.

- struct std::is_placeholder< _Tp >

  Determines if the given type _Tp is a placeholder in a bind() expression and, if so, which placeholder it is. [TR1 3.6.2].

- struct std::is_placeholder< _Placeholder< _Num > >
- class std::reference_wrapper< _Tp >

  Primary class template for reference_wrapper.

Namespaces

- namespace std
- namespace std::placeholders

Defines

- #define **_GLIBCXX_FUNCTIONAL**

Enumerations

- enum **_Manager_operation** { **__get_type_info**, **__get_functor_ptr**, **__clone_functor**, **__destroy_functor** }

Functions

- template<typename _Member , typename _Class >
  _Mem_fn< _Member _Class::* > **std::__callable_functor** (_Member _Class::*const &__p)
- template<typename _Member , typename _Class >
  _Mem_fn< _Member _Class::* > **std::__callable_functor** (_Member _Class::*&__p)
- template<typename _Functor >
  _Functor & **std::__callable_functor** (_Functor &__f)
- template<typename _Functor , typename... _Args>
  enable_if< (is_pointer< _Functor >::value &&is_function< typename remove_pointer< _Functor >::type >::value), typename result_of< _Functor(_Args...)>::type >::type **std::__invoke** (_Functor __f, _Args &&...__args)
- template<typename _Functor , typename... _Args>
  enable_if< (!is_member_pointer< _Functor >::value &&!is_function< _Functor >::value &&!is_function< typename remove_pointer< _Functor >::type >::value), typename result_of< _Functor(_Args...)>::type >::type std::__invoke (_Functor &__f, _Args &&...__args)
- template<typename _Result , typename _Functor , typename... _ArgTypes>
  _Bind_result< _Result, typename _Maybe_wrap_member_pointer< _Functor >::type(_ArgTypes...)> std::bind (_Functor __f, _ArgTypes...__args)
- template<typename _Functor , typename... _ArgTypes>
  _Bind< typename _Maybe_wrap_member_pointer< _Functor >::type(_ArgTypes...)> std::bind (_Functor __f, _ArgTypes...__args)
- template<typename _Tp , typename _Class >
  _Mem_fn< _Tp _Class::* > std::mem_fn (_Tp _Class::*__pm)
- template<typename _Res , typename... _Args>
  bool std::operator!= (_M_clear_type *, const function< _Res(_Args...)> &__f)
- template<typename _Res , typename... _Args>
  bool std::operator!= (const function< _Res(_Args...)> &__f, _M_clear_type *)
- template<typename _Res , typename... _Args>
  bool std::operator== (_M_clear_type *, const function< _Res(_Args...)> &__f)
- template<typename _Res , typename... _Args>
  bool std::operator== (const function< _Res(_Args...)> &__f, _M_clear_type *)
- template<typename _Res , typename... _Args>
  void std::swap (function< _Res(_Args...)> &__x, function< _Res(_Args...)> &__y)

- template<typename _Tp >
  reference_wrapper< const _Tp > std::cref (reference_wrapper< _Tp > __t)
- template<typename _Tp >
  reference_wrapper< const _Tp > std::cref (const _Tp &__t)
- template<typename _Tp >
  reference_wrapper< _Tp > std::ref (reference_wrapper< _Tp > __t)

- template<typename _Tp >
  reference_wrapper< _Tp > std::ref (_Tp &__t)

6.148.1 Detailed Description

This is a Standard C++ Library header.

Definition in file functional.

6.149 functional File Reference

Classes

- class __gnu_cxx::binary_compose< _Operation1, _Operation2, _Operation3 >

  An SGI extension .

- struct __gnu_cxx::constant_binary_fun< _Result, _Arg1, _Arg2 >

  An SGI extension .

- struct __gnu_cxx::constant_unary_fun< _Result, _Argument >

  An SGI extension .

- struct __gnu_cxx::constant_void_fun< _Result >

  An SGI extension .

- struct __gnu_cxx::project1st< _Arg1, _Arg2 >

  An SGI extension .

- struct __gnu_cxx::project2nd< _Arg1, _Arg2 >

  An SGI extension .

- struct __gnu_cxx::select1st< _Pair >

  An SGI extension .

- struct __gnu_cxx::select2nd< _Pair >

  An SGI extension .

- class __gnu_cxx::subtractive_rng
- class __gnu_cxx::unary_compose< _Operation1, _Operation2 >

  An SGI extension .

Namespaces

- namespace __gnu_cxx

Defines

- #define **_EXT_FUNCTIONAL**

Functions

- template<class _Operation1 , class _Operation2 >
  unary_compose< _Operation1, _Operation2 > __gnu_cxx::compose1 (const _Operation1 &__fn1, const _Operation2 &__fn2)
- template<class _Operation1 , class _Operation2 , class _Operation3 >
  binary_compose< _Operation1, _Operation2, _Operation3 > __gnu_cxx::compose2 (const _Operation1 &__fn1, const _Operation2 &__fn2, const _Operation3 &__fn3)
- template<class _Result >
  constant_void_fun< _Result > __gnu_cxx::constant0 (const _Result &__val)
- template<class _Result >
  constant_unary_fun< _Result, _Result > __gnu_cxx::constant1 (const _Result &__val)
- template<class _Result >
  constant_binary_fun< _Result, _Result, _Result > __gnu_cxx::constant2 (const _Result &__val)
- template<class _Tp >
  _Tp __gnu_cxx::identity_element (std::multiplies< _Tp >)
- template<class _Tp >
  _Tp __gnu_cxx::identity_element (std::plus< _Tp >)
- template<class _Ret , class _Tp , class _Arg >
  mem_fun1_t< _Ret, _Tp, _Arg > **__gnu_cxx::mem_fun1** (_Ret(_Tp::*__f)(_Arg))
- template<class _Ret , class _Tp , class _Arg >
  mem_fun1_ref_t< _Ret, _Tp, _Arg > **__gnu_cxx::mem_fun1_ref** (_Ret(_Tp::*__f)(_Arg))

6.149.1 Detailed Description

This file is a GNU extension to the Standard C++ Library (possibly containing extensions from the HP/SGI STL subset).

Definition in file ext/functional.

6.150 functional_hash.h File Reference

Classes

- struct std::hash< _Tp >

  Primary class template hash.

- struct std::hash< _Tp * >

  Partial specializations for pointer types.

Namespaces

- namespace std

Defines

- #define **_Cxx_hashtable_define_trivial_hash**(_Tp)
- #define **_FUNCTIONAL_HASH_H**

6.150.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file functional_hash.h.

6.151 functions.h File Reference

Namespaces

- namespace __gnu_debug

Defines

- #define **_GLIBCXX_DEBUG_FUNCTIONS_H**

Functions

- template<typename _Iterator , typename _Sequence >
  bool __gnu_debug::__check_dereferenceable (const _Safe_iterator< _Iterator, _Sequence > &__x)
- template<typename _Tp >
  bool __gnu_debug::__check_dereferenceable (const _Tp *__ptr)
- template<typename _Iterator >
  bool __gnu_debug::__check_dereferenceable (_Iterator &)
- template<typename _ForwardIterator , typename _Tp , typename _Pred >
  bool **__gnu_debug::__check_partitioned_lower** (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__value, _Pred __pred)
- template<typename _ForwardIterator , typename _Tp >
  bool **__gnu_debug::__check_partitioned_lower** (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__value)
- template<typename _ForwardIterator , typename _Tp , typename _Pred >
  bool **__gnu_debug::__check_partitioned_upper** (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__value, _Pred __pred)
- template<typename _ForwardIterator , typename _Tp >
  bool **__gnu_debug::__check_partitioned_upper** (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__value)
- template<typename _Iterator , typename _Sequence >
  bool __gnu_debug::__check_singular (const _Safe_iterator< _Iterator, _Sequence > &__x)
- template<typename _Tp >
  bool __gnu_debug::__check_singular (const _Tp *__ptr)
- template<typename _Iterator >
  bool **__gnu_debug::__check_singular** (_Iterator &__x)
- bool **__gnu_debug::__check_singular_aux** (const void *)
- template<typename _InputIterator , typename _Predicate >
  bool **__gnu_debug::__check_sorted** (const _InputIterator &__first, const _InputIterator &__last, _Predicate __pred)

- template<typename _InputIterator >
  bool **__gnu_debug::__check_sorted** (const _InputIterator &__first, const _InputIterator &__last)
- template<typename _ForwardIterator , typename _Predicate >
  bool **__gnu_debug::__check_sorted_aux** (_ForwardIterator __first, _ForwardIterator __last, _Predicate __pred, std::forward_iterator_tag)
- template<typename _InputIterator , typename _Predicate >
  bool **__gnu_debug::__check_sorted_aux** (const _InputIterator &, const _InputIterator &, _Predicate, std::input_iterator_tag)
- template<typename _ForwardIterator >
  bool **__gnu_debug::__check_sorted_aux** (_ForwardIterator __first, _ForwardIterator __last, std::forward_iterator_tag)
- template<typename _InputIterator >
  bool **__gnu_debug::__check_sorted_aux** (const _InputIterator &, const _InputIterator &, std::input_iterator_tag)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _Predicate >
  bool **__gnu_debug::__check_sorted_set** (const _InputIterator1 &__first, const _InputIterator1 &__last, const _InputIterator2 &, _Predicate __pred)
- template<typename _InputIterator1 , typename _InputIterator2 >
  bool **__gnu_debug::__check_sorted_set** (const _InputIterator1 &__first, const _InputIterator1 &__last, const _InputIterator2 &)
- template<typename _InputIterator , typename _Predicate >
  bool **__gnu_debug::__check_sorted_set_aux** (const _InputIterator &, const _InputIterator &, _Predicate, std::__false_type)
- template<typename _InputIterator , typename _Predicate >
  bool **__gnu_debug::__check_sorted_set_aux** (const _InputIterator &__first, const _InputIterator &__last, _Predicate __pred, std::__true_type)
- template<typename _InputIterator >
  bool **__gnu_debug::__check_sorted_set_aux** (const _InputIterator &, const _InputIterator &, std::__false_type)
- template<typename _InputIterator >
  bool **__gnu_debug::__check_sorted_set_aux** (const _InputIterator &__first, const _InputIterator &__last, std::__true_type)
- template<typename _CharT >
  const _CharT * __gnu_debug::__check_string (const _CharT *__s)
- template<typename _CharT , typename _Integer >
  const _CharT * __gnu_debug::__check_string (const _CharT *__s, const _Integer &__n __attribute__((__unused__)))
- template<typename _InputIterator >
  _InputIterator **__gnu_debug::__check_valid_range** (const _InputIterator &__first, const _InputIterator &__last __attribute__((__unused__)))
- template<typename _Iterator , typename _Sequence >
  bool __gnu_debug::__valid_range (const _Safe_iterator< _Iterator, _Sequence > &__first, const _Safe_iterator< _Iterator, _Sequence > &__last)

- template<typename _InputIterator >
  bool __gnu_debug::__valid_range (const _InputIterator &__first, const _InputIterator &__last)
- template<typename _InputIterator >
  bool __gnu_debug::__valid_range_aux (const _InputIterator &__first, const _InputIterator &__last, std::__false_type)
- template<typename _Integral >
  bool __gnu_debug::__valid_range_aux (const _Integral &, const _Integral &, std::__true_type)
- template<typename _InputIterator >
  bool __gnu_debug::__valid_range_aux2 (const _InputIterator &, const _InputIterator &, std::input_iterator_tag)
- template<typename _RandomAccessIterator >
  bool __gnu_debug::__valid_range_aux2 (const _RandomAccessIterator &__first, const _RandomAccessIterator &__last, std::random_access_iterator_tag)

6.151.1 Detailed Description

This file is a GNU debug extension to the Standard C++ Library.

Definition in file functions.h.

6.152 future File Reference

Classes

- class std::__basic_future< _Res >
  Common implementation for future and shared_future.
- struct std::__future_base
  Base class and enclosing scope.
- struct std::__future_base::_Ptr< _Res >
  A unique_ptr based on the instantiating type.
- struct std::__future_base::_Result< _Res >
  Result.
- struct std::__future_base::_Result< _Res & >
  Partial specialization for reference types.
- struct std::__future_base::_Result< void >
  Explicit specialization for void.
- struct std::__future_base::_Result_base
  Base class for results.
- class std::__future_base::_State
  Shared state between a promise and one or more associated futures.
- class std::future< _Res >
  Primary template for future.
- class std::future< _Res & >
  Partial specialization for future<R&>.
- class std::future< void >
  Explicit specialization for future<void>.
- class std::future_error
  Exception type thrown by futures.
- class std::packaged_task< _Res(_ArgTypes...)>
  packaged_task

- class std::promise< _Res >

  Primary template for promise.

- class std::promise< _Res & >

  Partial specialization for promise<R&>.

- class std::promise< void >

  Explicit specialization for promise<void>.

- class std::shared_future< _Res >

  Primary template for shared_future.

- class std::shared_future< _Res & >

  Partial specialization for shared_future<R&>.

- class std::shared_future< void >

  Explicit specialization for shared_future<void>.

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_FUTURE**

Enumerations

- enum std::future_errc { **broken_promise**, **future_already_retrieved**, **promise_already_satisfied**, **no_state** }
- enum **launch** { **any**, **async**, **sync** }

Functions

- template<typename _Fn , typename... _Args>
  enable_if<!is_same< typename decay< _Fn >::type, launch >::value, future< decltype(std::declval< _Fn >)(std::declval< _Args >)...)> >::type **std::async** (_Fn &&__fn, _Args &&...__args)

- template<typename _Fn , typename... _Args>
  future< typename result_of< _Fn(_Args...)>::type > **std::async** (launch __policy, _Fn &&__fn, _Args &&...__args)
- error_code **std::make_error_code** (future_errc __errc)
- error_condition **std::make_error_condition** (future_errc __errc)
- template<typename _Res , typename... _ArgTypes>
  void **std::swap** (packaged_task< _Res(_ArgTypes...)> &__x, packaged_task< _Res(_ArgTypes...)> &__y)
- template<typename _Res >
  void **std::swap** (promise< _Res > &__x, promise< _Res > &__y)

Variables

- const error_category *const std::future_category

6.152.1 Detailed Description

This is a Standard C++ Library header.

Definition in file future.

6.153 gslice.h File Reference

Classes

- class std::gslice

  Class defining multi-dimensional subset of an array.

Namespaces

- namespace std

Defines

- #define **_GSLICE_H**

6.153.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file gslice.h.

6.154 gslice_array.h File Reference

Classes

- class std::gslice_array< _Tp >

  Reference to multi-dimensional subset of an array.

Namespaces

- namespace std

Defines

- #define **_DEFINE_VALARRAY_OPERATOR**(_Op, _Name)
- #define **_GSLICE_ARRAY_H**

6.154.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file gslice_array.h.

6.155 hash_fun.h File Reference

Namespaces

- namespace __gnu_cxx

Defines

- #define **_HASH_FUN_H**

Functions

- size_t **__gnu_cxx::__stl_hash_string** (const char *__s)

6.155.1 Detailed Description

This file is a GNU extension to the Standard C++ Library (possibly containing extensions from the HP/SGI STL subset).

Definition in file hash_fun.h.

6.156 hash_map File Reference

Classes

- class __gnu_cxx::hash_map< _Key, _Tp, _HashFn, _EqualKey, _Alloc >
- class __gnu_cxx::hash_multimap< _Key, _Tp, _HashFn, _EqualKey, _Alloc >

Namespaces

- namespace __gnu_cxx
- namespace std

Defines

- #define **_HASH_MAP**

Functions

- template<class _Key , class _Tp , class _HF , class _EqKey , class _Alloc >
  bool **__gnu_cxx::operator!=** (const hash_multimap< _Key, _Tp, _HF, _EqKey, _Alloc > &__hm1, const hash_multimap< _Key, _Tp, _HF, _EqKey, _Alloc > &__hm2)
- template<class _Key , class _Tp , class _HashFn , class _EqlKey , class _Alloc >
  bool **__gnu_cxx::operator!=** (const hash_map< _Key, _Tp, _HashFn, _EqlKey, _Alloc > &__hm1, const hash_map< _Key, _Tp, _HashFn, _EqlKey, _Alloc > &__hm2)
- template<class _Key , class _Tp , class _HF , class _EqKey , class _Alloc >
  bool **__gnu_cxx::operator==** (const hash_multimap< _Key, _Tp, _HF, _EqKey, _Alloc > &__hm1, const hash_multimap< _Key, _Tp, _HF, _EqKey, _Alloc > &__hm2)
- template<class _Key , class _Tp , class _HashFn , class _EqlKey , class _Alloc >
  bool **__gnu_cxx::operator==** (const hash_map< _Key, _Tp, _HashFn, _EqlKey, _Alloc > &__hm1, const hash_map< _Key, _Tp, _HashFn, _EqlKey, _Alloc > &__hm2)
- template<class _Key , class _Tp , class _HashFn , class _EqlKey , class _Alloc >
  void **__gnu_cxx::swap** (hash_multimap< _Key, _Tp, _HashFn, _EqlKey, _Alloc > &__hm1, hash_multimap< _Key, _Tp, _HashFn, _EqlKey, _Alloc > &__hm2)
- template<class _Key , class _Tp , class _HashFn , class _EqlKey , class _Alloc >
  void **__gnu_cxx::swap** (hash_map< _Key, _Tp, _HashFn, _EqlKey, _Alloc > &__hm1, hash_map< _Key, _Tp, _HashFn, _EqlKey, _Alloc > &__hm2)

6.156.1 Detailed Description

This file is a GNU extension to the Standard C++ Library (possibly containing extensions from the HP/SGI STL subset).

Definition in file hash_map.

6.157 hash_policy.hpp File Reference

Namespaces

- namespace __gnu_pbds

Defines

- #define **PB_DS_CLASS_C_DEC**
- #define **PB_DS_CLASS_C_DEC**
- #define **PB_DS_CLASS_C_DEC**
- #define **PB_DS_CLASS_C_DEC**
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- #define **PB_DS_CLASS_T_DEC**
- #define **PB_DS_CLASS_T_DEC**
- #define **PB_DS_SIZE_BASE_C_DEC**

6.157.1 Detailed Description

Contains hash-related policies.

Definition in file hash_policy.hpp.

6.158 hash_set File Reference

Classes

- class __gnu_cxx::hash_multiset< _Value, _HashFcn, _EqualKey, _Alloc >
- class __gnu_cxx::hash_set< _Value, _HashFcn, _EqualKey, _Alloc >

Namespaces

- namespace __gnu_cxx
- namespace std

Defines

- #define **_HASH_SET**

Functions

- template<class _Val , class _HashFcn , class _EqualKey , class _Alloc >
  bool **__gnu_cxx::operator!=** (const hash_multiset< _Val, _HashFcn, _EqualKey, _Alloc > &__hs1, const hash_multiset< _Val, _HashFcn, _EqualKey, _Alloc > &__hs2)
- template<class _Value , class _HashFcn , class _EqualKey , class _Alloc >
  bool **__gnu_cxx::operator!=** (const hash_set< _Value, _HashFcn, _EqualKey, _Alloc > &__hs1, const hash_set< _Value, _HashFcn, _EqualKey, _Alloc > &__hs2)
- template<class _Val , class _HashFcn , class _EqualKey , class _Alloc >
  bool **__gnu_cxx::operator==** (const hash_multiset< _Val, _HashFcn, _EqualKey, _Alloc > &__hs1, const hash_multiset< _Val, _HashFcn, _EqualKey, _Alloc > &__hs2)
- template<class _Value , class _HashFcn , class _EqualKey , class _Alloc >
  bool **__gnu_cxx::operator==** (const hash_set< _Value, _HashFcn, _EqualKey, _Alloc > &__hs1, const hash_set< _Value, _HashFcn, _EqualKey, _Alloc > &__hs2)
- template<class _Val , class _HashFcn , class _EqualKey , class _Alloc >
  void **__gnu_cxx::swap** (hash_multiset< _Val, _HashFcn, _EqualKey, _Alloc > &__hs1, hash_multiset< _Val, _HashFcn, _EqualKey, _Alloc > &__hs2)
- template<class _Val , class _HashFcn , class _EqualKey , class _Alloc >
  void **__gnu_cxx::swap** (hash_set< _Val, _HashFcn, _EqualKey, _Alloc > &__hs1, hash_set< _Val, _HashFcn, _EqualKey, _Alloc > &__hs2)

6.158.1 Detailed Description

This file is a GNU extension to the Standard C++ Library (possibly containing extensions from the HP/SGI STL subset).

Definition in file hash_set.

6.159 hashtable.h File Reference

Namespaces

- namespace __gnu_cxx

Defines

- #define **_HASHTABLE_H**

Enumerations

- enum { **_S_num_primes** }

Functions

- unsigned long **__gnu_cxx::__stl_next_prime** (unsigned long __n)
- template<class _Val , class _Key , class _HF , class _Ex , class _Eq , class _All >
  bool **__gnu_cxx::operator!=** (const hashtable< _Val, _Key, _HF, _Ex, _Eq, _All > &__ht1, const hashtable< _Val, _Key, _HF, _Ex, _Eq, _All > &__ht2)
- template<class _Val , class _Key , class _HF , class _Ex , class _Eq , class _All >
  bool **__gnu_cxx::operator==** (const hashtable< _Val, _Key, _HF, _Ex, _Eq, _All > &__ht1, const hashtable< _Val, _Key, _HF, _Ex, _Eq, _All > &__ht2)
- template<class _Val , class _Key , class _HF , class _Extract , class _EqKey , class _All >
  void **__gnu_cxx::swap** (hashtable< _Val, _Key, _HF, _Extract, _EqKey, _All > &__ht1, hashtable< _Val, _Key, _HF, _Extract, _EqKey, _All > &__ht2)

Variables

- static const unsigned long **__gnu_cxx::__stl_prime_list** [_S_num_primes]

6.159.1 Detailed Description

This file is a GNU extension to the Standard C++ Library (possibly containing extensions from the HP/SGI STL subset).

Definition in file backward/hashtable.h.

6.160 hashtable.h File Reference

6.160.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file bits/hashtable.h.

6.161 hashtable_policy.h File Reference

Namespaces

- namespace std
- namespace std::__detail

Defines

- #define **_HASHTABLE_POLICY_H**

Functions

- template<class _Iterator >
  std::iterator_traits< _Iterator >::difference_type **std::__detail::__distance_fw** (_Iterator __first, _Iterator __last)
- template<class _Iterator >
  std::iterator_traits< _Iterator >::difference_type **std::__detail::__distance_fw** (_Iterator __first, _Iterator __last, std::forward_iterator_tag)
- template<class _Iterator >
  std::iterator_traits< _Iterator >::difference_type **std::__detail::__distance_fw** (_Iterator __first, _Iterator __last, std::input_iterator_tag)
- template<typename _RAIter , typename _Tp >
  _RAIter **std::__detail::__lower_bound** (_RAIter __first, _RAIter __last, const _Tp &__val)
- template<typename _Value , bool __cache>
  bool **std::__detail::operator!=** (const _Hashtable_iterator_base< _Value, __cache > &__x, const _Hashtable_iterator_base< _Value, __cache > &__y)
- template<typename _Value , bool __cache>
  bool **std::__detail::operator!=** (const _Node_iterator_base< _Value, __cache > &__x, const _Node_iterator_base< _Value, __cache > &__y)
- template<typename _Value , bool __cache>
  bool **std::__detail::operator==** (const _Hashtable_iterator_base< _Value, __cache > &__x, const _Hashtable_iterator_base< _Value, __cache > &__y)
- template<typename _Value , bool __cache>
  bool **std::__detail::operator==** (const _Node_iterator_base< _Value, __cache > &__x, const _Node_iterator_base< _Value, __cache > &__y)

Variables

- const unsigned long **std::__detail::__prime_list** [ ]

6.161.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file hashtable_policy.h.

6.162 indirect_array.h File Reference

Classes

- class std::indirect_array< _Tp >

  Reference to arbitrary subset of an array.

Namespaces

- namespace std

Defines

- #define **_DEFINE_VALARRAY_OPERATOR**(_Op, _Name)
- #define **_INDIRECT_ARRAY_H**

6.162.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file indirect_array.h.

6.163 initializer_list File Reference

Classes

- class std::initializer_list< _E >
  initializer_list

Namespaces

- namespace std

6.163.1 Detailed Description

This is a Standard C++ Library header.

Definition in file initializer_list.

6.164 iomanip File Reference

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_IOMANIP**

Functions

- template<typename _MoneyT >
  _Get_money< _MoneyT > std::get_money (_MoneyT &__mon, bool __intl=false)
- template<typename _CharT , typename _Traits , typename _MoneyT >
  basic_ostream< _CharT, _Traits > & **std::operator**<< (basic_ostream< _CharT, _Traits > &__os, _Put_money< _MoneyT > __f)
- template<typename _CharT , typename _Traits >
  basic_ostream< _CharT, _Traits > & **std::operator**<< (basic_ostream< _CharT, _Traits > &__os, _Setw __f)
- template<typename _CharT , typename _Traits >
  basic_ostream< _CharT, _Traits > & **std::operator**<< (basic_ostream< _CharT, _Traits > &__os, _Setprecision __f)
- template<typename _CharT , typename _Traits >
  basic_ostream< _CharT, _Traits > & **std::operator**<< (basic_ostream< _CharT, _Traits > &__os, _Setfill< _CharT > __f)
- template<typename _CharT , typename _Traits >
  basic_ostream< _CharT, _Traits > & **std::operator**<< (basic_ostream< _CharT, _Traits > &__os, _Setbase __f)
- template<typename _CharT , typename _Traits >
  basic_ostream< _CharT, _Traits > & **std::operator**<< (basic_ostream< _CharT, _Traits > &__os, _Setiosflags __f)
- template<typename _CharT , typename _Traits >
  basic_ostream< _CharT, _Traits > & **std::operator**<< (basic_ostream< _CharT, _Traits > &__os, _Resetiosflags __f)
- template<typename _CharT , typename _Traits , typename _MoneyT >
  basic_istream< _CharT, _Traits > & **std::operator**>> (basic_istream< _CharT, _Traits > &__is, _Get_money< _MoneyT > __f)
- template<typename _CharT , typename _Traits >
  basic_istream< _CharT, _Traits > & **std::operator**>> (basic_istream< _CharT, _Traits > &__is, _Setw __f)

- template<typename _CharT , typename _Traits >
  basic_istream< _CharT, _Traits > & **std::operator>>** (basic_istream< _CharT, _Traits > &__is, _Setprecision __f)
- template<typename _CharT , typename _Traits >
  basic_istream< _CharT, _Traits > & **std::operator>>** (basic_istream< _CharT, _Traits > &__is, _Setfill< _CharT > __f)
- template<typename _CharT , typename _Traits >
  basic_istream< _CharT, _Traits > & **std::operator>>** (basic_istream< _CharT, _Traits > &__is, _Setbase __f)
- template<typename _CharT , typename _Traits >
  basic_istream< _CharT, _Traits > & **std::operator>>** (basic_istream< _CharT, _Traits > &__is, _Setiosflags __f)
- template<typename _CharT , typename _Traits >
  basic_istream< _CharT, _Traits > & **std::operator>>** (basic_istream< _CharT, _Traits > &__is, _Resetiosflags __f)
- template<typename _MoneyT >
  _Put_money< _MoneyT > std::put_money (const _MoneyT &__mon, bool __intl=false)
- _Resetiosflags std::resetiosflags (ios_base::fmtflags __mask)
- _Setbase std::setbase (int __base)
- template<typename _CharT >
  _Setfill< _CharT > std::setfill (_CharT __c)
- _Setiosflags std::setiosflags (ios_base::fmtflags __mask)
- _Setprecision std::setprecision (int __n)
- _Setw std::setw (int __n)

6.164.1 Detailed Description

This is a Standard C++ Library header.

Definition in file iomanip.

6.165 ios File Reference

Defines

- #define **_GLIBCXX_IOS**

6.165.1 Detailed Description

This is a Standard C++ Library header.

Definition in file ios.

6.166 ios_base.h File Reference

Classes

- class std::ios_base

  The base of the I/O class hierarchy.
  This class defines everything that can be defined about I/O that does not depend on the type of characters being input or output. Most people will only see `ios_base` *when they need to specify the full name of the various I/O flags (e.g., the openmodes).*

- class std::ios_base::failure

  These are thrown to indicate problems with io.
  27.4.2.1.1 Class ios_base::failure.

Namespaces

- namespace std

Defines

- #define **_IOS_BASE_H**
- #define **_IOS_BASE_SEEK_CUR**
- #define **_IOS_BASE_SEEK_END**

Enumerations

- enum **_Ios_Fmtflags** {
  _S_boolalpha, **_S_dec**, **_S_fixed**, **_S_hex**,
  _S_internal, **_S_left**, **_S_oct**, **_S_right**,
  _S_scientific, **_S_showbase**, **_S_showpoint**, **_S_showpos**,
  _S_skipws, **_S_unitbuf**, **_S_uppercase**, **_S_adjustfield**,
  _S_basefield, **_S_floatfield**, **_S_ios_fmtflags_end** }
- enum **_Ios_Iostate** {
  _S_goodbit, **_S_badbit**, **_S_eofbit**, **_S_failbit**,
  _S_ios_iostate_end }
- enum **_Ios_Openmode** {
  _S_app, **_S_ate**, **_S_bin**, **_S_in**,
  _S_out, **_S_trunc**, **_S_ios_openmode_end** }
- enum **_Ios_Seekdir** { **_S_beg**, **_S_cur**, **_S_end**, **_S_ios_seekdir_end** }

Functions

- ios_base & std::boolalpha (ios_base &__base)
- ios_base & std::dec (ios_base &__base)
- ios_base & std::fixed (ios_base &__base)
- ios_base & std::hex (ios_base &__base)
- ios_base & std::internal (ios_base &__base)
- ios_base & std::left (ios_base &__base)
- ios_base & std::noboolalpha (ios_base &__base)
- ios_base & std::noshowbase (ios_base &__base)
- ios_base & std::noshowpoint (ios_base &__base)
- ios_base & std::noshowpos (ios_base &__base)
- ios_base & std::noskipws (ios_base &__base)
- ios_base & std::nounitbuf (ios_base &__base)
- ios_base & std::nouppercase (ios_base &__base)
- ios_base & std::oct (ios_base &__base)
- _Ios_Iostate **std::operator&** (_Ios_Iostate __a, _Ios_Iostate __b)
- _Ios_Openmode **std::operator&** (_Ios_Openmode __a, _Ios_Openmode __b)
- _Ios_Fmtflags **std::operator&** (_Ios_Fmtflags __a, _Ios_Fmtflags __b)
- _Ios_Iostate & **std::operator&=** (_Ios_Iostate &__a, _Ios_Iostate __b)
- _Ios_Openmode & **std::operator&=** (_Ios_Openmode &__a, _Ios_Openmode __b)
- _Ios_Fmtflags & **std::operator&=** (_Ios_Fmtflags &__a, _Ios_Fmtflags __b)
- _Ios_Iostate **std::operator^** (_Ios_Iostate __a, _Ios_Iostate __b)
- _Ios_Openmode **std::operator^** (_Ios_Openmode __a, _Ios_Openmode __b)
- _Ios_Fmtflags **std::operator^** (_Ios_Fmtflags __a, _Ios_Fmtflags __b)
- _Ios_Iostate & **std::operator^=** (_Ios_Iostate &__a, _Ios_Iostate __b)
- _Ios_Openmode & **std::operator^=** (_Ios_Openmode &__a, _Ios_Openmode __b)
- _Ios_Fmtflags & **std::operator^=** (_Ios_Fmtflags &__a, _Ios_Fmtflags __b)
- _Ios_Iostate **std::operator|** (_Ios_Iostate __a, _Ios_Iostate __b)
- _Ios_Openmode **std::operator|** (_Ios_Openmode __a, _Ios_Openmode __b)
- _Ios_Fmtflags **std::operator|** (_Ios_Fmtflags __a, _Ios_Fmtflags __b)
- _Ios_Iostate & **std::operator|=** (_Ios_Iostate &__a, _Ios_Iostate __b)
- _Ios_Openmode & **std::operator|=** (_Ios_Openmode &__a, _Ios_Openmode _-_b)
- _Ios_Fmtflags & **std::operator|=** (_Ios_Fmtflags &__a, _Ios_Fmtflags __b)
- _Ios_Iostate **std::operator~** (_Ios_Iostate __a)
- _Ios_Openmode **std::operator~** (_Ios_Openmode __a)
- _Ios_Fmtflags **std::operator~** (_Ios_Fmtflags __a)
- ios_base & std::right (ios_base &__base)
- ios_base & std::scientific (ios_base &__base)
- ios_base & std::showbase (ios_base &__base)

- ios_base & std::showpoint (ios_base &__base)
- ios_base & std::showpos (ios_base &__base)
- ios_base & std::skipws (ios_base &__base)
- ios_base & std::unitbuf (ios_base &__base)
- ios_base & std::uppercase (ios_base &__base)

6.166.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file ios_base.h.

6.167 iosfwd File Reference

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_IOSFWD**

Typedefs

- typedef basic_filebuf< char > std::filebuf
- typedef basic_fstream< char > std::fstream
- typedef basic_ifstream< char > std::ifstream
- typedef basic_ios< char > std::ios
- typedef basic_iostream< char > std::iostream
- typedef basic_istream< char > std::istream
- typedef basic_istringstream< char > std::istringstream
- typedef basic_ofstream< char > std::ofstream
- typedef basic_ostream< char > std::ostream
- typedef basic_ostringstream< char > std::ostringstream
- typedef basic_streambuf< char > std::streambuf
- typedef basic_stringbuf< char > std::stringbuf
- typedef basic_stringstream< char > std::stringstream
- typedef basic_filebuf< wchar_t > std::wfilebuf
- typedef basic_fstream< wchar_t > std::wfstream
- typedef basic_ifstream< wchar_t > std::wifstream
- typedef basic_ios< wchar_t > std::wios
- typedef basic_iostream< wchar_t > std::wiostream
- typedef basic_istream< wchar_t > std::wistream
- typedef basic_istringstream< wchar_t > std::wistringstream
- typedef basic_ofstream< wchar_t > std::wofstream
- typedef basic_ostream< wchar_t > std::wostream
- typedef basic_ostringstream< wchar_t > std::wostringstream
- typedef basic_streambuf< wchar_t > std::wstreambuf
- typedef basic_stringbuf< wchar_t > std::wstringbuf
- typedef basic_stringstream< wchar_t > std::wstringstream

6.167.1 Detailed Description

This is a Standard C++ Library header.

Definition in file iosfwd.

6.168 iostream File Reference

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_IOSTREAM**

Variables

- static ios_base::Init **std::__ioinit**

Standard Stream Objects

The <iostream> header declares the eight standard stream objects. For other declarations, see http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt11ch24.html *and the I/O forward declarations*

They are required by default to cooperate with the global C library's `FILE` *streams, and to be available during program startup and termination. For more information, see the HOWTO linked to above.*

- ostream std::cerr
- istream std::cin
- ostream std::clog
- ostream std::cout
- wostream std::wcerr
- wistream std::wcin
- wostream std::wclog
- wostream std::wcout

6.168.1 Detailed Description

This is a Standard C++ Library header.

Definition in file iostream.

6.169 istream File Reference

Classes

- class std::basic_iostream< _CharT, _Traits >

  Merging istream and ostream capabilities.
  This class multiply inherits from the input and output stream classes simply to provide a single interface.

- class std::basic_istream< _CharT, _Traits >

  Controlling input.
  This is the base class for all input streams. It provides text formatting of all builtin types, and communicates with any class derived from basic_streambuf to do the actual input.

- class std::basic_istream< _CharT, _Traits >::sentry

  Performs setup work for input streams.

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_ISTREAM**

Functions

- template<typename _CharT , typename _Traits , typename _Tp >
  basic_istream< _CharT, _Traits > & std::operator>> (basic_istream< _CharT, _Traits > &&__is, _Tp &__x)
- template<typename _CharT , typename _Traits >
  basic_istream< _CharT, _Traits > & std::ws (basic_istream< _CharT, _Traits > &__is)

  - template<class _Traits >
    basic_istream< char, _Traits > & std::operator>> (basic_istream< char, _Traits > &__in, signed char *__s)
  - template<class _Traits >
    basic_istream< char, _Traits > & std::operator>> (basic_istream< char, _Traits > &__in, unsigned char *__s)

- template<>
  basic_istream< char > & std::operator>> (basic_istream< char > &__in, char *__s)
- template<typename _CharT , typename _Traits >
  basic_istream< _CharT, _Traits > & std::operator>> (basic_istream< _CharT, _Traits > &__in, _CharT *__s)
- template<class _Traits >
  basic_istream< char, _Traits > & std::operator>> (basic_istream< char, _Traits > &__in, signed char &__c)
- template<class _Traits >
  basic_istream< char, _Traits > & std::operator>> (basic_istream< char, _Traits > &__in, unsigned char &__c)
- template<typename _CharT , typename _Traits >
  basic_istream< _CharT, _Traits > & std::operator>> (basic_istream< _CharT, _Traits > &__in, _CharT &__c)

6.169.1 Detailed Description

This is a Standard C++ Library header.

Definition in file istream.

6.170 istream.tcc File Reference

Namespaces

- namespace std

Defines

- #define **_ISTREAM_TCC**

Functions

- template wistream & **std::operator**>> (wistream &, wchar_t *)
- template wistream & **std::operator**>> (wistream &, wchar_t &)
- template istream & **std::operator**>> (istream &, signed char *)
- template istream & **std::operator**>> (istream &, unsigned char *)
- template istream & **std::operator**>> (istream &, signed char &)
- template istream & **std::operator**>> (istream &, unsigned char &)
- template istream & **std::operator**>> (istream &, char *)
- template istream & **std::operator**>> (istream &, char &)
- template istream & **std::ws** (istream &)
- template<typename _CharT , typename _Traits >
  basic_istream< _CharT, _Traits > & std::ws (basic_istream< _CharT, _Traits > &__is)

  - template<typename _CharT , typename _Traits >
    basic_istream< _CharT, _Traits > & std::operator>> (basic_istream< _CharT, _Traits > &__in, _CharT *__s)
  - template<typename _CharT , typename _Traits >
    basic_istream< _CharT, _Traits > & std::operator>> (basic_istream< _CharT, _Traits > &__in, _CharT &__c)

6.170.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file istream.tcc.

6.171 iterator File Reference

Defines

- #define **_GLIBCXX_ITERATOR**

6.171.1 Detailed Description

This is a Standard C++ Library header.

Definition in file iterator.

6.172 iterator File Reference

Namespaces

- namespace __gnu_cxx

Defines

- #define **_EXT_ITERATOR**

Functions

- template<typename _RandomAccessIterator , typename _Distance >
  void **__gnu_cxx::__distance** (_RandomAccessIterator __first, _RandomAccessIterator __last, _Distance &__n, std::random_access_iterator_tag)
- template<typename _InputIterator , typename _Distance >
  void **__gnu_cxx::__distance** (_InputIterator __first, _InputIterator __last, _Distance &__n, std::input_iterator_tag)
- template<typename _InputIterator , typename _Distance >
  void __gnu_cxx::distance (_InputIterator __first, _InputIterator __last, _Distance &__n)

6.172.1 Detailed Description

This file is a GNU extension to the Standard C++ Library (possibly containing extensions from the HP/SGI STL subset).

Definition in file ext/iterator.

6.173 iterator.h File Reference

Helper iterator classes for the std::transform() functions. This file is a GNU parallel extension to the Standard C++ Library.

Classes

- class __gnu_parallel::_IteratorPair< _Iterator1, _Iterator2, _IteratorCategory >

  A pair of iterators. The usual iterator operations are applied to both child iterators.

- class __gnu_parallel::_IteratorTriple< _Iterator1, _Iterator2, _Iterator3, _IteratorCategory >

  A triple of iterators. The usual iterator operations are applied to all three child iterators.

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_ITERATOR_H**

6.173.1 Detailed Description

Helper iterator classes for the std::transform() functions. This file is a GNU parallel extension to the Standard C++ Library.

Definition in file iterator.h.

6.174 iterator_tracker.h File Reference

Namespaces

- namespace std
- namespace std::__profile

Defines

- #define **_GLIBCXX_PROFILE_ITERATOR_TRACKER**

Functions

- template<typename _Iterator , typename _Sequence >
  bool **std::__profile::operator!=** (const __iterator_tracker< _Iterator, _Sequence > &__lhs, const __iterator_tracker< _Iterator, _Sequence > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Sequence >
  bool **std::__profile::operator!=** (const __iterator_tracker< _IteratorL, _Sequence > &__lhs, const __iterator_tracker< _IteratorR, _Sequence > &_-_rhs)
- template<typename _Iterator , typename _Sequence >
  __iterator_tracker< _Iterator, _Sequence > **std::__profile::operator+** (typename __iterator_tracker< _Iterator, _Sequence >::difference_type __n, const __iterator_tracker< _Iterator, _Sequence > &__i)
- template<typename _Iterator , typename _Sequence >
  __iterator_tracker< _Iterator, _Sequence >::difference_type **std::__profile::operator-** (const __iterator_tracker< _Iterator, _Sequence > &__lhs, const __iterator_tracker< _Iterator, _Sequence > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Sequence >
  __iterator_tracker< _IteratorL, _Sequence >::difference_type **std::__profile::operator-** (const __iterator_tracker< _IteratorL, _Sequence > &__lhs, const __iterator_tracker< _IteratorR, _Sequence > &__rhs)
- template<typename _Iterator , typename _Sequence >
  bool **std::__profile::operator**< (const __iterator_tracker< _Iterator, _Sequence > &__lhs, const __iterator_tracker< _Iterator, _Sequence > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Sequence >
  bool **std::__profile::operator**< (const __iterator_tracker< _IteratorL, _Sequence > &__lhs, const __iterator_tracker< _IteratorR, _Sequence > &_-_rhs)
- template<typename _Iterator , typename _Sequence >
  bool **std::__profile::operator<=** (const __iterator_tracker< _Iterator, _Sequence > &__lhs, const __iterator_tracker< _Iterator, _Sequence > &__rhs)

- template<typename _IteratorL , typename _IteratorR , typename _Sequence >
  bool **std::__profile::operator<=** (const __iterator_tracker< _IteratorL, _Sequence > &__lhs, const __iterator_tracker< _IteratorR, _Sequence > &__rhs)
- template<typename _Iterator , typename _Sequence >
  bool **std::__profile::operator==** (const __iterator_tracker< _Iterator, _Sequence > &__lhs, const __iterator_tracker< _Iterator, _Sequence > &__rhs)

- template<typename _IteratorL , typename _IteratorR , typename _Sequence >
  bool **std::__profile::operator==** (const __iterator_tracker< _IteratorL, _Sequence > &__lhs, const __iterator_tracker< _IteratorR, _Sequence > &__rhs)
- template<typename _Iterator , typename _Sequence >
  bool **std::__profile::operator>** (const __iterator_tracker< _Iterator, _Sequence > &__lhs, const __iterator_tracker< _Iterator, _Sequence > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Sequence >
  bool **std::__profile::operator>** (const __iterator_tracker< _IteratorL, _Sequence > &__lhs, const __iterator_tracker< _IteratorR, _Sequence > &__rhs)
- template<typename _Iterator , typename _Sequence >
  bool **std::__profile::operator>=** (const __iterator_tracker< _Iterator, _Sequence > &__lhs, const __iterator_tracker< _Iterator, _Sequence > &__rhs)

- template<typename _IteratorL , typename _IteratorR , typename _Sequence >
  bool **std::__profile::operator>=** (const __iterator_tracker< _IteratorL, _Sequence > &__lhs, const __iterator_tracker< _IteratorR, _Sequence > &__rhs)

6.174.1 Detailed Description

This file is a GNU profile extension to the Standard C++ Library.

Definition in file iterator_tracker.h.

6.175 limits File Reference

Classes

- struct std::__numeric_limits_base
  Part of std::numeric_limits.
- struct std::numeric_limits< _Tp >
  Properties of fundamental types.
- struct std::numeric_limits< bool >
  numeric_limits<bool> specialization.
- struct std::numeric_limits< char >
  numeric_limits<char> specialization.
- struct std::numeric_limits< char16_t >
  numeric_limits<char16_t> specialization.
- struct std::numeric_limits< char32_t >
  numeric_limits<char32_t> specialization.
- struct std::numeric_limits< double >
  numeric_limits<double> specialization.
- struct std::numeric_limits< float >
  numeric_limits<float> specialization.
- struct std::numeric_limits< int >
  numeric_limits<int> specialization.
- struct std::numeric_limits< long >
  numeric_limits<long> specialization.
- struct std::numeric_limits< long double >
  numeric_limits<long double> specialization.
- struct std::numeric_limits< long long >
  numeric_limits<long long> specialization.
- struct std::numeric_limits< short >
  numeric_limits<short> specialization.

- struct std::numeric_limits< signed char >
  numeric_limits<signed char> specialization.
- struct std::numeric_limits< unsigned char >
  numeric_limits<unsigned char> specialization.
- struct std::numeric_limits< unsigned int >
  numeric_limits<unsigned int> specialization.
- struct std::numeric_limits< unsigned long >
  numeric_limits<unsigned long> specialization.
- struct std::numeric_limits< unsigned long long >
  numeric_limits<unsigned long long> specialization.
- struct std::numeric_limits< unsigned short >
  numeric_limits<unsigned short> specialization.
- struct std::numeric_limits< wchar_t >
  numeric_limits<wchar_t> specialization.

Namespaces

- namespace std

Defines

- #define **__glibcxx_digits**(T)
- #define **__glibcxx_digits10**(T)
- #define **__glibcxx_double_has_denorm_loss**
- #define **__glibcxx_double_tinyness_before**
- #define **__glibcxx_double_traps**
- #define **__glibcxx_float_has_denorm_loss**
- #define **__glibcxx_float_tinyness_before**
- #define **__glibcxx_float_traps**
- #define **__glibcxx_integral_traps**
- #define **__glibcxx_long_double_has_denorm_loss**
- #define **__glibcxx_long_double_tinyness_before**
- #define **__glibcxx_long_double_traps**
- #define **__glibcxx_max**(T)

- #define **__glibcxx_max_digits10**(T)
- #define **__glibcxx_min**(T)
- #define **__glibcxx_signed**(T)
- #define **_GLIBCXX_NUMERIC_LIMITS**

Enumerations

- enum std::float_denorm_style { std::denorm_indeterminate, std::denorm_absent, std::denorm_present }
- enum std::float_round_style {
  std::round_indeterminate, std::round_toward_zero, std::round_to_nearest, std::round_toward_infinity,
  std::round_toward_neg_infinity }

6.175.1 Detailed Description

This is a Standard C++ Library header.

Definition in file limits.

6.176 list File Reference

Defines

- #define **_GLIBCXX_LIST**

6.176.1 Detailed Description

This is a Standard C++ Library header.

Definition in file list.

6.177 list File Reference

Classes

- class std::__debug::list< _Tp, _Allocator >

  Class std::list with safety/checking/debug instrumentation.

Namespaces

- namespace std
- namespace std::__debug

Defines

- #define **_GLIBCXX_DEBUG_LIST**

Functions

- template<typename _Tp , typename _Alloc >
  bool **std::__debug::operator!=** (const list< _Tp, _Alloc > &__lhs, const list< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__debug::operator<** (const list< _Tp, _Alloc > &__lhs, const list< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__debug::operator<=** (const list< _Tp, _Alloc > &__lhs, const list< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__debug::operator==** (const list< _Tp, _Alloc > &__lhs, const list< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__debug::operator>** (const list< _Tp, _Alloc > &__lhs, const list< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__debug::operator>=** (const list< _Tp, _Alloc > &__lhs, const list< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  void **std::__debug::swap** (list< _Tp, _Alloc > &__lhs, list< _Tp, _Alloc > &__rhs)

6.177.1 Detailed Description

This file is a GNU debug extension to the Standard C++ Library.

Definition in file debug/list.

6.178 list File Reference

Classes

- class std::__profile::list< _Tp, _Allocator >

  List wrapper with performance instrumentation.

Namespaces

- namespace std
- namespace std::__profile

Defines

- #define **_GLIBCXX_PROFILE_LIST**

Functions

- template<typename _Tp , typename _Alloc >
  bool **std::__profile::operator!=** (const list< _Tp, _Alloc > &__lhs, const list< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__profile::operator**< (const list< _Tp, _Alloc > &__lhs, const list< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__profile::operator<=** (const list< _Tp, _Alloc > &__lhs, const list< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__profile::operator==** (const list< _Tp, _Alloc > &__lhs, const list< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__profile::operator**> (const list< _Tp, _Alloc > &__lhs, const list< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__profile::operator>=** (const list< _Tp, _Alloc > &__lhs, const list< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  void **std::__profile::swap** (list< _Tp, _Alloc > &__lhs, list< _Tp, _Alloc > &__rhs)

6.178.1 Detailed Description

This file is a GNU profile extension to the Standard C++ Library.

Definition in file profile/list.

6.179 list.tcc File Reference

Namespaces

- namespace std

Defines

- #define **_LIST_TCC**

6.179.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file list.tcc.

6.180 list_partition.h File Reference

_Functionality to split __sequence referenced by only input iterators. This file is a GNU parallel extension to the Standard C++ Library.

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_LIST_PARTITION_H**

Functions

- template<typename _IIter >
  void __gnu_parallel::__shrink (std::vector< _IIter > &__os_starts, size_t &__count_to_two, size_t &__range_length)
- template<typename _IIter >
  void __gnu_parallel::__shrink_and_double (std::vector< _IIter > &__os_starts, size_t &__count_to_two, size_t &__range_length, const bool __make_twice)
- template<typename _IIter , typename _FunctorType >
  size_t __gnu_parallel::list_partition (const _IIter __begin, const _IIter __end, _IIter *__starts, size_t *__lengths, const int __num_parts, _FunctorType &__f, int __oversampling=0)

6.180.1 Detailed Description

_Functionality to split __sequence referenced by only input iterators. This file is a GNU parallel extension to the Standard C++ Library.

Definition in file list_partition.h.

6.181 list_update_policy.hpp File Reference

Namespaces

- namespace __gnu_pbds

Defines

- #define **PB_DS_CLASS_C_DEC**
- #define **PB_DS_CLASS_C_DEC**
- #define **PB_DS_CLASS_T_DEC**
- #define **PB_DS_CLASS_T_DEC**

6.181.1 Detailed Description

Contains policies for list update containers.

Definition in file list_update_policy.hpp.

6.182 locale File Reference

Defines

- #define **_GLIBCXX_LOCALE**

6.182.1 Detailed Description

This is a Standard C++ Library header.

Definition in file locale.

6.183 locale_classes.h File Reference

Classes

- class std::collate< _CharT >

  Facet for localized string comparison.

- class std::collate_byname< _CharT >

  class collate_byname [22.2.4.2].

- class std::locale

  Container class for localization functionality.
  The locale class is first a class wrapper for C library locales. It is also an extensible container for user-defined localization. A locale is a collection of facets that implement various localization features such as money, time, and number printing.

- class std::locale::facet

  Localization functionality base class.
  The facet class is the base class for a localization feature, such as money, time, and number printing. It provides common support for facets and reference management.

- class std::locale::id

  Facet ID class.
  The ID class provides facets with an index used to identify them. Every facet class must define a public static member locale::id, or be derived from a facet that provides this member, otherwise the facet cannot be used in a locale. The locale::id ensures that each class type gets a unique identifier.

Namespaces

- namespace std

Defines

- #define **_LOCALE_CLASSES_H**

Functions

- template<typename _Facet >
  bool std::has_facet (const locale &__loc) throw ()
- template<typename _Facet >
  const _Facet & std::use_facet (const locale &__loc)

6.183.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file locale_classes.h.

6.184 locale_classes.tcc File Reference

Namespaces

- namespace std

Defines

- #define **_LOCALE_CLASSES_TCC**

Functions

- template<typename _Facet >
  bool std::has_facet (const locale &__loc) throw ()
- template bool **std::has_facet**< **collate**< **char** > > (const locale &)
- template bool **std::has_facet**< **collate**< **wchar_t** > > (const locale &)
- template<typename _Facet >
  const _Facet & std::use_facet (const locale &__loc)
- template const collate< char > & **std::use_facet**< **collate**< **char** > > (const locale &)
- template const collate< wchar_t > & **std::use_facet**< **collate**< **wchar_t** > > (const locale &)

6.184.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file locale_classes.tcc.

6.185 locale_facets.h File Reference

Classes

- class std::__ctype_abstract_base< _CharT >

  Common base for ctype facet.

- class std::ctype< _CharT >

  Primary class template ctype facet.
  This template class defines classification and conversion functions for character sets. It wraps cctype functionality. Ctype gets used by streams for many I/O operations.

- class std::ctype< char >

  The ctype<char> specialization.
  This class defines classification and conversion functions for the char type. It gets used by char streams for many I/O operations. The char specialization provides a number of optimizations as well.

- class std::ctype< wchar_t >

  The ctype<wchar_t> specialization.
  This class defines classification and conversion functions for the wchar_t type. It gets used by wchar_t streams for many I/O operations. The wchar_t specialization provides a number of optimizations as well.

- class std::ctype_byname< _CharT >

  class ctype_byname [22.2.1.2].

- class std::ctype_byname< char >

  22.2.1.4 Class ctype_byname specializations.

- class std::num_get< _CharT, _InIter >

  Primary class template num_get.
  This facet encapsulates the code to parse and return a number from a string. It is used by the istream numeric extraction operators.

- class std::num_put< _CharT, _OutIter >

  Primary class template num_put.
  This facet encapsulates the code to convert a number to a string. It is used by the ostream numeric insertion operators.

- class std::numpunct< _CharT >

  Primary class template numpunct.
  This facet stores several pieces of information related to printing and scanning numbers, such as the decimal point character. It takes a template parameter specifying the

char type. The numpunct facet is used by streams for many I/O operations involving numbers.

- class std::numpunct_byname< _CharT >

  class numpunct_byname [22.2.3.2].

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_NUM_FACETS**
- #define **_LOCALE_FACETS_H**

Functions

- template<typename _CharT >
  _CharT * **std::__add_grouping** (_CharT *__s, _CharT __sep, const char *__gbeg, size_t __gsize, const _CharT *__first, const _CharT *__last)
- template<>
  void **std::__convert_to_v** (const char *, long double &, ios_base::iostate &, const __c_locale &) throw ()
- template<>
  void **std::__convert_to_v** (const char *, double &, ios_base::iostate &, const __c_locale &) throw ()
- template<>
  void **std::__convert_to_v** (const char *, float &, ios_base::iostate &, const __c_locale &) throw ()
- template<typename _Tp >
  void **std::__convert_to_v** (const char *, _Tp &, ios_base::iostate &, const __c_locale &) throw ()
- template<typename _CharT , typename _OutIter >
  _OutIter **std::__write** (_OutIter __s, const _CharT *__ws, int __len)
- template<typename _CharT >
  ostreambuf_iterator< _CharT > **std::__write** (ostreambuf_iterator< _CharT > __s, const _CharT *__ws, int __len)
- template<typename _CharT >
  bool std::isalnum (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool std::isalpha (_CharT __c, const locale &__loc)

- template<typename _CharT >
  bool std::iscntrl (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool std::isdigit (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool std::isgraph (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool std::islower (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool std::isprint (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool std::ispunct (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool std::isspace (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool std::isupper (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool std::isxdigit (_CharT __c, const locale &__loc)
- template<typename _CharT >
  _CharT std::tolower (_CharT __c, const locale &__loc)
- template<typename _CharT >
  _CharT std::toupper (_CharT __c, const locale &__loc)

6.185.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file locale_facets.h.

6.186 locale_facets.tcc File Reference

Namespaces

- namespace std

Defines

- #define **_LOCALE_FACETS_TCC**

Functions

- template<typename _CharT >
  _CharT * **std::__add_grouping** (_CharT *__s, _CharT __sep, const char *__gbeg, size_t __gsize, const _CharT *__first, const _CharT *__last)
- **std::__attribute__** ((__pure__)) bool __verify_grouping(const char *__grouping
- template<typename _CharT , typename _ValueT >
  int **std::__int_to_char** (_CharT *__bufend, _ValueT __v, const _CharT *__lit, ios_base::fmtflags __flags, bool __dec)
- template bool **std::has_facet**< **ctype**< **char** > > (const locale &)
- template bool **std::has_facet**< **ctype**< **wchar_t** > > (const locale &)
- template bool **std::has_facet**< **num_get**< **char** > > (const locale &)
- template bool **std::has_facet**< **num_get**< **wchar_t** > > (const locale &)
- template bool **std::has_facet**< **num_put**< **char** > > (const locale &)
- template bool **std::has_facet**< **num_put**< **wchar_t** > > (const locale &)
- template bool **std::has_facet**< **numpunct**< **char** > > (const locale &)
- template bool **std::has_facet**< **numpunct**< **wchar_t** > > (const locale &)
- size_t const string &__grouping_tmp **std::throw** ()
- template const ctype< char > & **std::use_facet**< **ctype**< **char** > > (const locale &)
- template const ctype< wchar_t > & **std::use_facet**< **ctype**< **wchar_t** > > (const locale &)
- template const num_get< char > & **std::use_facet**< **num_get**< **char** > > (const locale &)
- template const num_get< wchar_t > & **std::use_facet**< **num_get**< **wchar_t** > > (const locale &)
- template const num_put< char > & **std::use_facet**< **num_put**< **char** > > (const locale &)
- template const num_put< wchar_t > & **std::use_facet**< **num_put**< **wchar_t** > > (const locale &)
- template const numpunct< char > & **std::use_facet**< **numpunct**< **char** > > (const locale &)

- template const numpunct< wchar_t > & **std::use_facet**< **numpunct**< **wchar_t** > > (const locale &)

Variables

- size_t **std::__grouping_size**

6.186.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file locale_facets.tcc.

6.187 locale_facets_nonio.h File Reference

Classes

- class std::messages< _CharT >

  Primary class template messages.
  This facet encapsulates the code to retrieve messages from message catalogs. The only thing defined by the standard for this facet is the interface. All underlying functionality is implementation-defined.

- struct std::messages_base

  Messages facet base class providing catalog typedef.

- class std::messages_byname< _CharT >

  class messages_byname [22.2.7.2].

- class std::money_base

  Money format ordering data.
  This class contains an ordered array of 4 fields to represent the pattern for formatting a money amount. Each field may contain one entry from the part enum. symbol, sign, and value must be present and the remaining field must contain either none or space.

- class std::money_get< _CharT, _InIter >

  Primary class template money_get.
  This facet encapsulates the code to parse and return a monetary amount from a string.

- class std::money_put< _CharT, _OutIter >

  Primary class template money_put.
  This facet encapsulates the code to format and output a monetary amount.

- class std::moneypunct< _CharT, _Intl >

  Primary class template moneypunct.
  This facet encapsulates the punctuation, grouping and other formatting features of money amount string representations.

- class std::moneypunct_byname< _CharT, _Intl >

  class moneypunct_byname [22.2.6.4].

- class std::time_base

  Time format ordering data.
  This class provides an enum representing different orderings of time: day, month, and year.

- class std::time_get< _CharT, _InIter >

Primary class template time_get.
This facet encapsulates the code to parse and return a date or time from a string. It is used by the istream numeric extraction operators.

- class std::time_get_byname< _CharT, _InIter >

  class time_get_byname [22.2.5.2].

- class std::time_put< _CharT, _OutIter >

  Primary class template time_put.
  This facet encapsulates the code to format and output dates and times according to formats used by strftime().

- class std::time_put_byname< _CharT, _OutIter >

  class time_put_byname [22.2.5.4].

Namespaces

- namespace std

Defines

- #define **_LOCALE_FACETS_NONIO_H**

6.187.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file locale_facets_nonio.h.

6.188 locale_facets_nonio.tcc File Reference

Namespaces

- namespace std

Defines

- #define **_LOCALE_FACETS_NONIO_TCC**

Functions

- template bool **std::has_facet**< **__timepunct**< **char** > > (const locale &)
- template bool **std::has_facet**< **__timepunct**< **wchar_t** > > (const locale &)
- template bool **std::has_facet**< **messages**< **char** > > (const locale &)
- template bool **std::has_facet**< **messages**< **wchar_t** > > (const locale &)
- template bool **std::has_facet**< **money_get**< **char** > > (const locale &)
- template bool **std::has_facet**< **money_get**< **wchar_t** > > (const locale &)
- template bool **std::has_facet**< **money_put**< **char** > > (const locale &)
- template bool **std::has_facet**< **money_put**< **wchar_t** > > (const locale &)
- template bool **std::has_facet**< **moneypunct**< **char** > > (const locale &)
- template bool **std::has_facet**< **moneypunct**< **wchar_t** > > (const locale &)
- template bool **std::has_facet**< **time_get**< **char** > > (const locale &)
- template bool **std::has_facet**< **time_get**< **wchar_t** > > (const locale &)
- template bool **std::has_facet**< **time_put**< **char** > > (const locale &)
- template bool **std::has_facet**< **time_put**< **wchar_t** > > (const locale &)
- template const __timepunct< char > & **std::use_facet**< **__timepunct**< **char** > > (const locale &)
- template const __timepunct< wchar_t > & **std::use_facet**< **__timepunct**< **wchar_t** > > (const locale &)
- template const messages< char > & **std::use_facet**< **messages**< **char** > > (const locale &)
- template const messages< wchar_t > & **std::use_facet**< **messages**< **wchar_t** > > (const locale &)
- template const money_get< char > & **std::use_facet**< **money_get**< **char** > > (const locale &)
- template const money_get< wchar_t > & **std::use_facet**< **money_get**< **wchar_t** > > (const locale &)
- template const money_put< char > & **std::use_facet**< **money_put**< **char** > > (const locale &)
- template const money_put< wchar_t > & **std::use_facet**< **money_put**< **wchar_t** > > (const locale &)

- template const moneypunct< char, false > & **std::use_facet**< **moneypunct**< **char, false** > > (const locale &)
- template const moneypunct< char, true > & **std::use_facet**< **moneypunct**< **char, true** > > (const locale &)
- template const moneypunct< wchar_t, false > & **std::use_facet**< **moneypunct**< **wchar_t, false** > > (const locale &)
- template const moneypunct< wchar_t, true > & **std::use_facet**< **moneypunct**< **wchar_t, true** > > (const locale &)
- template const time_get< char > & **std::use_facet**< **time_get**< **char** > > (const locale &)
- template const time_get< wchar_t > & **std::use_facet**< **time_get**< **wchar_t** > > (const locale &)
- template const time_put< char > & **std::use_facet**< **time_put**< **char** > > (const locale &)
- template const time_put< wchar_t > & **std::use_facet**< **time_put**< **wchar_t** > > (const locale &)

6.188.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file locale_facets_nonio.tcc.

6.189 localefwd.h File Reference

Namespaces

- namespace std

Defines

- #define **_LOCALE_FWD_H**

Functions

- template<typename _Facet >
  bool std::has_facet (const locale &__loc) throw ()
- template<typename _CharT >
  bool std::isalnum (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool std::isalpha (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool std::iscntrl (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool std::isdigit (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool std::isgraph (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool std::islower (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool std::isprint (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool std::ispunct (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool std::isspace (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool std::isupper (_CharT __c, const locale &__loc)
- template<typename _CharT >
  bool std::isxdigit (_CharT __c, const locale &__loc)
- template<typename _CharT >
  _CharT std::tolower (_CharT __c, const locale &__loc)
- template<typename _CharT >
  _CharT std::toupper (_CharT __c, const locale &__loc)
- template<typename _Facet >
  const _Facet & std::use_facet (const locale &__loc)

6.189.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file localefwd.h.

6.190 losertree.h File Reference

Many generic loser tree variants. This file is a GNU parallel extension to the Standard C++ Library.

Classes

- class __gnu_parallel::_LoserTree< __stable, _Tp, _Compare >
  Stable _LoserTree variant.
- class __gnu_parallel::_LoserTree< false, _Tp, _Compare >
  Unstable _LoserTree variant.
- class __gnu_parallel::_LoserTreeBase< _Tp, _Compare >
  Guarded loser/tournament tree.
- struct __gnu_parallel::_LoserTreeBase< _Tp, _Compare >::_Loser
  Internal representation of a _LoserTree element.
- class __gnu_parallel::_LoserTreePointer< __stable, _Tp, _Compare >
  Stable _LoserTree implementation.
- class __gnu_parallel::_LoserTreePointer< false, _Tp, _Compare >
  Unstable _LoserTree implementation.
- class __gnu_parallel::_LoserTreePointerBase< _Tp, _Compare >
  Base class of _Loser Tree implementation using pointers.
- struct __gnu_parallel::_LoserTreePointerBase< _Tp, _Compare >::_Loser
  Internal representation of _LoserTree __elements.
- class __gnu_parallel::_LoserTreePointerUnguarded< __stable, _Tp, _Compare >
  Stable unguarded _LoserTree variant storing pointers.
- class __gnu_parallel::_LoserTreePointerUnguarded< false, _Tp, _Compare >
  Unstable unguarded _LoserTree variant storing pointers.
- class __gnu_parallel::_LoserTreePointerUnguardedBase< _Tp, _Compare >
  Unguarded loser tree, keeping only pointers to the elements in the tree structure.
- class __gnu_parallel::_LoserTreeUnguarded< __stable, _Tp, _Compare >

Stable implementation of unguarded _LoserTree.

- class __gnu_parallel::_LoserTreeUnguarded< false, _Tp, _Compare >
  Non-Stable implementation of unguarded _LoserTree.
- class __gnu_parallel::_LoserTreeUnguardedBase< _Tp, _Compare >
  Base class for unguarded _LoserTree implementation.

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_LOSERTREE_H**

6.190.1 Detailed Description

Many generic loser tree variants. This file is a GNU parallel extension to the Standard C++ Library.

Definition in file losertree.h.

6.191 macros.h File Reference

Defines

- #define __glibcxx_check_erase(_Position)
- #define __glibcxx_check_erase_range(_First, _Last)
- #define **__glibcxx_check_heap**(_First, _Last)
- #define __glibcxx_check_heap_pred(_First, _Last, _Pred)
- #define __glibcxx_check_insert(_Position)
- #define __glibcxx_check_insert_range(_Position, _First, _Last)
- #define **__glibcxx_check_nonempty**()
- #define __glibcxx_check_partitioned_lower(_First, _Last, _Value)
- #define __glibcxx_check_partitioned_lower_pred(_First, _Last, _Value, _Pred)
- #define **__glibcxx_check_partitioned_upper**(_First, _Last, _Value)
- #define __glibcxx_check_partitioned_upper_pred(_First, _Last, _Value, _Pred)
- #define **__glibcxx_check_sorted**(_First, _Last)
- #define __glibcxx_check_sorted_pred(_First, _Last, _Pred)
- #define **__glibcxx_check_sorted_set**(_First1, _Last1, _First2)
- #define **__glibcxx_check_sorted_set_pred**(_First1, _Last1, _First2, _Pred)
- #define **__glibcxx_check_string**(_String)
- #define **__glibcxx_check_string_len**(_String, _Len)
- #define **__glibcxx_check_subscript**(_N)
- #define **__glibcxx_check_valid_range**(_First, _Last)
- #define **_GLIBCXX_DEBUG_MACROS_H**
- #define _GLIBCXX_DEBUG_VERIFY(_Condition, _ErrorMessage)

6.191.1 Detailed Description

This file is a GNU debug extension to the Standard C++ Library.

Definition in file macros.h.

6.191.2 Define Documentation

6.191.2.1 #define __glibcxx_check_erase(_Position)

Verify that we can erase the element referenced by the iterator _Position. We can erase the element if the _Position iterator is dereferenceable and references this sequence.

Definition at line 102 of file macros.h.

6.191.2.2 #define __glibcxx_check_erase_range(_First, _Last)

Verify that we can erase the elements in the iterator range [_First, _Last). We can erase the elements if [_First, _Last) is a valid iterator range within this sequence.

Definition at line 116 of file macros.h.

6.191.2.3 #define __glibcxx_check_heap_pred(_First, _Last, _Pred)

Verify that the iterator range [_First, _Last) is a heap w.r.t. the predicate _Pred.

Definition at line 229 of file macros.h.

6.191.2.4 #define __glibcxx_check_insert(_Position)

Verify that we can insert into ∗this with the iterator _Position. Insertion into a container at a specific position requires that the iterator be nonsingular (i.e., either dereferenceable or past-the-end) and that it reference the sequence we are inserting into. Note that this macro is only valid when the container is a _Safe_sequence and the iterator is a _Safe_iterator.

Definition at line 64 of file macros.h.

6.191.2.5 #define __glibcxx_check_insert_range(_Position, _First, _Last)

Verify that we can insert the values in the iterator range [_First, _Last) into ∗this with the iterator _Position. Insertion into a container at a specific position requires that the iterator be nonsingular (i.e., either dereferenceable or past-the-end), that it reference the sequence we are inserting into, and that the iterator range [_First, Last) is a valid (possibly empty) range. Note that this macro is only valid when the container is a _Safe_sequence and the iterator is a _Safe_iterator.

Todo

We would like to be able to check for noninterference of _Position and the range [_First, _Last), but that can't (in general) be done.

Definition at line 87 of file macros.h.

6.191.2.6 #define __glibcxx_check_partitioned_lower(_First, _Last, _Value)

Verify that the iterator range [_First, _Last) is partitioned w.r.t. the value _Value.

Definition at line 177 of file macros.h.

6.191.2.7 #define __glibcxx_check_partitioned_lower_pred(_First, _Last, _Value, _Pred)

Verify that the iterator range [_First, _Last) is partitioned w.r.t. the value _Value and predicate _Pred.

Definition at line 197 of file macros.h.

6.191.2.8 #define __glibcxx_check_partitioned_upper_pred(_First, _Last, _Value, _Pred)

Verify that the iterator range [_First, _Last) is partitioned w.r.t. the value _Value and predicate _Pred.

Definition at line 209 of file macros.h.

6.191.2.9 #define __glibcxx_check_sorted_pred(_First, _Last, _Pred)

Verify that the iterator range [_First, _Last) is sorted by the predicate _Pred.

Definition at line 148 of file macros.h.

6.191.2.10 #define _GLIBCXX_DEBUG_VERIFY(_Condition, _ErrorMessage)

Macros used by the implementation to verify certain properties. These macros may only be used directly by the debug wrappers. Note that these are macros (instead of the more obviously *correct* choice of making them functions) because we need line and file information at the call site, to minimize the distance between the user error and where the error is reported.

Definition at line 42 of file macros.h.

Referenced by __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::_Safe_iterator(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::operator*(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::operator++(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::operator--(), __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::operator->(), and __gnu_debug::_Safe_iterator< _Iterator, _Sequence >::operator=().

6.192 malloc_allocator.h File Reference

Classes

- class __gnu_cxx::malloc_allocator< _Tp > *An allocator that uses malloc.*
  This is precisely the allocator defined in the C++ Standard.
  - *all allocation calls malloc*
  - *all deallocation calls free.*

Namespaces

- namespace __gnu_cxx

Defines

- #define **_MALLOC_ALLOCATOR_H**

Functions

- template<typename _Tp >
  bool **__gnu_cxx::operator!=** (const malloc_allocator< _Tp > &, const malloc_allocator< _Tp > &)
- template<typename _Tp >
  bool **__gnu_cxx::operator==** (const malloc_allocator< _Tp > &, const malloc_allocator< _Tp > &)

6.192.1 Detailed Description

This file is a GNU extension to the Standard C++ Library.

Definition in file malloc_allocator.h.

6.193 map File Reference

Defines

- #define **_GLIBCXX_MAP**

6.193.1 Detailed Description

This is a Standard C++ Library header.

Definition in file map.

6.194 map File Reference

Defines

- #define **_GLIBCXX_DEBUG_MAP**

6.194.1 Detailed Description

This file is a GNU debug extension to the Standard C++ Library.

Definition in file debug/map.

6.195 map File Reference

Defines

- #define **_GLIBCXX_PROFILE_MAP**

6.195.1 Detailed Description

This file is a GNU profile extension to the Standard C++ Library.

Definition in file profile/map.

6.196 map.h File Reference

Classes

- class std::__debug::map< _Key, _Tp, _Compare, _Allocator >
  Class std::map with safety/checking/debug instrumentation.

Namespaces

- namespace std
- namespace std::__debug

Defines

- #define **_GLIBCXX_DEBUG_MAP_H**

Functions

- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **std::__debug::operator!=** (const map< _Key, _Tp, _Compare, _Allocator > &__lhs, const map< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **std::__debug::operator<** (const map< _Key, _Tp, _Compare, _Allocator > &__lhs, const map< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **std::__debug::operator<=** (const map< _Key, _Tp, _Compare, _Allocator > &__lhs, const map< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **std::__debug::operator==** (const map< _Key, _Tp, _Compare, _Allocator > &__lhs, const map< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **std::__debug::operator>** (const map< _Key, _Tp, _Compare, _Allocator > &__lhs, const map< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **std::__debug::operator>=** (const map< _Key, _Tp, _Compare, _Allocator > &__lhs, const map< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  void **std::__debug::swap** (map< _Key, _Tp, _Compare, _Allocator > &__lhs, map< _Key, _Tp, _Compare, _Allocator > &__rhs)

6.196.1 Detailed Description

This file is a GNU debug extension to the Standard C++ Library.

Definition in file debug/map.h.

6.197 map.h File Reference

Classes

- class std::__profile::map< _Key, _Tp, _Compare, _Allocator >
  Class std::map wrapper with performance instrumentation.

Namespaces

- namespace std
- namespace std::__profile

Defines

- #define **_GLIBCXX_PROFILE_MAP_H**

Functions

- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **std::__profile::operator!=** (const map< _Key, _Tp, _Compare, _Allocator > &__lhs, const map< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **std::__profile::operator<** (const map< _Key, _Tp, _Compare, _Allocator > &__lhs, const map< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **std::__profile::operator<=** (const map< _Key, _Tp, _Compare, _Allocator > &__lhs, const map< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **std::__profile::operator==** (const map< _Key, _Tp, _Compare, _Allocator > &__lhs, const map< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **std::__profile::operator>** (const map< _Key, _Tp, _Compare, _Allocator > &__lhs, const map< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **std::__profile::operator>=** (const map< _Key, _Tp, _Compare, _Allocator > &__lhs, const map< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  void **std::__profile::swap** (map< _Key, _Tp, _Compare, _Allocator > &__lhs, map< _Key, _Tp, _Compare, _Allocator > &__rhs)

6.197.1 Detailed Description

This file is a GNU profile extension to the Standard C++ Library.

Definition in file profile/map.h.

6.198 mask_array.h File Reference

Classes

- class std::mask_array< _Tp >

  Reference to selected subset of an array.

Namespaces

- namespace std

Defines

- #define **_DEFINE_VALARRAY_OPERATOR**(_Op, _Name)
- #define **_MASK_ARRAY_H**

6.198.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file mask_array.h.

6.199 memory File Reference

Defines

- #define **_GLIBCXX_MEMORY**

6.199.1 Detailed Description

This is a Standard C++ Library header.

Definition in file memory.

6.200 memory File Reference

Classes

- struct __gnu_cxx::temporary_buffer< _ForwardIterator, _Tp >

Namespaces

- namespace __gnu_cxx

Defines

- #define **_EXT_MEMORY**

Functions

- template<typename _InputIter , typename _Size , typename _ForwardIter >
  pair< _InputIter, _ForwardIter > **__gnu_cxx::__uninitialized_copy_n** (_InputIter __first, _Size __count, _ForwardIter __result)
- template<typename _RandomAccessIter , typename _Size , typename _ForwardIter >
  pair< _RandomAccessIter, _ForwardIter > **__gnu_cxx::__uninitialized_copy_n** (_RandomAccessIter __first, _Size __count, _ForwardIter __result, std::random_access_iterator_tag)
- template<typename _InputIter , typename _Size , typename _ForwardIter >
  pair< _InputIter, _ForwardIter > **__gnu_cxx::__uninitialized_copy_n** (_InputIter __first, _Size __count, _ForwardIter __result, std::input_iterator_tag)
- template<typename _InputIter , typename _Size , typename _ForwardIter , typename _Tp >
  pair< _InputIter, _ForwardIter > **__gnu_cxx::__uninitialized_copy_n_a** (_InputIter __first, _Size __count, _ForwardIter __result, std::allocator< _Tp >)
- template<typename _InputIter , typename _Size , typename _ForwardIter , typename _Allocator >
  pair< _InputIter, _ForwardIter > **__gnu_cxx::__uninitialized_copy_n_a** (_InputIter __first, _Size __count, _ForwardIter __result, _Allocator __alloc)
- template<typename _InputIter , typename _Size , typename _ForwardIter >
  pair< _InputIter, _ForwardIter > __gnu_cxx::uninitialized_copy_n (_InputIter __first, _Size __count, _ForwardIter __result)

6.200.1 Detailed Description

This file is a GNU extension to the Standard C++ Library (possibly containing extensions from the HP/SGI STL subset).

Definition in file ext/memory.

6.201 merge.h File Reference

Parallel implementation of std::merge(). This file is a GNU parallel extension to the Standard C++ Library.

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_MERGE_H**

Functions

- template<typename _RAIter1 , typename _RAIter2 , typename _OutputIterator , typename _DifferenceTp , typename _Compare >
  _OutputIterator __gnu_parallel::__merge_advance (_RAIter1 &__begin1, _RAIter1 __end1, _RAIter2 &__begin2, _RAIter2 __end2, _OutputIterator __target, _DifferenceTp __max_length, _Compare __comp)
- template<typename _RAIter1 , typename _RAIter2 , typename _OutputIterator , typename _DifferenceTp , typename _Compare >
  _OutputIterator __gnu_parallel::__merge_advance_movc (_RAIter1 &__begin1, _RAIter1 __end1, _RAIter2 &__begin2, _RAIter2 __end2, _OutputIterator __target, _DifferenceTp __max_length, _Compare __comp)
- template<typename _RAIter1 , typename _RAIter2 , typename _OutputIterator , typename _DifferenceTp , typename _Compare >
  _OutputIterator __gnu_parallel::__merge_advance_usual (_RAIter1 &__begin1, _RAIter1 __end1, _RAIter2 &__begin2, _RAIter2 __end2, _OutputIterator __target, _DifferenceTp __max_length, _Compare __comp)
- template<typename _RAIter1 , typename _RAIter3 , typename _Compare >
  _RAIter3 __gnu_parallel::__parallel_merge_advance (_RAIter1 &__begin1, _RAIter1 __end1, _RAIter1 &__begin2, _RAIter1 __end2, _RAIter3 __target, typename std::iterator_traits< _RAIter1 >::difference_type __max_length, _Compare __comp)
- template<typename _RAIter1 , typename _RAIter2 , typename _RAIter3 , typename _Compare >
  _RAIter3 __gnu_parallel::__parallel_merge_advance (_RAIter1 &__begin1, _RAIter1 __end1, _RAIter2 &__begin2, _RAIter2 __end2, _RAIter3 __target, typename std::iterator_traits< _RAIter1 >::difference_type __max_length, _Compare __comp)

6.201.1 Detailed Description

Parallel implementation of std::merge(). This file is a GNU parallel extension to the Standard C++ Library.

Definition in file merge.h.

6.202 messages_members.h File Reference

Namespaces

- namespace std

6.202.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file messages_members.h.

6.203 move.h File Reference

Classes

- struct std::identity< _Tp >

  identity

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_FORWARD**(_Tp, __val)
- #define **_GLIBCXX_MOVE**(_Tp)
- #define **_MOVE_H**

Functions

- template<typename _Tp >
  enable_if< is_lvalue_reference< _Tp >::value, _Tp >::type **std::forward** (typename std::remove_reference< _Tp >::type &&__t)
- template<typename _Tp >
  enable_if< is_lvalue_reference< _Tp >::value, _Tp >::type **std::forward** (typename std::identity< _Tp >::type __t)
- template<typename _Tp >
  enable_if<!is_lvalue_reference< _Tp >::value, _Tp && >::type std::forward (typename std::identity< _Tp >::type &&__t)
- template<typename _Tp >
  enable_if<!is_lvalue_reference< _Tp >::value, _Tp && >::type std::forward (typename std::identity< _Tp >::type &__t)
- template<typename _Tp >
  std::remove_reference< _Tp >::type && std::move (_Tp &&__t)
- template<typename _Tp , size_t _Nm>
  void **std::swap** (_Tp(&)[_Nm], _Tp(&)[_Nm])
- template<typename _Tp >
  void std::swap (_Tp &__a, _Tp &__b)

6.203.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file move.h.

6.204 mt_allocator.h File Reference

Classes

- struct __gnu_cxx::__common_pool_policy< _PoolTp, _Thread >

  Policy for shared __pool objects.

- class __gnu_cxx::__mt_alloc< _Tp, _Poolp >

  This is a fixed size (power of 2) allocator which - when compiled with thread support - will maintain one freelist per size per thread plus a global one. Steps are taken to limit the per thread freelist sizes (by returning excess back to the global list).
  Further details: http://gcc.gnu.org/onlinedocs/libstdc++/manual/bk01pt12ch32.html.

- class __gnu_cxx::__mt_alloc_base< _Tp >

  Base class for _Tp dependent member functions.

- struct __gnu_cxx::__per_type_pool_policy< _Tp, _PoolTp, _Thread >

  Policy for individual __pool objects.

- class __gnu_cxx::__pool< false >

  Specialization for single thread.

- class __gnu_cxx::__pool< true >

  Specialization for thread enabled, via gthreads.h.

- struct __gnu_cxx::__pool_base

  Base class for pool object.

Namespaces

- namespace __gnu_cxx

Defines

- #define **__thread_default**
- #define **_MT_ALLOCATOR_H**

Typedefs

- typedef void(* **__gnu_cxx::__destroy_handler**)(void *)

Functions

- template<typename _Tp , typename _Poolp >
  bool **__gnu_cxx::operator!=** (const __mt_alloc< _Tp, _Poolp > &, const __mt_alloc< _Tp, _Poolp > &)
- template<typename _Tp , typename _Poolp >
  bool **__gnu_cxx::operator==** (const __mt_alloc< _Tp, _Poolp > &, const __mt_alloc< _Tp, _Poolp > &)

6.204.1 Detailed Description

This file is a GNU extension to the Standard C++ Library.

Definition in file mt_allocator.h.

6.205 multimap.h File Reference

Classes

- class std::__debug::multimap< _Key, _Tp, _Compare, _Allocator >
  Class std::multimap with safety/checking/debug instrumentation.

Namespaces

- namespace std
- namespace std::__debug

Defines

- #define **_GLIBCXX_DEBUG_MULTIMAP_H**

Functions

- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **std::__debug::operator!=** (const multimap< _Key, _Tp, _Compare, _Allocator > &__lhs, const multimap< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **std::__debug::operator<** (const multimap< _Key, _Tp, _Compare, _Allocator > &__lhs, const multimap< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **std::__debug::operator<=** (const multimap< _Key, _Tp, _Compare, _Allocator > &__lhs, const multimap< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **std::__debug::operator==** (const multimap< _Key, _Tp, _Compare, _Allocator > &__lhs, const multimap< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **std::__debug::operator>** (const multimap< _Key, _Tp, _Compare, _Allocator > &__lhs, const multimap< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **std::__debug::operator>=** (const multimap< _Key, _Tp, _Compare, _Allocator > &__lhs, const multimap< _Key, _Tp, _Compare, _Allocator > &__rhs)

- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  void **std::__debug::swap** (multimap< _Key, _Tp, _Compare, _Allocator > &_-
  _lhs, multimap< _Key, _Tp, _Compare, _Allocator > &__rhs)

6.205.1 Detailed Description

This file is a GNU debug extension to the Standard C++ Library.

Definition in file debug/multimap.h.

6.206 multimap.h File Reference

Classes

- class std::__profile::multimap< _Key, _Tp, _Compare, _Allocator >
  Class std::multimap wrapper with performance instrumentation.

Namespaces

- namespace std
- namespace std::__profile

Defines

- #define **_GLIBCXX_PROFILE_MULTIMAP_H**

Functions

- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **std::__profile::operator!=** (const multimap< _Key, _Tp, _Compare, _Allocator > &__lhs, const multimap< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **std::__profile::operator<** (const multimap< _Key, _Tp, _Compare, _Allocator > &__lhs, const multimap< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **std::__profile::operator<=** (const multimap< _Key, _Tp, _Compare, _Allocator > &__lhs, const multimap< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **std::__profile::operator==** (const multimap< _Key, _Tp, _Compare, _Allocator > &__lhs, const multimap< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **std::__profile::operator>** (const multimap< _Key, _Tp, _Compare, _Allocator > &__lhs, const multimap< _Key, _Tp, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  bool **std::__profile::operator>=** (const multimap< _Key, _Tp, _Compare, _Allocator > &__lhs, const multimap< _Key, _Tp, _Compare, _Allocator > &__rhs)

- template<typename _Key , typename _Tp , typename _Compare , typename _Allocator >
  void **std::__profile::swap** (multimap< _Key, _Tp, _Compare, _Allocator > &__lhs, multimap< _Key, _Tp, _Compare, _Allocator > &__rhs)

6.206.1 Detailed Description

This file is a GNU profile extension to the Standard C++ Library.

Definition in file profile/multimap.h.

6.207 multiseq_selection.h File Reference

Functions to find elements of a certain global __rank in multiple sorted sequences. Also serves for splitting such sequence sets.

Classes

- class __gnu_parallel::_Lexicographic< _T1, _T2, _Compare >
  Compare __a pair of types lexicographically, ascending.
- class __gnu_parallel::_LexicographicReverse< _T1, _T2, _Compare >
  Compare __a pair of types lexicographically, descending.

Namespaces

- namespace __gnu_parallel

Defines

- #define __**S**(__i)
- #define __**S**(__i)
- #define **_GLIBCXX_PARALLEL_MULTISEQ_SELECTION_H**

Functions

- template<typename _RanSeqs , typename _RankType , typename _RankIterator , typename _Compare >
  void __gnu_parallel::multiseq_partition (_RanSeqs __begin_seqs, _RanSeqs __end_seqs, _RankType __rank, _RankIterator __begin_offsets, _Compare __comp=std::less< typename std::iterator_traits< typename std::iterator_traits< _RanSeqs >::value_type::first_type >::value_type >())
- template<typename _Tp , typename _RanSeqs , typename _RankType , typename _Compare >
  _Tp __gnu_parallel::multiseq_selection (_RanSeqs __begin_seqs, _RanSeqs __end_seqs, _RankType __rank, _RankType &__offset, _Compare __comp=std::less< _Tp >())

6.207.1 Detailed Description

Functions to find elements of a certain global __rank in multiple sorted sequences. Also serves for splitting such sequence sets. The algorithm description can be found in

P. J. Varman, S. D. Scheufler, B. R. Iyer, and G. R. Ricard. Merging Multiple Lists on Hierarchical-Memory Multiprocessors. Journal of Parallel and Distributed Computing, 12(2):171–177, 1991.

This file is a GNU parallel extension to the Standard C++ Library.

Definition in file multiseq_selection.h.

6.208 multiset.h File Reference

Classes

- class std::__debug::multiset< _Key, _Compare, _Allocator >

  Class std::multiset with safety/checking/debug instrumentation.

Namespaces

- namespace std
- namespace std::__debug

Defines

- #define **_GLIBCXX_DEBUG_MULTISET_H**

Functions

- template<typename _Key , typename _Compare , typename _Allocator >
  bool **std::__debug::operator!=** (const multiset< _Key, _Compare, _Allocator > &__lhs, const multiset< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **std::__debug::operator<** (const multiset< _Key, _Compare, _Allocator > &__lhs, const multiset< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **std::__debug::operator<=** (const multiset< _Key, _Compare, _Allocator > &__lhs, const multiset< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **std::__debug::operator==** (const multiset< _Key, _Compare, _Allocator > &__lhs, const multiset< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **std::__debug::operator>** (const multiset< _Key, _Compare, _Allocator > &__lhs, const multiset< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **std::__debug::operator>=** (const multiset< _Key, _Compare, _Allocator > &__lhs, const multiset< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  void **std::__debug::swap** (multiset< _Key, _Compare, _Allocator > &__x, multiset< _Key, _Compare, _Allocator > &__y)

6.208.1 Detailed Description

This file is a GNU debug extension to the Standard C++ Library.

Definition in file debug/multiset.h.

6.209 multiset.h File Reference

Classes

- class std::__profile::multiset< _Key, _Compare, _Allocator >

  Class std::multiset wrapper with performance instrumentation.

Namespaces

- namespace std
- namespace std::__profile

Defines

- #define **_GLIBCXX_PROFILE_MULTISET_H**

Functions

- template<typename _Key , typename _Compare , typename _Allocator >
  bool **std::__profile::operator!=** (const multiset< _Key, _Compare, _Allocator > &__lhs, const multiset< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **std::__profile::operator**< (const multiset< _Key, _Compare, _Allocator > &__lhs, const multiset< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **std::__profile::operator<=** (const multiset< _Key, _Compare, _Allocator > &__lhs, const multiset< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **std::__profile::operator==** (const multiset< _Key, _Compare, _Allocator > &__lhs, const multiset< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **std::__profile::operator**> (const multiset< _Key, _Compare, _Allocator > &__lhs, const multiset< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **std::__profile::operator>=** (const multiset< _Key, _Compare, _Allocator > &__lhs, const multiset< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  void **std::__profile::swap** (multiset< _Key, _Compare, _Allocator > &__x, multiset< _Key, _Compare, _Allocator > &__y)

6.209.1 Detailed Description

This file is a GNU profile extension to the Standard C++ Library.

Definition in file profile/multiset.h.

6.210 multiway_merge.h File Reference

Implementation of sequential and parallel multiway merge.

Classes

- struct __gnu_parallel::__multiway_merge_3_variant_sentinel_switch< __sentinels, _RAIterIterator, _RAIter3, _DifferenceTp, _Compare >

  Switch for 3-way merging with __sentinels turned off.

- struct __gnu_parallel::__multiway_merge_3_variant_sentinel_switch< true, _RAIterIterator, _RAIter3, _DifferenceTp, _Compare >

  Switch for 3-way merging with __sentinels turned on.

- struct __gnu_parallel::__multiway_merge_4_variant_sentinel_switch< __sentinels, _RAIterIterator, _RAIter3, _DifferenceTp, _Compare >

  Switch for 4-way merging with __sentinels turned off.

- struct __gnu_parallel::__multiway_merge_4_variant_sentinel_switch< true, _RAIterIterator, _RAIter3, _DifferenceTp, _Compare >

  Switch for 4-way merging with __sentinels turned on.

- struct __gnu_parallel::__multiway_merge_k_variant_sentinel_switch< __sentinels, __stable, _RAIterIterator, _RAIter3, _DifferenceTp, _Compare >

  Switch for k-way merging with __sentinels turned on.

- struct __gnu_parallel::__multiway_merge_k_variant_sentinel_switch< false, __stable, _RAIterIterator, _RAIter3, _DifferenceTp, _Compare >

  Switch for k-way merging with __sentinels turned off.

- class __gnu_parallel::_GuardedIterator< _RAIter, _Compare >

  _Iterator wrapper supporting an implicit supremum at the end of the sequence, dominating all comparisons.

- struct __gnu_parallel::_LoserTreeTraits< _Tp >

  Traits for determining whether the loser tree should use pointers or copies.

- struct __gnu_parallel::_SamplingSorter< __stable, _RAIter, _StrictWeakOrdering >

  Stable sorting functor.

- struct __gnu_parallel::_SamplingSorter< false, _RAIter, _StrictWeakOrdering >

  Non-__stable sorting functor.

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_DECISION**(__a, __b, __c, __d)
- #define _GLIBCXX_PARALLEL_LENGTH(__s)
- #define **_GLIBCXX_PARALLEL_MERGE_3_CASE**(__a, __b, __c, __c0, __c1)
- #define **_GLIBCXX_PARALLEL_MERGE_4_CASE**(__a, __b, __c, __d,__c0, __c1, __c2)

Functions

- template<bool __stable, bool __sentinels, typename _RAIterIterator , typename _RAIter3 , typename _DifferenceTp , typename _Compare >
  _RAIter3 __gnu_parallel::__sequential_multiway_merge (_RAIterIterator __seqs_begin, _RAIterIterator __seqs_end, _RAIter3 __target, const typename std::iterator_traits< typename std::iterator_traits< _RAIterIterator >::value_type::first_type >::value_type &__sentinel, _DifferenceTp __length, _Compare __comp)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **__gnu_parallel::multiway_merge** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, default_parallel_tag __tag)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **__gnu_parallel::multiway_merge** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, parallel_tag __tag=parallel_tag(0))
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **__gnu_parallel::multiway_merge** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, __gnu_parallel::sampling_tag __tag)

- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **__gnu_parallel::multiway_merge** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, __gnu_parallel::exact_tag __tag)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut __gnu_parallel::multiway_merge (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, __gnu_parallel::sequential_tag)
- template<template< typename RAI, typename C > class iterator, typename _RAIterIterator , typename _RAIter3 , typename _DifferenceTp , typename _Compare >
  _RAIter3 __gnu_parallel::multiway_merge_3_variant (_RAIterIterator __seqs_begin, _RAIterIterator __seqs_end, _RAIter3 __target, _DifferenceTp __length, _Compare __comp)
- template<template< typename RAI, typename C > class iterator, typename _RAIterIterator , typename _RAIter3 , typename _DifferenceTp , typename _Compare >
  _RAIter3 __gnu_parallel::multiway_merge_4_variant (_RAIterIterator __seqs_begin, _RAIterIterator __seqs_end, _RAIter3 __target, _DifferenceTp __length, _Compare __comp)
- template<bool __stable, typename _RAIterIterator , typename _Compare , typename _DifferenceType >
  void __gnu_parallel::multiway_merge_exact_splitting (_RAIterIterator __seqs_begin, _RAIterIterator __seqs_end, _DifferenceType __length, _DifferenceType __total_length, _Compare __comp, std::vector< std::pair< _DifferenceType, _DifferenceType > > *__pieces)
- template<typename _LT , typename _RAIterIterator , typename _RAIter3 , typename _DifferenceTp , typename _Compare >
  _RAIter3 __gnu_parallel::multiway_merge_loser_tree (_RAIterIterator __seqs_begin, _RAIterIterator __seqs_end, _RAIter3 __target, _DifferenceTp __length, _Compare __comp)
- template<typename UnguardedLoserTree , typename _RAIterIterator , typename _RAIter3 , typename _DifferenceTp , typename _Compare >
  _RAIter3 __gnu_parallel::multiway_merge_loser_tree_sentinel (_RAIterIterator __seqs_begin, _RAIterIterator __seqs_end, _RAIter3 __target, const typename std::iterator_traits< typename std::iterator_traits< _RAIterIterator >::value_type::first_type >::value_type &__sentinel, _DifferenceTp __length, _Compare __comp)
- template<typename _LT , typename _RAIterIterator , typename _RAIter3 , typename _DifferenceTp , typename _Compare >
  _RAIter3 __gnu_parallel::multiway_merge_loser_tree_unguarded (_RAIterIterator __seqs_begin, _RAIterIterator __seqs_end, _RAIter3 __target, const typename std::iterator_traits< typename std::iterator_traits< _RAIterIterator >::value_type::first_type >::value_type &__sentinel, _DifferenceTp __length, _Compare __comp)

- template<bool __stable, typename _RAIterIterator , typename _Compare , typename _DifferenceType >
  void __gnu_parallel::multiway_merge_sampling_splitting (_RAIterIterator __seqs_begin, _RAIterIterator __seqs_end, _DifferenceType __length, _DifferenceType __total_length, _Compare __comp, std::vector< std::pair< _DifferenceType, _DifferenceType > > *__pieces)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **__gnu_parallel::multiway_merge_sentinels** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, default_parallel_tag __tag)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **__gnu_parallel::multiway_merge_sentinels** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, parallel_tag __tag=parallel_tag(0))
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **__gnu_parallel::multiway_merge_sentinels** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, sampling_tag __tag)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **__gnu_parallel::multiway_merge_sentinels** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, __gnu_parallel::exact_tag __tag)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut __gnu_parallel::multiway_merge_sentinels (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, __gnu_parallel::sequential_tag)
- template<bool __stable, bool __sentinels, typename _RAIterIterator , typename _RAIter3 , typename _DifferenceTp , typename _Splitter , typename _Compare >
  _RAIter3 __gnu_parallel::parallel_multiway_merge (_RAIterIterator __seqs_begin, _RAIterIterator __seqs_end, _RAIter3 __target, _Splitter __splitter, _DifferenceTp __length, _Compare __comp, _ThreadIndex __num_threads)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **__gnu_parallel::stable_multiway_merge** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, default_parallel_tag __tag)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >

_RAIterOut **__gnu_parallel::stable_multiway_merge** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, parallel_tag __tag=parallel_tag(0))

- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **__gnu_parallel::stable_multiway_merge** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, sampling_tag __tag)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **__gnu_parallel::stable_multiway_merge** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, __gnu_parallel::exact_tag __tag)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **__gnu_parallel::stable_multiway_merge** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, __gnu_parallel::sequential_tag)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **__gnu_parallel::stable_multiway_merge_sentinels** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, default_parallel_tag __tag)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **__gnu_parallel::stable_multiway_merge_sentinels** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, parallel_tag __tag=parallel_tag(0))
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **__gnu_parallel::stable_multiway_merge_sentinels** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, sampling_tag __tag)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >
  _RAIterOut **__gnu_parallel::stable_multiway_merge_sentinels** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, __gnu_parallel::exact_tag __tag)
- template<typename _RAIterPairIterator , typename _RAIterOut , typename _DifferenceTp , typename _Compare >

_RAIterOut **__gnu_parallel::stable_multiway_merge_sentinels** (_RAIterPairIterator __seqs_begin, _RAIterPairIterator __seqs_end, _RAIterOut __target, _DifferenceTp __length, _Compare __comp, __gnu_parallel::sequential_tag)

6.210.1 Detailed Description

Implementation of sequential and parallel multiway merge. Explanations on the high-speed merging routines in the appendix of

P. Sanders. Fast priority queues for cached memory. ACM Journal of Experimental Algorithmics, 5, 2000.

This file is a GNU parallel extension to the Standard C++ Library.

Definition in file multiway_merge.h.

6.210.2 Define Documentation

6.210.2.1 #define _GLIBCXX_PARALLEL_LENGTH(__s)

Length of a sequence described by a pair of iterators.

Definition at line 53 of file multiway_merge.h.

Referenced by __gnu_parallel::__sequential_multiway_merge(), __gnu_parallel::multiway_merge_exact_splitting(), __gnu_parallel::multiway_merge_loser_tree(), __gnu_parallel::multiway_merge_sampling_splitting(), and __gnu_parallel::parallel_multiway_merge().

6.211 multiway_mergesort.h File Reference

Parallel multiway merge sort. This file is a GNU parallel extension to the Standard C++ Library.

Classes

- struct __gnu_parallel::_Piece< _DifferenceTp >
  Subsequence description.
- struct __gnu_parallel::_PMWMSSortingData< _RAIter >
  Data accessed by all threads.
- struct __gnu_parallel::_SplitConsistently< __exact, _RAIter, _Compare, _SortingPlacesIterator >
  Split consistently.
- struct __gnu_parallel::_SplitConsistently< false, _RAIter, _Compare, _SortingPlacesIterator >
  Split by sampling.
- struct __gnu_parallel::_SplitConsistently< true, _RAIter, _Compare, _SortingPlacesIterator >
  Split by exact splitting.

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_MULTIWAY_MERGESORT_H**

Functions

- template<typename _RAIter , typename _DifferenceTp >
  void __gnu_parallel::__determine_samples (_PMWMSSortingData< _RAIter > *__sd, _DifferenceTp __num_samples)
- template<bool __stable, bool __exact, typename _RAIter , typename _Compare >
  void __gnu_parallel::parallel_sort_mwms (_RAIter __begin, _RAIter __end, _Compare __comp, _ThreadIndex __num_threads)

- template<bool __stable, bool __exact, typename _RAIter , typename _Compare >
  void __gnu_parallel::parallel_sort_mwms_pu (_PMWMSSortingData< _-
  RAIter > *__sd, _Compare &__comp)

6.211.1 Detailed Description

Parallel multiway merge sort. This file is a GNU parallel extension to the Standard C++ Library.

Definition in file multiway_mergesort.h.

6.212 mutex File Reference

Classes

- struct std::adopt_lock_t
  Assume the calling thread has already obtained mutex ownership and manage it.
- struct std::defer_lock_t
  Do not acquire ownership of the mutex.
- class std::lock_guard< _Mutex >
  Scoped lock idiom.
- class std::mutex
  mutex
- struct std::once_flag
  once_flag
- class std::recursive_mutex
  recursive_mutex
- class std::recursive_timed_mutex
  recursive_timed_mutex
- class std::timed_mutex
  timed_mutex
- struct std::try_to_lock_t
  Try to acquire ownership of the mutex without blocking.
- class std::unique_lock< _Mutex >
  unique_lock

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_MUTEX**

Functions

- mutex & **std::__get_once_mutex** ()
- void **std::__once_proxy** ()
- void **std::__set_once_functor_lock_ptr** (unique_lock< mutex > *)
- template<typename _Callable , typename... _Args>
  void std::call_once (once_flag &__once, _Callable __f, _Args &&...__args)
- template<typename _L1 , typename _L2 , typename... _L3>
  void std::lock (_L1 &, _L2 &, _L3 &...)
- template<typename _Mutex >
  void **std::swap** (unique_lock< _Mutex > &__x, unique_lock< _Mutex > &_-
  _y)
- template<typename _Lock1 , typename _Lock2 , typename... _Lock3>
  int std::try_lock (_Lock1 &__l1, _Lock2 &__l2, _Lock3 &...__l3)

Variables

- function< void()> **std::__once_functor**
- const adopt_lock_t **std::adopt_lock**
- const defer_lock_t **std::defer_lock**
- const try_to_lock_t **std::try_to_lock**

6.212.1 Detailed Description

This is a Standard C++ Library header.

Definition in file mutex.

6.213 nested_exception.h File Reference

Classes

- class std::nested_exception

  Exception class with exception_ptr data member.

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_NESTED_EXCEPTION_H**

Functions

- template<typename _Ex >
  const nested_exception * **std::__get_nested_exception** (const _Ex &__ex)
- template<typename _Ex >
  void **std::__throw_with_nested** (_Ex &&,...) __attribute__((__noreturn__))
- template<typename _Ex >
  void **std::__throw_with_nested** (_Ex &&, const nested_exception *=0) __attribute__((__noreturn__))
- void std::rethrow_if_nested (const nested_exception &__ex)
- template<typename _Ex >
  void std::rethrow_if_nested (const _Ex &__ex)
- template<typename _Ex >
  void std::throw_with_nested (_Ex __ex)

6.213.1 Detailed Description

This is an internal header file, included by other headers and the implementation. You should not attempt to use it directly.

Definition in file nested_exception.h.

6.214 new File Reference

Classes

- class std::bad_alloc

  Exception possibly thrown by `new`.
  `bad_alloc` *(or classes derived from it) is used to report allocation errors from the throwing forms of* `new`.

Namespaces

- namespace std

Typedefs

- typedef void(∗ std::new_handler)()

Functions

- new_handler std::set_new_handler (new_handler) throw ()

- void operator delete (void ∗, void ∗) throw ()
- void operator delete (void ∗, const std::nothrow_t &) throw ()
- void operator delete (void ∗) throw ()
- void operator delete[ ] (void ∗, void ∗) throw ()
- void operator delete[ ] (void ∗, const std::nothrow_t &) throw ()
- void operator delete[ ] (void ∗) throw ()
- void ∗ operator new (std::size_t, void ∗__p) throw ()
- void ∗ operator new (std::size_t, const std::nothrow_t &) throw ()
- void ∗ operator new (std::size_t) throw (std::bad_alloc)
- void ∗ operator new[ ] (std::size_t, void ∗__p) throw ()
- void ∗ operator new[ ] (std::size_t, const std::nothrow_t &) throw ()
- void ∗ operator new[ ] (std::size_t) throw (std::bad_alloc)

Variables

- const nothrow_t **std::nothrow**

6.214.1 Detailed Description

This is a Standard C++ Library header.

The header `new` defines several functions to manage dynamic memory and handling memory allocation errors; see http://gcc.gnu.org/onlinedocs/libstdc++/18_support/howto.html#4 for more.

Definition in file new.

6.214.2 Function Documentation

6.214.2.1 void operator delete (void *, void *) throw () [inline]

These are replaceable signatures:

- normal single new and delete (no arguments, throw `bad_alloc` on error)
- normal array new and delete (same)
- `nothrow` single new and delete (take a `nothrow` argument, return `NULL` on error)
- `nothrow` array new and delete (same)

Placement new and delete signatures (take a memory address argument, does nothing) may not be replaced by a user's program.

Definition at line 107 of file new.

6.214.2.2 void operator delete (void *, const std::nothrow_t &) throw ()

These are replaceable signatures:

- normal single new and delete (no arguments, throw `bad_alloc` on error)
- normal array new and delete (same)
- `nothrow` single new and delete (take a `nothrow` argument, return `NULL` on error)
- `nothrow` array new and delete (same)

Placement new and delete signatures (take a memory address argument, does nothing) may not be replaced by a user's program.

6.214.2.3 void operator delete (void *) throw ()

These are replaceable signatures:

- normal single new and delete (no arguments, throw `bad_alloc` on error)
- normal array new and delete (same)
- `nothrow` single new and delete (take a `nothrow` argument, return `NULL` on error)
- `nothrow` array new and delete (same)

Placement new and delete signatures (take a memory address argument, does nothing) may not be replaced by a user's program.

6.214.2.4 void operator delete[ ] (void *, void *) throw () [inline]

These are replaceable signatures:

- normal single new and delete (no arguments, throw `bad_alloc` on error)
- normal array new and delete (same)
- `nothrow` single new and delete (take a `nothrow` argument, return `NULL` on error)
- `nothrow` array new and delete (same)

Placement new and delete signatures (take a memory address argument, does nothing) may not be replaced by a user's program.

Definition at line 108 of file new.

6.214.2.5 void operator delete[ ] (void *, const std::nothrow_t &) throw ()

These are replaceable signatures:

- normal single new and delete (no arguments, throw `bad_alloc` on error)
- normal array new and delete (same)
- `nothrow` single new and delete (take a `nothrow` argument, return `NULL` on error)
- `nothrow` array new and delete (same)

Placement new and delete signatures (take a memory address argument, does nothing) may not be replaced by a user's program.

6.214.2.6 void operator delete[ ] (void *) throw ()

These are replaceable signatures:

- normal single new and delete (no arguments, throw `bad_alloc` on error)
- normal array new and delete (same)
- `nothrow` single new and delete (take a `nothrow` argument, return `NULL` on error)
- `nothrow` array new and delete (same)

Placement new and delete signatures (take a memory address argument, does nothing) may not be replaced by a user's program.

6.214.2.7 void* operator new (std::size_t, void * *__p*) throw () [inline]

These are replaceable signatures:

- normal single new and delete (no arguments, throw `bad_alloc` on error)
- normal array new and delete (same)
- `nothrow` single new and delete (take a `nothrow` argument, return `NULL` on error)
- `nothrow` array new and delete (same)

Placement new and delete signatures (take a memory address argument, does nothing) may not be replaced by a user's program.

Definition at line 103 of file new.

6.214.2.8 void* operator new (std::size_t, const std::nothrow_t &) throw ()

These are replaceable signatures:

- normal single new and delete (no arguments, throw `bad_alloc` on error)
- normal array new and delete (same)
- `nothrow` single new and delete (take a `nothrow` argument, return `NULL` on error)
- `nothrow` array new and delete (same)

Placement new and delete signatures (take a memory address argument, does nothing) may not be replaced by a user's program.

6.214.2.9 void* operator new (std::size_t) throw (std::bad_alloc)

These are replaceable signatures:

- normal single new and delete (no arguments, throw `bad_alloc` on error)
- normal array new and delete (same)
- `nothrow` single new and delete (take a `nothrow` argument, return `NULL` on error)
- `nothrow` array new and delete (same)

Placement new and delete signatures (take a memory address argument, does nothing) may not be replaced by a user's program.

6.214.2.10 void* operator new[ ] (std::size_t, void * *__p*) throw () [inline]

These are replaceable signatures:

- normal single new and delete (no arguments, throw `bad_alloc` on error)
- normal array new and delete (same)
- `nothrow` single new and delete (take a `nothrow` argument, return `NULL` on error)
- `nothrow` array new and delete (same)

Placement new and delete signatures (take a memory address argument, does nothing) may not be replaced by a user's program.

Definition at line 104 of file new.

6.214.2.11 void* operator new[ ] (std::size_t, const std::nothrow_t &) throw ()

These are replaceable signatures:

- normal single new and delete (no arguments, throw `bad_alloc` on error)
- normal array new and delete (same)
- `nothrow` single new and delete (take a `nothrow` argument, return `NULL` on error)
- `nothrow` array new and delete (same)

Placement new and delete signatures (take a memory address argument, does nothing) may not be replaced by a user's program.

6.214.2.12 void* operator new[ ] (std::size_t) throw (std::bad_alloc)

These are replaceable signatures:

- normal single new and delete (no arguments, throw `bad_alloc` on error)
- normal array new and delete (same)
- `nothrow` single new and delete (take a `nothrow` argument, return `NULL` on error)
- `nothrow` array new and delete (same)

Placement new and delete signatures (take a memory address argument, does nothing) may not be replaced by a user's program.

6.215 new_allocator.h File Reference

Classes

- class __gnu_cxx::new_allocator< _Tp >

  An allocator that uses global new, as per [20.4].
  This is precisely the allocator defined in the C++ Standard.
  - *all allocation calls operator new*
  - *all deallocation calls operator delete.*

Namespaces

- namespace __gnu_cxx

Defines

- #define **_NEW_ALLOCATOR_H**

Functions

- template<typename _Tp >
  bool **__gnu_cxx::operator!=** (const new_allocator< _Tp > &, const new_-allocator< _Tp > &)
- template<typename _Tp >
  bool **__gnu_cxx::operator==** (const new_allocator< _Tp > &, const new_-allocator< _Tp > &)

6.215.1 Detailed Description

This file is a GNU extension to the Standard C++ Library.

Definition in file new_allocator.h.

6.216 numeric File Reference

Defines

- #define **_GLIBCXX_NUMERIC**

6.216.1 Detailed Description

This is a Standard C++ Library header.

Definition in file numeric.

6.217 numeric File Reference

Namespaces

- namespace __gnu_cxx

Defines

- #define **_EXT_NUMERIC**

Functions

- template<typename _Tp , typename _Integer >
  _Tp **__gnu_cxx::__power** (_Tp __x, _Integer __n)
- template<typename _Tp , typename _Integer , typename _MonoidOperation >
  _Tp **__gnu_cxx::__power** (_Tp __x, _Integer __n, _MonoidOperation __monoid_op)
- template<typename _ForwardIter , typename _Tp >
  void __gnu_cxx::iota (_ForwardIter __first, _ForwardIter __last, _Tp __value)
- template<typename _Tp , typename _Integer >
  _Tp __gnu_cxx::power (_Tp __x, _Integer __n)
- template<typename _Tp , typename _Integer , typename _MonoidOperation >
  _Tp __gnu_cxx::power (_Tp __x, _Integer __n, _MonoidOperation __monoid_op)

6.217.1 Detailed Description

This file is a GNU extension to the Standard C++ Library (possibly containing extensions from the HP/SGI STL subset).

Definition in file ext/numeric.

6.218 numeric File Reference

Parallel STL function calls corresponding to stl_numeric.h. The functions defined here mainly do case switches and call the actual parallelized versions in other files. Inlining policy: Functions that basically only contain one function call, are declared inline. This file is a GNU parallel extension to the Standard C++ Library.

Namespaces

- namespace std
- namespace std::__parallel

Defines

- #define **_GLIBCXX_PARALLEL_NUMERIC_H**

Functions

- template<typename __RAIter , typename _Tp , typename _BinaryOperation >
  _Tp **std::__parallel::__accumulate_switch** (__RAIter __begin, __RAIter __end, _Tp __init, _BinaryOperation __binary_op, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_unbalanced)
- template<typename _IIter , typename _Tp , typename _BinaryOperation , typename _IteratorTag >
  _Tp **std::__parallel::__accumulate_switch** (_IIter __begin, _IIter __end, _Tp __init, _BinaryOperation __binary_op, _IteratorTag)
- template<typename _IIter , typename _Tp , typename _IteratorTag >
  _Tp **std::__parallel::__accumulate_switch** (_IIter __begin, _IIter __end, _Tp __init, _IteratorTag)
- template<typename _IIter , typename _OutputIterator , typename _BinaryOperation >
  _OutputIterator **std::__parallel::__adjacent_difference_switch** (_IIter __begin, _IIter __end, _OutputIterator __result, _BinaryOperation __bin_op, random_access_iterator_tag, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_balanced)
- template<typename _IIter , typename _OutputIterator , typename _BinaryOperation , typename _IteratorTag1 , typename _IteratorTag2 >
  _OutputIterator **std::__parallel::__adjacent_difference_switch** (_IIter __begin, _IIter __end, _OutputIterator __result, _BinaryOperation __bin_op, _IteratorTag1, _IteratorTag2)
- template<typename _IIter1 , typename _IIter2 , typename _Tp , typename _BinaryFunction1 , typename _BinaryFunction2 , typename _IteratorTag1 , typename _IteratorTag2 >

_Tp **std::__parallel::__inner_product_switch** (_IIter1 __first1, _IIter1 __last1, _IIter2 __first2, _Tp __init, _BinaryFunction1 __binary_op1, _BinaryFunction2 __binary_op2, _IteratorTag1, _IteratorTag2)

- template<typename _RAIter1 , typename _RAIter2 , typename _Tp , typename _BinaryFunction1 , typename _BinaryFunction2 >
  _Tp **std::__parallel::__inner_product_switch** (_RAIter1 __first1, _RAIter1 __last1, _RAIter2 __first2, _Tp __init, _BinaryFunction1 __binary_op1, _BinaryFunction2 __binary_op2, random_access_iterator_tag, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism_tag=__gnu_parallel::parallel_unbalanced)
- template<typename _IIter , typename _OutputIterator , typename _BinaryOperation >
  _OutputIterator **std::__parallel::__partial_sum_switch** (_IIter __begin, _IIter __end, _OutputIterator __result, _BinaryOperation __bin_op, random_access_iterator_tag, random_access_iterator_tag)
- template<typename _IIter , typename _OutputIterator , typename _BinaryOperation , typename _IteratorTag1 , typename _IteratorTag2 >
  _OutputIterator **std::__parallel::__partial_sum_switch** (_IIter __begin, _IIter __end, _OutputIterator __result, _BinaryOperation __bin_op, _IteratorTag1, _IteratorTag2)
- template<typename _IIter , typename _Tp , typename _BinaryOperation >
  _Tp **std::__parallel::accumulate** (_IIter __begin, _IIter __end, _Tp __init, _BinaryOperation __binary_op)
- template<typename _IIter , typename _Tp , typename _BinaryOperation >
  _Tp **std::__parallel::accumulate** (_IIter __begin, _IIter __end, _Tp __init, _BinaryOperation __binary_op, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _IIter , typename _Tp >
  _Tp **std::__parallel::accumulate** (_IIter __begin, _IIter __end, _Tp __init)
- template<typename _IIter , typename _Tp >
  _Tp **std::__parallel::accumulate** (_IIter __begin, _IIter __end, _Tp __init, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _IIter , typename _Tp , typename _BinaryOperation >
  _Tp **std::__parallel::accumulate** (_IIter __begin, _IIter __end, _Tp __init, _BinaryOperation __binary_op, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _Tp >
  _Tp **std::__parallel::accumulate** (_IIter __begin, _IIter __end, _Tp __init, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _OutputIterator , typename _BinaryOperation >
  _OutputIterator **std::__parallel::adjacent_difference** (_IIter __begin, _IIter __end, _OutputIterator __result, _BinaryOperation __binary_op)
- template<typename _IIter , typename _OutputIterator , typename _BinaryOperation >
  _OutputIterator **std::__parallel::adjacent_difference** (_IIter __begin, _IIter __end, _OutputIterator __result, _BinaryOperation __binary_op, __gnu_parallel::_Parallelism __parallelism_tag)

- template<typename _IIter , typename _OutputIterator >
  _OutputIterator **std::__parallel::adjacent_difference** (_IIter __begin, _IIter _-
  _end, _OutputIterator __result)
- template<typename _IIter , typename _OutputIterator >
  _OutputIterator **std::__parallel::adjacent_difference** (_IIter __begin, _IIter _-
  _end, _OutputIterator __result, __gnu_parallel::_Parallelism __parallelism_tag)

- template<typename _IIter , typename _OutputIterator , typename _BinaryOperation >
  _OutputIterator **std::__parallel::adjacent_difference** (_IIter __begin, _-
  IIter __end, _OutputIterator __result, _BinaryOperation __bin_op, __gnu_-
  parallel::sequential_tag)
- template<typename _IIter , typename _OutputIterator >
  _OutputIterator **std::__parallel::adjacent_difference** (_IIter __begin, _IIter _-
  _end, _OutputIterator __result, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Tp >
  _Tp **std::__parallel::inner_product** (_IIter1 __first1, _IIter1 __last1, _IIter2 _-
  _first2, _Tp __init)
- template<typename _IIter1 , typename _IIter2 , typename _Tp >
  _Tp **std::__parallel::inner_product** (_IIter1 __first1, _IIter1 __last1, _IIter2 _-
  _first2, _Tp __init, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Tp , typename _BinaryFunction1 , type-
  name _BinaryFunction2 >
  _Tp **std::__parallel::inner_product** (_IIter1 __first1, _IIter1 __last1, _IIter2
  __first2, _Tp __init, _BinaryFunction1 __binary_op1, _BinaryFunction2 __-
  binary_op2)
- template<typename _IIter1 , typename _IIter2 , typename _Tp , typename _BinaryFunction1 , type-
  name _BinaryFunction2 >
  _Tp **std::__parallel::inner_product** (_IIter1 __first1, _IIter1 __last1, _IIter2
  __first2, _Tp __init, _BinaryFunction1 __binary_op1, _BinaryFunction2 __-
  binary_op2, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Tp , typename _BinaryFunction1 , type-
  name _BinaryFunction2 >
  _Tp **std::__parallel::inner_product** (_IIter1 __first1, _IIter1 __last1, _IIter2
  __first2, _Tp __init, _BinaryFunction1 __binary_op1, _BinaryFunction2 __-
  binary_op2, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Tp >
  _Tp **std::__parallel::inner_product** (_IIter1 __first1, _IIter1 __last1, _IIter2 _-
  _first2, _Tp __init, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _OutputIterator , typename _BinaryOperation >
  _OutputIterator **std::__parallel::partial_sum** (_IIter __begin, _IIter __end, _-
  OutputIterator __result, _BinaryOperation __binary_op)
- template<typename _IIter , typename _OutputIterator >
  _OutputIterator **std::__parallel::partial_sum** (_IIter __begin, _IIter __end, _-
  OutputIterator __result)

- template<typename _IIter , typename _OutputIterator , typename _BinaryOperation > _OutputIterator **std::__parallel::partial_sum** (_IIter __begin, _IIter __end, _OutputIterator __result, _BinaryOperation __bin_op, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _OutputIterator > _OutputIterator **std::__parallel::partial_sum** (_IIter __begin, _IIter __end, _OutputIterator __result, __gnu_parallel::sequential_tag)

6.218.1 Detailed Description

Parallel STL function calls corresponding to stl_numeric.h. The functions defined here mainly do case switches and call the actual parallelized versions in other files. Inlining policy: Functions that basically only contain one function call, are declared inline. This file is a GNU parallel extension to the Standard C++ Library.

Definition in file parallel/numeric.

6.219 numeric_traits.h File Reference

Namespaces

- namespace __gnu_cxx

Defines

- #define **__glibcxx_digits**(_Tp)
- #define **__glibcxx_digits10**(_Tp)
- #define **__glibcxx_floating**(_Tp, _Fval, _Dval, _LDval)
- #define **__glibcxx_max**(_Tp)
- #define **__glibcxx_max_digits10**(_Tp)
- #define **__glibcxx_max_exponent10**(_Tp)
- #define **__glibcxx_min**(_Tp)
- #define **__glibcxx_signed**(_Tp)
- #define **_EXT_NUMERIC_TRAITS**

6.219.1 Detailed Description

This file is a GNU extension to the Standard C++ Library.

Definition in file numeric_traits.h.

6.220 numericfwd.h File Reference

Namespaces

- namespace std
- namespace std::__parallel

Defines

- #define **_GLIBCXX_PARALLEL_NUMERICFWD_H**

Functions

- template<typename _RAIter , typename _Tp , typename _BinaryOper >
  _Tp **std::__parallel::__accumulate_switch** (_RAIter, _RAIter, _Tp, _BinaryOper, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism=__gnu_parallel::parallel_unbalanced)
- template<typename _IIter , typename _Tp , typename _BinaryOper , typename _Tag >
  _Tp **std::__parallel::__accumulate_switch** (_IIter, _IIter, _Tp, _BinaryOper, _Tag)
- template<typename _IIter , typename _Tp , typename _Tag >
  _Tp **std::__parallel::__accumulate_switch** (_IIter, _IIter, _Tp, _Tag)
- template<typename _IIter , typename _OIter , typename _BinaryOper >
  _OIter **std::__parallel::__adjacent_difference_switch** (_IIter, _IIter, _OIter, _BinaryOper, random_access_iterator_tag, random_access_iterator_tag, __gnu_parallel::_Parallelism __parallelism=__gnu_parallel::parallel_unbalanced)
- template<typename _IIter , typename _OIter , typename _BinaryOper , typename _Tag1 , typename _Tag2 >
  _OIter **std::__parallel::__adjacent_difference_switch** (_IIter, _IIter, _OIter, _BinaryOper, _Tag1, _Tag2)
- template<typename _IIter1 , typename _IIter2 , typename _Tp , typename _BinaryFunction1 , typename _BinaryFunction2 , typename _Tag1 , typename _Tag2 >
  _Tp **std::__parallel::__inner_product_switch** (_IIter1, _IIter1, _IIter2, _Tp, _BinaryFunction1, _BinaryFunction2, _Tag1, _Tag2)
- template<typename _RAIter1 , typename _RAIter2 , typename _Tp , typename BinaryFunction1 , typename BinaryFunction2 >
  _Tp **std::__parallel::__inner_product_switch** (_RAIter1, _RAIter1, _RAIter2, _Tp, BinaryFunction1, BinaryFunction2, random_access_iterator_tag, random_access_iterator_tag, __gnu_parallel::_Parallelism=__gnu_parallel::parallel_unbalanced)
- template<typename _IIter , typename _OIter , typename _BinaryOper >
  _OIter **std::__parallel::__partial_sum_switch** (_IIter, _IIter, _OIter, _BinaryOper, random_access_iterator_tag, random_access_iterator_tag)

- template<typename _IIter , typename _OIter , typename _BinaryOper , typename _Tag1 , typename _Tag2 >
  _OIter **std::__parallel::__partial_sum_switch** (_IIter, _IIter, _OIter, _BinaryOper, _Tag1, _Tag2)
- template<typename _IIter , typename _Tp , typename _BinaryOper >
  _Tp **std::__parallel::accumulate** (_IIter, _IIter, _Tp, _BinaryOper, __gnu_parallel::_Parallelism)
- template<typename _IIter , typename _Tp , typename _BinaryOper >
  _Tp **std::__parallel::accumulate** (_IIter, _IIter, _Tp, _BinaryOper, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _Tp , typename _BinaryOper >
  _Tp **std::__parallel::accumulate** (_IIter, _IIter, _Tp, _BinaryOper)
- template<typename _IIter , typename _Tp >
  _Tp **std::__parallel::accumulate** (_IIter __begin, _IIter __end, _Tp __init, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _IIter , typename _Tp >
  _Tp **std::__parallel::accumulate** (_IIter __begin, _IIter __end, _Tp __init, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _Tp >
  _Tp **std::__parallel::accumulate** (_IIter __begin, _IIter __end, _Tp __init)
- template<typename _IIter , typename _OIter , typename _BinaryOper >
  _OIter **std::__parallel::adjacent_difference** (_IIter, _IIter, _OIter, _BinaryOper, __gnu_parallel::_Parallelism)
- template<typename _IIter , typename _OIter >
  _OIter **std::__parallel::adjacent_difference** (_IIter, _IIter, _OIter, __gnu_parallel::_Parallelism)
- template<typename _IIter , typename _OIter , typename _BinaryOper >
  _OIter **std::__parallel::adjacent_difference** (_IIter, _IIter, _OIter, _BinaryOper, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _OIter >
  _OIter **std::__parallel::adjacent_difference** (_IIter, _IIter, _OIter, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _OIter , typename _BinaryOper >
  _OIter **std::__parallel::adjacent_difference** (_IIter, _IIter, _OIter, _BinaryOper)
- template<typename _IIter , typename _OIter >
  _OIter **std::__parallel::adjacent_difference** (_IIter, _IIter, _OIter)
- template<typename _IIter1 , typename _IIter2 , typename _Tp , typename BinaryFunction1 , typename BinaryFunction2 >
  _Tp **std::__parallel::inner_product** (_IIter1, _IIter1, _IIter2, _Tp, BinaryFunction1, BinaryFunction2, __gnu_parallel::_Parallelism)
- template<typename _IIter1 , typename _IIter2 , typename _Tp , typename _BinaryFunction1 , typename _BinaryFunction2 >
  _Tp **std::__parallel::inner_product** (_IIter1 __first1, _IIter1 __last1, _IIter2

__first2, _Tp __init, _BinaryFunction1 __binary_op1, _BinaryFunction2 __binary_op2, __gnu_parallel::sequential_tag)

- template<typename _IIter1 , typename _IIter2 , typename _Tp , typename _BinaryFunction1 , typename _BinaryFunction2 >
  _Tp **std::__parallel::inner_product** (_IIter1 __first1, _IIter1 __last1, _IIter2 __first2, _Tp __init, _BinaryFunction1 __binary_op1, _BinaryFunction2 __binary_op2)
- template<typename _IIter1 , typename _IIter2 , typename _Tp >
  _Tp **std::__parallel::inner_product** (_IIter1 __first1, _IIter1 __last1, _IIter2 __first2, _Tp __init, __gnu_parallel::_Parallelism __parallelism_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Tp >
  _Tp **std::__parallel::inner_product** (_IIter1 __first1, _IIter1 __last1, _IIter2 __first2, _Tp __init, __gnu_parallel::sequential_tag)
- template<typename _IIter1 , typename _IIter2 , typename _Tp >
  _Tp **std::__parallel::inner_product** (_IIter1 __first1, _IIter1 __last1, _IIter2 __first2, _Tp __init)
- template<typename _IIter , typename _OIter , typename _BinaryOper >
  _OIter **std::__parallel::partial_sum** (_IIter, _IIter, _OIter, _BinaryOper)
- template<typename _IIter , typename _OIter >
  _OIter **std::__parallel::partial_sum** (_IIter, _IIter, _OIter __result)
- template<typename _IIter , typename _OIter , typename _BinaryOper >
  _OIter **std::__parallel::partial_sum** (_IIter, _IIter, _OIter, _BinaryOper, __gnu_parallel::sequential_tag)
- template<typename _IIter , typename _OIter >
  _OIter **std::__parallel::partial_sum** (_IIter, _IIter, _OIter, __gnu_parallel::sequential_tag)

6.220.1 Detailed Description

This file is a GNU parallel extension to the Standard C++ Library.

Definition in file numericfwd.h.

6.221 omp_loop.h File Reference

Parallelization of embarrassingly parallel execution by means of an OpenMP for loop. This file is a GNU parallel extension to the Standard C++ Library.

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_OMP_LOOP_H**

Functions

- template<typename _RAIter , typename _Op , typename _Fu , typename _Red , typename _Result > _Op __gnu_parallel::__for_each_template_random_access_omp_loop (_RAIter __begin, _RAIter __end, _Op __o, _Fu &__f, _Red __r, _Result __base, _Result &__output, typename std::iterator_traits< _RAIter >::difference_type _-_bound)

6.221.1 Detailed Description

Parallelization of embarrassingly parallel execution by means of an OpenMP for loop. This file is a GNU parallel extension to the Standard C++ Library.

Definition in file omp_loop.h.

6.222 omp_loop_static.h File Reference

Parallelization of embarrassingly parallel execution by means of an OpenMP for loop with static scheduling. This file is a GNU parallel extension to the Standard C++ Library.

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_OMP_LOOP_STATIC_H**

Functions

- template<typename _RAIter , typename _Op , typename _Fu , typename _Red , typename _Result >
  _Op __gnu_parallel::__for_each_template_random_access_omp_loop_static (_RAIter __begin, _RAIter __end, _Op __o, _Fu &__f, _Red __r, _Result __base, _Result &__output, typename std::iterator_traits< _RAIter >::difference_type __bound)

6.222.1 Detailed Description

Parallelization of embarrassingly parallel execution by means of an OpenMP for loop with static scheduling. This file is a GNU parallel extension to the Standard C++ Library.

Definition in file omp_loop_static.h.

6.223 os_defines.h File Reference

Defines

- #define **__NO_CTYPE**
- #define **_GLIBCXX_OS_DEFINES**

6.223.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file os_defines.h.

6.224 ostream File Reference

Classes

- class std::basic_ostream< _CharT, _Traits >

  Controlling output.
  This is the base class for all output streams. It provides text formatting of all builtin types, and communicates with any class derived from basic_streambuf to do the actual output.

- class std::basic_ostream< _CharT, _Traits >::sentry

  Performs setup work for output streams.

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_OSTREAM**

Functions

- template<typename _CharT , typename _Traits >
  basic_ostream< _CharT, _Traits > & std::endl (basic_ostream< _CharT, _Traits > &__os)
- template<typename _CharT , typename _Traits >
  basic_ostream< _CharT, _Traits > & std::ends (basic_ostream< _CharT, _Traits > &__os)
- template<typename _CharT , typename _Traits >
  basic_ostream< _CharT, _Traits > & std::flush (basic_ostream< _CharT, _Traits > &__os)
- template<typename _CharT , typename _Traits , typename _Tp >
  basic_ostream< _CharT, _Traits > & std::operator<< (basic_ostream< _CharT, _Traits > &&__os, const _Tp &__x)

  - template<class _Traits >
    basic_ostream< char, _Traits > & std::operator<< (basic_ostream< char, _Traits > &__out, const unsigned char *__s)
  - template<class _Traits >
    basic_ostream< char, _Traits > & std::operator<< (basic_ostream< char, _Traits > &__out, const signed char *__s)

- template<class _Traits >
  basic_ostream< char, _Traits > & std::operator<< (basic_ostream< char, _Traits > &__out, const char *__s)
- template<typename _CharT , typename _Traits >
  basic_ostream< _CharT, _Traits > & std::operator<< (basic_ostream< _CharT, _Traits > &__out, const char *__s)
- template<typename _CharT , typename _Traits >
  basic_ostream< _CharT, _Traits > & std::operator<< (basic_ostream< _CharT, _Traits > &__out, const _CharT *__s)
- template<class _Traits >
  basic_ostream< char, _Traits > & std::operator<< (basic_ostream< char, _Traits > &__out, unsigned char __c)
- template<class _Traits >
  basic_ostream< char, _Traits > & std::operator<< (basic_ostream< char, _Traits > &__out, signed char __c)
- template<class _Traits >
  basic_ostream< char, _Traits > & std::operator<< (basic_ostream< char, _Traits > &__out, char __c)
- template<typename _CharT , typename _Traits >
  basic_ostream< _CharT, _Traits > & std::operator<< (basic_ostream< _CharT, _Traits > &__out, char __c)
- template<typename _CharT , typename _Traits >
  basic_ostream< _CharT, _Traits > & std::operator<< (basic_ostream< _CharT, _Traits > &__out, _CharT __c)

6.224.1 Detailed Description

This is a Standard C++ Library header.

Definition in file ostream.

6.225 ostream.tcc File Reference

Namespaces

- namespace std

Defines

- #define **_OSTREAM_TCC**

Functions

- template ostream & **std::endl** (ostream &)
- template ostream & **std::ends** (ostream &)
- template ostream & **std::flush** (ostream &)
- template wostream & **std::operator**<< (wostream &, const wchar_t *)
- template wostream & **std::operator**<< (wostream &, wchar_t)
- template ostream & **std::operator**<< (ostream &, const signed char *)
- template ostream & **std::operator**<< (ostream &, const unsigned char *)
- template ostream & **std::operator**<< (ostream &, const char *)
- template ostream & **std::operator**<< (ostream &, signed char)
- template ostream & **std::operator**<< (ostream &, unsigned char)
- template ostream & **std::operator**<< (ostream &, char)

  - template<typename _CharT , typename _Traits >
    basic_ostream< _CharT, _Traits > & std::operator<< (basic_ostream< _CharT, _Traits > &__out, const char *__s)

6.225.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file ostream.tcc.

6.226 ostream_insert.h File Reference

Namespaces

- namespace std

Defines

- #define **_OSTREAM_INSERT_H**

Functions

- template<typename _CharT , typename _Traits >
  void **std::__ostream_fill** (basic_ostream< _CharT, _Traits > &__out, streamsize __n)
- template wostream & **std::__ostream_insert** (wostream &, const wchar_t *, streamsize)
- template ostream & **std::__ostream_insert** (ostream &, const char *, streamsize)
- template<typename _CharT , typename _Traits >
  basic_ostream< _CharT, _Traits > & **std::__ostream_insert** (basic_ostream< _CharT, _Traits > &__out, const _CharT *__s, streamsize __n)
- template<typename _CharT , typename _Traits >
  void **std::__ostream_write** (basic_ostream< _CharT, _Traits > &__out, const _CharT *__s, streamsize __n)

6.226.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file ostream_insert.h.

6.227 par_loop.h File Reference

Parallelization of embarrassingly parallel execution by means of equal splitting. This file is a GNU parallel extension to the Standard C++ Library.

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_PAR_LOOP_H**

Functions

- template<typename _RAIter , typename _Op , typename _Fu , typename _Red , typename _Result >
  _Op __gnu_parallel::__for_each_template_random_access_ed (_RAIter __begin, _RAIter __end, _Op __o, _Fu &__f, _Red __r, _Result __base, _Result &__output, typename std::iterator_traits< _RAIter >::difference_type __bound)

6.227.1 Detailed Description

Parallelization of embarrassingly parallel execution by means of equal splitting. This file is a GNU parallel extension to the Standard C++ Library.

Definition in file par_loop.h.

6.228 parallel.h File Reference

End-user include file. Provides advanced settings and tuning options. This file is a GNU parallel extension to the Standard C++ Library.

Defines

- #define **_GLIBCXX_PARALLEL_PARALLEL_H**

6.228.1 Detailed Description

End-user include file. Provides advanced settings and tuning options. This file is a GNU parallel extension to the Standard C++ Library.

Definition in file parallel.h.

6.229 partial_sum.h File Reference

Parallel implementation of std::partial_sum(), i.e. prefix sums. This file is a GNU parallel extension to the Standard C++ Library.

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_PARTIAL_SUM_H**

Functions

- template<typename _IIter , typename _OutputIterator , typename _BinaryOperation > _OutputIterator __gnu_parallel::__parallel_partial_sum (_IIter __begin, _IIter __end, _OutputIterator __result, _BinaryOperation __bin_op)
- template<typename _IIter , typename _OutputIterator , typename _BinaryOperation > _OutputIterator __gnu_parallel::__parallel_partial_sum_basecase (_IIter __begin, _IIter __end, _OutputIterator __result, _BinaryOperation __bin_op, typename std::iterator_traits< _IIter >::value_type __value)
- template<typename _IIter , typename _OutputIterator , typename _BinaryOperation > _OutputIterator __gnu_parallel::__parallel_partial_sum_linear (_IIter __begin, _IIter __end, _OutputIterator __result, _BinaryOperation __bin_op, typename std::iterator_traits< _IIter >::difference_type __n)

6.229.1 Detailed Description

Parallel implementation of std::partial_sum(), i.e. prefix sums. This file is a GNU parallel extension to the Standard C++ Library.

Definition in file partial_sum.h.

6.230 partition.h File Reference

Parallel implementation of std::partition(), std::nth_element(), and std::partial_sort(). This file is a GNU parallel extension to the Standard C++ Library.

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_PARTITION_H**
- #define _GLIBCXX_VOLATILE

Functions

- template<typename _RAIter , typename _Compare >
  void __gnu_parallel::__parallel_nth_element (_RAIter __begin, _RAIter __nth, _RAIter __end, _Compare __comp)
- template<typename _RAIter , typename _Compare >
  void __gnu_parallel::__parallel_partial_sort (_RAIter __begin, _RAIter __middle, _RAIter __end, _Compare __comp)
- template<typename _RAIter , typename _Predicate >
  std::iterator_traits< _RAIter >::difference_type __gnu_parallel::__parallel_partition (_RAIter __begin, _RAIter __end, _Predicate __pred, _ThreadIndex __num_threads)

6.230.1 Detailed Description

Parallel implementation of std::partition(), std::nth_element(), and std::partial_sort(). This file is a GNU parallel extension to the Standard C++ Library.

Definition in file partition.h.

6.230.2 Define Documentation

6.230.2.1 #define _GLIBCXX_VOLATILE

Decide whether to declare certain variables volatile.

Definition at line 43 of file partition.h.

Referenced by __gnu_parallel::__parallel_partition().

6.231 pod_char_traits.h File Reference

Classes

- struct __gnu_cxx::character< V, I, S >

  A POD class that serves as a character abstraction class.

- struct std::char_traits< __gnu_cxx::character< V, I, S > >

  char_traits<__gnu_cxx::character> specialization.

Namespaces

- namespace __gnu_cxx
- namespace std

Defines

- #define **_POD_CHAR_TRAITS_H**

Functions

- template<typename V , typename I , typename S >
  bool **__gnu_cxx::operator**< (const character< V, I, S > &lhs, const character< V, I, S > &rhs)
- template<typename V , typename I , typename S >
  bool **__gnu_cxx::operator==** (const character< V, I, S > &lhs, const character< V, I, S > &rhs)

6.231.1 Detailed Description

This file is a GNU extension to the Standard C++ Library.

Definition in file pod_char_traits.h.

6.232 pointer.h File Reference

Classes

- struct __gnu_cxx::_Invalid_type
- class __gnu_cxx::_Pointer_adapter< _Storage_policy >
- class __gnu_cxx::_Relative_pointer_impl< _Tp >

  A storage policy for use with _Pointer_adapter<> which stores the pointer's address as an offset value which is relative to its own address.

- class __gnu_cxx::_Relative_pointer_impl< const _Tp >
- class __gnu_cxx::_Std_pointer_impl< _Tp >

  A storage policy for use with _Pointer_adapter<> which yields a standard pointer.

- struct __gnu_cxx::_Unqualified_type< _Tp >

Namespaces

- namespace __gnu_cxx

Defines

- #define **_CXX_POINTER_ARITH_OPERATOR_SET**(INT_TYPE)
- #define **_GCC_CXX_POINTER_COMPARISON_OPERATION_SET**(OPERATOR)
- #define **_POINTER_H**

Functions

- template<typename _Tp >
  bool **__gnu_cxx::operator!=** (const _Pointer_adapter< _Tp > &__lhs, const _Pointer_adapter< _Tp > &__rhs)
- template<typename _Tp >
  bool **__gnu_cxx::operator!=** (int __lhs, const _Pointer_adapter< _Tp > &__rhs)
- template<typename _Tp >
  bool **__gnu_cxx::operator!=** (const _Pointer_adapter< _Tp > &__lhs, int __rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **__gnu_cxx::operator!=** (const _Pointer_adapter< _Tp1 > &__lhs, const _Pointer_adapter< _Tp2 > &__rhs)

- template<typename _Tp1 , typename _Tp2 >
  bool **__gnu_cxx::operator!=** (_Tp1 __lhs, const _Pointer_adapter< _Tp2 > &__rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **__gnu_cxx::operator!=** (const _Pointer_adapter< _Tp1 > &__lhs, _Tp2 __rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **__gnu_cxx::operator<** (const _Pointer_adapter< _Tp1 > &__lhs, const _Pointer_adapter< _Tp2 > &__rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **__gnu_cxx::operator<** (_Tp1 __lhs, const _Pointer_adapter< _Tp2 > &__rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **__gnu_cxx::operator<** (const _Pointer_adapter< _Tp1 > &__lhs, _Tp2 __rhs)
- template<typename _CharT , typename _Traits , typename _StoreT >
  std::basic_ostream< _CharT, _Traits > & **__gnu_cxx::operator<<** (std::basic_ostream< _CharT, _Traits > &__os, const _Pointer_adapter< _StoreT > &__p)
- template<typename _Tp >
  bool **__gnu_cxx::operator<=** (const _Pointer_adapter< _Tp > &__lhs, const _Pointer_adapter< _Tp > &__rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **__gnu_cxx::operator<=** (const _Pointer_adapter< _Tp1 > &__lhs, const _Pointer_adapter< _Tp2 > &__rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **__gnu_cxx::operator<=** (_Tp1 __lhs, const _Pointer_adapter< _Tp2 > &__rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **__gnu_cxx::operator<=** (const _Pointer_adapter< _Tp1 > &__lhs, _Tp2 __rhs)
- template<typename _Tp >
  bool __gnu_cxx::operator== (const _Pointer_adapter< _Tp > &__lhs, const _Pointer_adapter< _Tp > &__rhs)
- template<typename _Tp >
  bool **__gnu_cxx::operator==** (int __lhs, const _Pointer_adapter< _Tp > &__rhs)
- template<typename _Tp >
  bool **__gnu_cxx::operator==** (const _Pointer_adapter< _Tp > &__lhs, int __rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **__gnu_cxx::operator==** (const _Pointer_adapter< _Tp1 > &__lhs, const _Pointer_adapter< _Tp2 > &__rhs)

- template<typename _Tp1 , typename _Tp2 >
  bool **__gnu_cxx::operator==** (_Tp1 __lhs, const _Pointer_adapter< _Tp2 > &__rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **__gnu_cxx::operator==** (const _Pointer_adapter< _Tp1 > &__lhs, _Tp2 __rhs)
- template<typename _Tp >
  bool **__gnu_cxx::operator>** (const _Pointer_adapter< _Tp > &__lhs, const _Pointer_adapter< _Tp > &__rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **__gnu_cxx::operator>** (const _Pointer_adapter< _Tp1 > &__lhs, const _Pointer_adapter< _Tp2 > &__rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **__gnu_cxx::operator>** (_Tp1 __lhs, const _Pointer_adapter< _Tp2 > &__rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **__gnu_cxx::operator>** (const _Pointer_adapter< _Tp1 > &__lhs, _Tp2 __rhs)
- template<typename _Tp >
  bool **__gnu_cxx::operator>=** (const _Pointer_adapter< _Tp > &__lhs, const _Pointer_adapter< _Tp > &__rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **__gnu_cxx::operator>=** (const _Pointer_adapter< _Tp1 > &__lhs, const _Pointer_adapter< _Tp2 > &__rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **__gnu_cxx::operator>=** (_Tp1 __lhs, const _Pointer_adapter< _Tp2 > &__rhs)
- template<typename _Tp1 , typename _Tp2 >
  bool **__gnu_cxx::operator>=** (const _Pointer_adapter< _Tp1 > &__lhs, _Tp2 __rhs)

6.232.1 Detailed Description

Author:

Bob Walters

Provides reusable _Pointer_adapter for assisting in the development of custom pointer types that can be used with the standard containers via the allocator::pointer and allocator::const_pointer typedefs.

Definition in file pointer.h.

6.233 pool_allocator.h File Reference

Classes

- class __gnu_cxx::__pool_alloc< _Tp >
  Allocator using a memory pool with a single lock.
- class __gnu_cxx::__pool_alloc_base
  Base class for __pool_alloc.

Namespaces

- namespace __gnu_cxx

Defines

- #define **_POOL_ALLOCATOR_H**

Functions

- template<typename _Tp >
  bool **__gnu_cxx::operator!=** (const __pool_alloc< _Tp > &, const __pool_-alloc< _Tp > &)
- template<typename _Tp >
  bool **__gnu_cxx::operator==** (const __pool_alloc< _Tp > &, const __pool_-alloc< _Tp > &)

6.233.1 Detailed Description

This file is a GNU extension to the Standard C++ Library.

Definition in file pool_allocator.h.

6.234 postypes.h File Reference

Classes

- class std::fpos< _StateT >

  Class representing stream positions.

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_POSTYPES_H**

Typedefs

- typedef long std::streamoff
- typedef fpos< mbstate_t > std::streampos
- typedef ptrdiff_t std::streamsize
- typedef fpos< mbstate_t > std::u16streampos
- typedef fpos< mbstate_t > std::u32streampos
- typedef fpos< mbstate_t > std::wstreampos

Functions

- template<typename _StateT >
  bool **std::operator!=** (const fpos< _StateT > &__lhs, const fpos< _StateT > &__rhs)
- template<typename _StateT >
  bool std::operator== (const fpos< _StateT > &__lhs, const fpos< _StateT > &__rhs)

6.234.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file postypes.h.

6.235 priority_queue.hpp File Reference

Namespaces

- namespace __gnu_pbds

6.235.1 Detailed Description

Contains priority_queues.

Definition in file priority_queue.hpp.

6.236 priority_queue_base_dispatch.hpp File Reference

Namespaces

- namespace __gnu_pbds

6.236.1 Detailed Description

Contains an pqiative container dispatching base.

Definition in file priority_queue_base_dispatch.hpp.

6.237 profiler.h File Reference

Interface of the profiling runtime library.

Classes

- struct __gnu_profile::__reentrance_guard

  Reentrance guard.

Namespaces

- namespace __gnu_profile

Defines

- #define **__profcxx_hashtable_construct**(__x...)
- #define **__profcxx_hashtable_construct2**(__x...)
- #define **__profcxx_hashtable_destruct**(__x...)
- #define **__profcxx_hashtable_destruct2**(__x...)
- #define **__profcxx_hashtable_resize**(__x...)
- #define **__profcxx_is_invalid**()
- #define **__profcxx_is_off**()
- #define **__profcxx_is_on**()
- #define **__profcxx_list_construct**(__x...)
- #define **__profcxx_list_construct2**(__x...)
- #define **__profcxx_list_destruct**(__x...)
- #define **__profcxx_list_destruct2**(__x...)
- #define **__profcxx_list_insert**(__x...)
- #define **__profcxx_list_invalid_operator**(__x...)
- #define **__profcxx_list_iterate**(__x...)
- #define **__profcxx_list_operation**(__x...)
- #define **__profcxx_list_rewind**(__x...)
- #define **__profcxx_map_to_unordered_map_construct**(__x...)
- #define **__profcxx_map_to_unordered_map_destruct**(__x...)
- #define **__profcxx_map_to_unordered_map_erase**(__x...)
- #define **__profcxx_map_to_unordered_map_find**(__x...)
- #define **__profcxx_map_to_unordered_map_insert**(__x...)
- #define **__profcxx_map_to_unordered_map_invalidate**(__x...)
- #define **__profcxx_map_to_unordered_map_iterate**(__x...)
- #define **__profcxx_report**()

- #define **__profcxx_turn_off**()
- #define **__profcxx_turn_on**()
- #define **__profcxx_vector_construct**(__x...)
- #define **__profcxx_vector_construct2**(__x...)
- #define **__profcxx_vector_destruct**(__x...)
- #define **__profcxx_vector_destruct2**(__x...)
- #define **__profcxx_vector_find**(__x...)
- #define **__profcxx_vector_insert**(__x...)
- #define **__profcxx_vector_invalid_operator**(__x...)
- #define **__profcxx_vector_iterate**(__x...)
- #define **__profcxx_vector_resize**(__x...)
- #define **__profcxx_vector_resize2**(__x...)
- #define **_GLIBCXX_PROFILE_DATA**(__name)
- #define **_GLIBCXX_PROFILE_DEFINE_DATA**(__type, __name, __initial_-value...)
- #define **_GLIBCXX_PROFILE_MAX_STACK_DEPTH**
- #define **_GLIBCXX_PROFILE_MAX_STACK_DEPTH_ENV_VAR**
- #define **_GLIBCXX_PROFILE_MAX_WARN_COUNT**
- #define **_GLIBCXX_PROFILE_MAX_WARN_COUNT_ENV_VAR**
- #define **_GLIBCXX_PROFILE_MEM_PER_DIAGNOSTIC**
- #define **_GLIBCXX_PROFILE_MEM_PER_DIAGNOSTIC_ENV_VAR**
- #define **_GLIBCXX_PROFILE_PROFILER_H**
- #define **_GLIBCXX_PROFILE_REENTRANCE_GUARD**(__x...)
- #define **_GLIBCXX_PROFILE_THREADS**
- #define **_GLIBCXX_PROFILE_TRACE_ENV_VAR**
- #define **_GLIBCXX_PROFILE_TRACE_PATH_ROOT**

Functions

- bool **__gnu_profile::__is_invalid** ()
- bool **__gnu_profile::__is_off** ()
- bool **__gnu_profile::__is_on** ()
- void __gnu_profile::__report (void)
- void **__gnu_profile::__trace_hash_func_construct** (const void *)
- void **__gnu_profile::__trace_hash_func_destruct** (const void *, size_t, size_t, size_t)
- void **__gnu_profile::__trace_hashtable_size_construct** (const void *, size_t)
- void **__gnu_profile::__trace_hashtable_size_destruct** (const void *, size_t, size_t)
- void **__gnu_profile::__trace_hashtable_size_resize** (const void *, size_t, size_t)
- void **__gnu_profile::__trace_list_to_set_construct** (const void *)

- void **__gnu_profile::__trace_list_to_set_destruct** (const void *)
- void **__gnu_profile::__trace_list_to_set_find** (const void *, size_t)
- void **__gnu_profile::__trace_list_to_set_insert** (const void *, size_t, size_t)
- void **__gnu_profile::__trace_list_to_set_invalid_operator** (const void *)
- void **__gnu_profile::__trace_list_to_set_iterate** (const void *, size_t)
- void **__gnu_profile::__trace_list_to_slist_construct** (const void *)
- void **__gnu_profile::__trace_list_to_slist_destruct** (const void *)
- void **__gnu_profile::__trace_list_to_slist_operation** (const void *)
- void **__gnu_profile::__trace_list_to_slist_rewind** (const void *)
- void **__gnu_profile::__trace_list_to_vector_construct** (const void *)
- void **__gnu_profile::__trace_list_to_vector_destruct** (const void *)
- void **__gnu_profile::__trace_list_to_vector_insert** (const void *, size_t, size_t)
- void **__gnu_profile::__trace_list_to_vector_invalid_operator** (const void *)
- void **__gnu_profile::__trace_list_to_vector_iterate** (const void *, size_t)
- void **__gnu_profile::__trace_list_to_vector_resize** (const void *, size_t, size_t)
- void **__gnu_profile::__trace_map_to_unordered_map_construct** (const void *)
- void **__gnu_profile::__trace_map_to_unordered_map_destruct** (const void *)
- void **__gnu_profile::__trace_map_to_unordered_map_erase** (const void *, size_t, size_t)
- void **__gnu_profile::__trace_map_to_unordered_map_find** (const void *, size_t)
- void **__gnu_profile::__trace_map_to_unordered_map_insert** (const void *, size_t, size_t)
- void **__gnu_profile::__trace_map_to_unordered_map_invalidate** (const void *)
- void **__gnu_profile::__trace_map_to_unordered_map_iterate** (const void *, size_t)
- void **__gnu_profile::__trace_vector_size_construct** (const void *, size_t)
- void **__gnu_profile::__trace_vector_size_destruct** (const void *, size_t, size_t)
- void **__gnu_profile::__trace_vector_size_resize** (const void *, size_t, size_t)
- void **__gnu_profile::__trace_vector_to_list_construct** (const void *)
- void **__gnu_profile::__trace_vector_to_list_destruct** (const void *)
- void **__gnu_profile::__trace_vector_to_list_find** (const void *, size_t)
- void **__gnu_profile::__trace_vector_to_list_insert** (const void *, size_t, size_t)
- void **__gnu_profile::__trace_vector_to_list_invalid_operator** (const void *)
- void **__gnu_profile::__trace_vector_to_list_iterate** (const void *, size_t)
- void **__gnu_profile::__trace_vector_to_list_resize** (const void *, size_t, size_t)

- bool **__gnu_profile::__turn_off** ()
- bool **__gnu_profile::__turn_on** ()

6.237.1 Detailed Description

Interface of the profiling runtime library.

Definition in file profiler.h.

6.238 profiler_hashtable_size.h File Reference

Collection of hashtable size traces.

Classes

- class __gnu_profile::__trace_hashtable_size
  Hashtable size instrumentation trace producer.

Namespaces

- namespace __gnu_profile

Defines

- #define **_GLIBCXX_PROFILE_PROFILER_HASHTABLE_SIZE_H**

Functions

- void **__gnu_profile::__trace_hashtable_size_construct** (const void *, size_t)
- void **__gnu_profile::__trace_hashtable_size_destruct** (const void *, size_t, size_t)
- void **__gnu_profile::__trace_hashtable_size_init** ()
- void **__gnu_profile::__trace_hashtable_size_report** (FILE *__f, __warning_-vector_t &__warnings)
- void **__gnu_profile::__trace_hashtable_size_resize** (const void *, size_t, size_t)

6.238.1 Detailed Description

Collection of hashtable size traces.

Definition in file profiler_hashtable_size.h.

6.239 profiler_list_to_slist.h File Reference

Diagnostics for list to slist.

Namespaces

- namespace __gnu_profile

Defines

- #define **_GLIBCXX_PROFILE_PROFILER_LIST_TO_SLIST_H**

Functions

- void **__gnu_profile::__trace_list_to_slist_construct** (const void *)
- void **__gnu_profile::__trace_list_to_slist_destruct** (const void *)
- void **__gnu_profile::__trace_list_to_slist_init** ()
- void **__gnu_profile::__trace_list_to_slist_operation** (const void *)
- void **__gnu_profile::__trace_list_to_slist_report** (FILE *__f, __warning_vector_t &__warnings)
- void **__gnu_profile::__trace_list_to_slist_rewind** (const void *)

6.239.1 Detailed Description

Diagnostics for list to slist.

Definition in file profiler_list_to_slist.h.

6.240 profiler_list_to_vector.h File Reference

diagnostics for list to vector.

Classes

- class __gnu_profile::__list2vector_info

  A list-to-vector instrumentation line in the object table.

Namespaces

- namespace __gnu_profile

Defines

- #define **_GLIBCXX_PROFILE_PROFILER_LIST_TO_VECTOR_H**

Functions

- void **__gnu_profile::__trace_list_to_vector_construct** (const void *)
- void **__gnu_profile::__trace_list_to_vector_destruct** (const void *)
- void **__gnu_profile::__trace_list_to_vector_init** ()
- void **__gnu_profile::__trace_list_to_vector_insert** (const void *, size_t, size_t)
- void **__gnu_profile::__trace_list_to_vector_invalid_operator** (const void *)
- void **__gnu_profile::__trace_list_to_vector_iterate** (const void *, size_t)
- void **__gnu_profile::__trace_list_to_vector_report** (FILE *__f, __warning_vector_t &__warnings)
- void **__gnu_profile::__trace_list_to_vector_resize** (const void *, size_t, size_t)

6.240.1 Detailed Description

diagnostics for list to vector.

Definition in file profiler_list_to_vector.h.

6.241 profiler_map_to_unordered_map.h File Reference

Diagnostics for map to unordered_map.

Classes

- class __gnu_profile::__map2umap_info

  A map-to-unordered_map instrumentation line in the object table.

- class __gnu_profile::__map2umap_stack_info

  A map-to-unordered_map instrumentation line in the stack table.

- class __gnu_profile::__trace_map2umap

  Map-to-unordered_map instrumentation producer.

Namespaces

- namespace __gnu_profile

Defines

- #define **_GLIBCXX_PROFILE_PROFILER_MAP_TO_UNORDERED_MAP_H**

Functions

- int **__gnu_profile::__log2** (size_t __size)
- float **__gnu_profile::__map_erase_cost** (size_t __size)
- float **__gnu_profile::__map_find_cost** (size_t __size)
- float **__gnu_profile::__map_insert_cost** (size_t __size)
- void **__gnu_profile::__trace_map_to_unordered_map_construct** (const void *)
- void **__gnu_profile::__trace_map_to_unordered_map_destruct** (const void *)
- void **__gnu_profile::__trace_map_to_unordered_map_erase** (const void *, size_t, size_t)
- void **__gnu_profile::__trace_map_to_unordered_map_find** (const void *, size_t)
- void **__gnu_profile::__trace_map_to_unordered_map_init** ()

- void **__gnu_profile::__trace_map_to_unordered_map_insert** (const void *, size_t, size_t)
- void **__gnu_profile::__trace_map_to_unordered_map_invalidate** (const void *)
- void **__gnu_profile::__trace_map_to_unordered_map_iterate** (const void *, size_t)
- void **__gnu_profile::__trace_map_to_unordered_map_report** (FILE *__f, _-_warning_vector_t &__warnings)

6.241.1 Detailed Description

Diagnostics for map to unordered_map.

Definition in file profiler_map_to_unordered_map.h.

6.242 profiler_node.h File Reference

Data structures to represent a single profiling event.

Classes

- class __gnu_profile::__object_info_base

  Base class for a line in the object table.

- class __gnu_profile::__stack_hash

  Hash function for summary trace using call stack as index.

- class __gnu_profile::__stack_info_base< __object_info >

  Base class for a line in the stack table.

Namespaces

- namespace __gnu_profile

Defines

- #define **_GLIBCXX_PROFILE_PROFILER_NODE_H**

Typedefs

- typedef void * **__gnu_profile::__instruction_address_t**
- typedef const void * **__gnu_profile::__object_t**
- typedef std::std::vector< __instruction_address_t > **__gnu_profile::__stack_-npt**
- typedef __stack_npt * **__gnu_profile::__stack_t**

Functions

- __stack_t **__gnu_profile::__get_stack** ()
- **__gnu_profile::__size** (const __stack_t &__stack)
- size_t **__gnu_profile::__stack_max_depth** ()
- void **__gnu_profile::__write** (FILE *__f, const __stack_t __stack)

6.242.1 Detailed Description

Data structures to represent a single profiling event.

Definition in file profiler_node.h.

6.243 profiler_state.h File Reference

Global profiler state.

Namespaces

- namespace __gnu_profile

Defines

- #define **_GLIBCXX_PROFILE_PROFILER_STATE_H**

Enumerations

- enum **__state_type** { **__ON**, **__OFF**, **__INVALID** }

Functions

- __state_type & **__gnu_profile::__get___state** ()
- bool **__gnu_profile::__is_invalid** ()
- bool **__gnu_profile::__is_off** ()
- bool **__gnu_profile::__is_on** ()
- bool **__gnu_profile::__turn** (__state_type __s)
- bool **__gnu_profile::__turn_off** ()
- bool **__gnu_profile::__turn_on** ()

6.243.1 Detailed Description

Global profiler state.

Definition in file profiler_state.h.

6.244 profiler_trace.h File Reference

Diagnostics for container sizes.

Classes

- class __gnu_profile::__trace_base< __object_info, __stack_info >

  Base class for all trace producers.

- struct __gnu_profile::__warning_data

  Representation of a warning.

Namespaces

- namespace __gnu_profile

Defines

- #define **_GLIBCXX_IMPL_MUTEX_INITIALIZER**
- #define **_GLIBCXX_IMPL_UNORDERED_MAP**
- #define **_GLIBCXX_PROFILE_PROFILER_TRACE_H**

Typedefs

- typedef std::std::vector< __cost_factor * > **__gnu_profile::__cost_factor_vector**
- typedef pthread_mutex_t **__gnu_profile::__mutex_t**
- typedef std::std::vector< __warning_data > **__gnu_profile::__warning_vector_t**

Functions

- size_t **__gnu_profile::__env_to_size_t** (const char *__env_var, size_t __default_value)
- __cost_factor_vector *& **__gnu_profile::__get___cost_factors** ()
- __mutex_t & __gnu_profile::__get___global_lock ()
- __cost_factor & **__gnu_profile::__get___list_iterate_cost_factor** ()
- __cost_factor & **__gnu_profile::__get___list_resize_cost_factor** ()
- __cost_factor & **__gnu_profile::__get___list_shift_cost_factor** ()

- __cost_factor & **__gnu_profile::__get__map_erase_cost_factor** ()
- __cost_factor & **__gnu_profile::__get__map_find_cost_factor** ()
- __cost_factor & **__gnu_profile::__get__map_insert_cost_factor** ()
- __cost_factor & **__gnu_profile::__get__map_iterate_cost_factor** ()
- __cost_factor & **__gnu_profile::__get__umap_erase_cost_factor** ()
- __cost_factor & **__gnu_profile::__get__umap_find_cost_factor** ()
- __cost_factor & **__gnu_profile::__get__umap_insert_cost_factor** ()
- __cost_factor & **__gnu_profile::__get__umap_iterate_cost_factor** ()
- __cost_factor & **__gnu_profile::__get__vector_iterate_cost_factor** ()
- __cost_factor & **__gnu_profile::__get__vector_resize_cost_factor** ()
- __cost_factor & **__gnu_profile::__get__vector_shift_cost_factor** ()
- __trace_hash_func *& **__gnu_profile::__get__S_hash_func** ()
- __trace_hashtable_size *& **__gnu_profile::__get__S_hashtable_size** ()
- __trace_list_to_slist *& **__gnu_profile::__get__S_list_to_slist** ()
- __trace_list_to_vector *& **__gnu_profile::__get__S_list_to_vector** ()
- __trace_map2umap *& **__gnu_profile::__get__S_map2umap** ()
- size_t & **__gnu_profile::__get__S_max_mem** ()
- size_t & **__gnu_profile::__get__S_max_stack_depth** ()
- size_t & **__gnu_profile::__get__S_max_warn_count** ()
- const char *& **__gnu_profile::__get__S_trace_file_name** ()
- __trace_vector_size *& **__gnu_profile::__get__S_vector_size** ()
- __trace_vector_to_list *& **__gnu_profile::__get__S_vector_to_list** ()
- void **__gnu_profile::__lock** (__mutex_t &__m)
- int **__gnu_profile::__log_magnitude** (float f)
- size_t **__gnu_profile::__max** (size_t __a, size_t __b)
- size_t **__gnu_profile::__max_mem** ()
- size_t **__gnu_profile::__min** (size_t __a, size_t __b)
- FILE * **__gnu_profile::__open_output_file** (const char *extension)
- bool __gnu_profile::__profcxx_init (void)
- void **__gnu_profile::__profcxx_init_unconditional** ()
- void **__gnu_profile::__read_cost_factors** ()
- void __gnu_profile::__report (void)
- void **__gnu_profile::__set_cost_factors** ()
- void **__gnu_profile::__set_max_mem** ()
- void **__gnu_profile::__set_max_stack_trace_depth** ()
- void **__gnu_profile::__set_max_warn_count** ()
- void **__gnu_profile::__set_trace_path** ()
- size_t **__gnu_profile::__stack_max_depth** ()
- void **__gnu_profile::__trace_hash_func_init** ()
- void **__gnu_profile::__trace_hash_func_report** (FILE *__f, __warning_-vector_t &__warnings)
- void **__gnu_profile::__trace_hashtable_size_init** ()

- void **__gnu_profile::__trace_hashtable_size_report** (FILE *__f, __warning_vector_t &__warnings)
- void **__gnu_profile::__trace_list_to_slist_init** ()
- void **__gnu_profile::__trace_list_to_slist_report** (FILE *__f, __warning_vector_t &__warnings)
- void **__gnu_profile::__trace_list_to_vector_init** ()
- void **__gnu_profile::__trace_list_to_vector_report** (FILE *__f, __warning_vector_t &__warnings)
- void **__gnu_profile::__trace_map_to_unordered_map_init** ()
- void **__gnu_profile::__trace_map_to_unordered_map_report** (FILE *__f, __warning_vector_t &__warnings)
- void **__gnu_profile::__trace_vector_size_init** ()
- void **__gnu_profile::__trace_vector_size_report** (FILE *, __warning_vector_t &)
- void **__gnu_profile::__trace_vector_to_list_init** ()
- void **__gnu_profile::__trace_vector_to_list_report** (FILE *, __warning_vector_t &)
- void **__gnu_profile::__unlock** (__mutex_t &__m)
- void **__gnu_profile::__write_cost_factors** ()

6.244.1 Detailed Description

Diagnostics for container sizes. Data structures to represent profiling traces.

Definition in file profiler_trace.h.

6.245 profiler_vector_size.h File Reference

Collection of vector size traces.

Classes

- class __gnu_profile::__trace_vector_size

  Hashtable size instrumentation trace producer.

Namespaces

- namespace __gnu_profile

Defines

- #define **_GLIBCXX_PROFILE_PROFILER_VECTOR_SIZE_H**

Functions

- void **__gnu_profile::__trace_vector_size_construct** (const void *, size_t)
- void **__gnu_profile::__trace_vector_size_destruct** (const void *, size_t, size_t)
- void **__gnu_profile::__trace_vector_size_init** ()
- void **__gnu_profile::__trace_vector_size_report** (FILE *, __warning_vector_t &)
- void **__gnu_profile::__trace_vector_size_resize** (const void *, size_t, size_t)

6.245.1 Detailed Description

Collection of vector size traces.

Definition in file profiler_vector_size.h.

6.246 profiler_vector_to_list.h File Reference

diagnostics for vector to list.

Classes

- class __gnu_profile::__trace_vector_to_list

  Vector-to-list instrumentation producer.

- class __gnu_profile::__vector2list_info

  A vector-to-list instrumentation line in the object table.

- class __gnu_profile::__vector2list_stack_info

  A vector-to-list instrumentation line in the stack table.

Namespaces

- namespace __gnu_profile

Defines

- #define **_GLIBCXX_PROFILE_PROFILER_VECTOR_TO_LIST_H**

Functions

- void **__gnu_profile::__trace_vector_to_list_construct** (const void *)
- void **__gnu_profile::__trace_vector_to_list_destruct** (const void *)
- void **__gnu_profile::__trace_vector_to_list_find** (const void *, size_t)
- void **__gnu_profile::__trace_vector_to_list_init** ()
- void **__gnu_profile::__trace_vector_to_list_insert** (const void *, size_t, size_t)
- void **__gnu_profile::__trace_vector_to_list_invalid_operator** (const void *)
- void **__gnu_profile::__trace_vector_to_list_iterate** (const void *, size_t)
- void **__gnu_profile::__trace_vector_to_list_report** (FILE *, __warning_vector_t &)
- void **__gnu_profile::__trace_vector_to_list_resize** (const void *, size_t, size_t)

6.246.1 Detailed Description

diagnostics for vector to list.

Definition in file profiler_vector_to_list.h.

6.247 queue File Reference

Defines

- #define **_GLIBCXX_QUEUE**

6.247.1 Detailed Description

This is a Standard C++ Library header.

Definition in file queue.

6.248 queue.h File Reference

Lock-free double-ended queue. This file is a GNU parallel extension to the Standard C++ Library.

Classes

- class __gnu_parallel::_RestrictedBoundedConcurrentQueue< _Tp >

  Double-ended queue of bounded size, allowing lock-free atomic access. push_front() and pop_front() must not be called concurrently to each other, while pop_back() can be called concurrently at all times. `empty()`, `size()`, and `top()` are intentionally not provided. Calling them would not make sense in a concurrent setting.

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_QUEUE_H**
- #define _GLIBCXX_VOLATILE

6.248.1 Detailed Description

Lock-free double-ended queue. This file is a GNU parallel extension to the Standard C++ Library.

Definition in file queue.h.

6.248.2 Define Documentation

6.248.2.1 #define _GLIBCXX_VOLATILE

Decide whether to declare certain variable volatile in this file.

Definition at line 40 of file queue.h.

6.249 quicksort.h File Reference

Implementation of a unbalanced parallel quicksort (in-place). This file is a GNU parallel extension to the Standard C++ Library.

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_QUICKSORT_H**

Functions

- template<typename _RAIter , typename _Compare >
  void __gnu_parallel::__parallel_sort_qs (_RAIter __begin, _RAIter __end, _Compare __comp, _ThreadIndex __num_threads)
- template<typename _RAIter , typename _Compare >
  void __gnu_parallel::__parallel_sort_qs_conquer (_RAIter __begin, _RAIter __end, _Compare __comp, _ThreadIndex __num_threads)
- template<typename _RAIter , typename _Compare >
  std::iterator_traits< _RAIter >::difference_type __gnu_parallel::__parallel_sort_qs_divide (_RAIter __begin, _RAIter __end, _Compare __comp, typename std::iterator_traits< _RAIter >::difference_type __pivot_rank, typename std::iterator_traits< _RAIter >::difference_type __num_samples, _ThreadIndex __num_threads)

6.249.1 Detailed Description

Implementation of a unbalanced parallel quicksort (in-place). This file is a GNU parallel extension to the Standard C++ Library.

Definition in file quicksort.h.

6.250 random File Reference

Defines

- #define **_GLIBCXX_RANDOM**

6.250.1 Detailed Description

This is a Standard C++ Library header.

Definition in file random.

6.251 random.h File Reference

Classes

- class std::bernoulli_distribution

  A Bernoulli random number distribution.

- struct std::bernoulli_distribution::param_type
- class std::binomial_distribution< _IntType >

  A discrete binomial random number distribution.

- struct std::binomial_distribution< _IntType >::param_type
- class std::cauchy_distribution< _RealType >

  A cauchy_distribution random number distribution.

- struct std::cauchy_distribution< _RealType >::param_type
- class std::chi_squared_distribution< _RealType >

  A chi_squared_distribution random number distribution.

- struct std::chi_squared_distribution< _RealType >::param_type
- class std::discard_block_engine< _RandomNumberEngine, __p, __r >
- class std::discrete_distribution< _IntType >

  A discrete_distribution random number distribution.

- struct std::discrete_distribution< _IntType >::param_type
- class std::exponential_distribution< _RealType >

  An exponential continuous distribution for random numbers.

- struct std::exponential_distribution< _RealType >::param_type
- class std::extreme_value_distribution< _RealType >

  A extreme_value_distribution random number distribution.

- struct std::extreme_value_distribution< _RealType >::param_type
- class std::fisher_f_distribution< _RealType >

  A fisher_f_distribution random number distribution.

- struct std::fisher_f_distribution< _RealType >::param_type
- class std::gamma_distribution< _RealType >

  A gamma continuous distribution for random numbers.

- struct std::gamma_distribution< _RealType >::param_type
- class std::geometric_distribution< _IntType >

A discrete geometric random number distribution.

- struct std::geometric_distribution< _IntType >::param_type
- class std::independent_bits_engine< _RandomNumberEngine, __w, _UIntType >
- class std::linear_congruential_engine< _UIntType, __a, __c, __m >

  A model of a linear congruential random number generator.

- class std::lognormal_distribution< _RealType >

  A lognormal_distribution random number distribution.

- struct std::lognormal_distribution< _RealType >::param_type
- class std::negative_binomial_distribution< _IntType >

  A negative_binomial_distribution random number distribution.

- struct std::negative_binomial_distribution< _IntType >::param_type
- class std::normal_distribution< _RealType >

  A normal continuous distribution for random numbers.

- struct std::normal_distribution< _RealType >::param_type
- class std::piecewise_constant_distribution< _RealType >

  A piecewise_constant_distribution random number distribution.

- struct std::piecewise_constant_distribution< _RealType >::param_type
- class std::piecewise_linear_distribution< _RealType >

  A piecewise_linear_distribution random number distribution.

- struct std::piecewise_linear_distribution< _RealType >::param_type
- class std::poisson_distribution< _IntType >

  A discrete Poisson random number distribution.

- struct std::poisson_distribution< _IntType >::param_type
- class std::random_device
- class std::seed_seq

  The seed_seq class generates sequences of seeds for random number generators.

- class std::shuffle_order_engine< _RandomNumberEngine, __k >

  Produces random numbers by combining random numbers from some base engine to produce random numbers with a specifies number of bits __w.

- class std::student_t_distribution< _RealType >

  A student_t_distribution random number distribution.

- struct std::student_t_distribution< _RealType >::param_type
- class std::uniform_int_distribution< _IntType >

  Uniform discrete distribution for random numbers. A discrete random distribution on the range $[min, max]$ with equal probability throughout the range.

- struct std::uniform_int_distribution< _IntType >::param_type
- class std::uniform_real_distribution< _RealType >

  Uniform continuous distribution for random numbers.

- struct std::uniform_real_distribution< _RealType >::param_type
- class std::weibull_distribution< _RealType >

  A weibull_distribution random number distribution.

- struct std::weibull_distribution< _RealType >::param_type

Namespaces

- namespace std
- namespace std::__detail

Typedefs

- typedef minstd_rand0 **std::default_random_engine**
- typedef shuffle_order_engine< minstd_rand0, 256 > **std::knuth_b**
- typedef linear_congruential_engine< uint_fast32_t, 48271UL, 0UL, 2147483647UL > std::minstd_rand
- typedef linear_congruential_engine< uint_fast32_t, 16807UL, 0UL, 2147483647UL > std::minstd_rand0
- typedef mersenne_twister_engine< uint_fast32_t, 32, 624, 397, 31, 0x9908b0dfUL, 11, 0xffffffffUL, 7, 0x9d2c5680UL, 15, 0xefc60000UL, 18, 1812433253UL > std::mt19937
- typedef mersenne_twister_engine< uint_fast64_t, 64, 312, 156, 31, 0xb5026f5aa96619e9ULL, 29, 0x5555555555555555ULL, 17, 0x71d67fffeda60000ULL, 37, 0xfff7eee000000000ULL, 43, 6364136223846793005ULL > std::mt19937_64
- typedef discard_block_engine< ranlux24_base, 223, 23 > **std::ranlux24**
- typedef subtract_with_carry_engine< uint_fast32_t, 24, 10, 24 > **std::ranlux24_base**
- typedef discard_block_engine< ranlux48_base, 389, 11 > **std::ranlux48**
- typedef subtract_with_carry_engine< uint_fast64_t, 48, 5, 12 > **std::ranlux48_base**

Functions

- template<typename _RealType , size_t __bits, typename _UniformRandomNumberGenerator > _RealType std::generate_canonical (_UniformRandomNumberGenerator &__g)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > &, const std::extreme_value_distribution< _RealType > &)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > &, const std::weibull_distribution< _RealType > &)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > &, const std::exponential_distribution< _RealType > &)
- template<typename _IntType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > &, const std::geometric_distribution< _IntType > &)
- template<typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > &, const std::bernoulli_distribution &)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > &, const std::cauchy_distribution< _RealType > &)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > &, const std::uniform_real_distribution< _RealType > &)
- template<typename _IntType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > &, const std::uniform_int_distribution< _IntType > &)
- template<typename _RandomNumberEngine , size_t __w, typename _UIntType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > &__os, const std::independent_bits_engine< _RandomNumberEngine, __w, _UIntType > &__x)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > &, std::extreme_value_distribution< _RealType > &)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > &, std::weibull_distribution< _RealType > &)

- template<typename _RealType , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > &, std::exponential_distribution< _RealType > &)
- template<typename _IntType , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > &, std::geometric_distribution< _IntType > &)
- template<typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > &__is, std::bernoulli_distribution &__x)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > &, std::cauchy_distribution< _RealType > &)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > &, std::uniform_real_distribution< _RealType > &)
- template<typename _IntType , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > &, std::uniform_int_distribution< _IntType > &)

6.251.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file random.h.

6.252 random.tcc File Reference

Namespaces

- namespace std
- namespace std::__detail

Functions

- template<typename _RealType , size_t __bits, typename _UniformRandomNumberGenerator > _RealType std::generate_canonical (_UniformRandomNumberGenerator &__g)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **std::operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const piecewise_linear_distribution< _RealType > &__x)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **std::operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const piecewise_constant_distribution< _RealType > &__x)
- template<typename _IntType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **std::operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const discrete_distribution< _IntType > &__x)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > &, const std::extreme_value_distribution< _RealType > &)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > &, const std::weibull_distribution< _RealType > &)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **std::operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const gamma_distribution< _RealType > &__x)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **std::operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const student_t_distribution< _RealType > &__x)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **std::operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const fisher_f_distribution< _RealType > &__x)

- template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > &, const std::cauchy_distribution< _RealType > &)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **std::operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const chi_squared_distribution< _RealType > &__x)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **std::operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const lognormal_distribution< _RealType > &__x)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **std::operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const normal_distribution< _RealType > &__x)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > &, const std::exponential_distribution< _RealType > &)
- template<typename _IntType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **std::operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const binomial_distribution< _IntType > &__x)
- template<typename _IntType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **std::operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const poisson_distribution< _IntType > &__x)
- template<typename _IntType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **std::operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const negative_binomial_distribution< _IntType > &__x)
- template<typename _IntType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > &, const std::geometric_distribution< _IntType > &)
- template<typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > &, const std::bernoulli_distribution &)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_ostream< _CharT, _Traits > &, const std::uniform_real_distribution< _RealType > &)
- template<typename _IntType , typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & std::operator<< (std::basic_

ostream< _CharT, _Traits > &, const std::uniform_int_distribution< _IntType > &)

- template<typename _RandomNumberEngine , size_t __k, typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **std::operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const shuffle_order_engine< _RandomNumberEngine, __k > &__x)
- template<typename _RandomNumberEngine , size_t __p, size_t __r, typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **std::operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const discard_block_engine< _RandomNumberEngine, __p, __r > &__x)
- template<typename _UIntType , size_t __w, size_t __s, size_t __r, typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **std::operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const subtract_with_carry_engine< _UIntType, __w, __s, __r > &__x)
- template<typename _UIntType , size_t __w, size_t __n, size_t __m, size_t __r, _UIntType __a, size_t __u, _UIntType __d, size_t __s, _UIntType __b, size_t __t, _UIntType __c, size_t __l, _UIntType __f, typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **std::operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const mersenne_twister_engine< _UIntType, __w, __n, __m, __r, __a, __u, __d, __s, __b, __t, __c, __l, __f > &__x)
- template<typename _UIntType , _UIntType __a, _UIntType __c, _UIntType __m, typename _CharT , typename _Traits > std::basic_ostream< _CharT, _Traits > & **std::operator**<< (std::basic_ostream< _CharT, _Traits > &__os, const linear_congruential_engine< _UIntType, __a, __c, __m > &__lcr)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & **std::operator**>> (std::basic_istream< _CharT, _Traits > &__is, piecewise_linear_distribution< _RealType > &__x)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & **std::operator**>> (std::basic_istream< _CharT, _Traits > &__is, piecewise_constant_distribution< _RealType > &__x)
- template<typename _IntType , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & **std::operator**>> (std::basic_istream< _CharT, _Traits > &__is, discrete_distribution< _IntType > &__x)

- template<typename _RealType , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > &, std::extreme_value_distribution< _RealType > &)
- template<typename _RealType , typename _CharT , typename _Traits > std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > &, std::weibull_distribution< _RealType > &)

- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **std::operator>>** (std::basic_istream< _CharT, _Traits > &__is, gamma_distribution< _RealType > &__x)

- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **std::operator>>** (std::basic_istream< _CharT, _Traits > &__is, student_t_distribution< _RealType > &__x)

- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **std::operator>>** (std::basic_istream< _CharT, _Traits > &__is, fisher_f_distribution< _RealType > &__x)

- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > &, std::cauchy_distribution< _RealType > &)
- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **std::operator>>** (std::basic_istream< _CharT, _Traits > &__is, chi_squared_distribution< _RealType > &__x)
- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **std::operator>>** (std::basic_istream< _CharT, _Traits > &__is, lognormal_distribution< _RealType > &__x)
- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **std::operator>>** (std::basic_istream< _CharT, _Traits > &__is, normal_distribution< _RealType > &__x)

- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > &, std::exponential_distribution< _RealType > &)
- template<typename _IntType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **std::operator>>** (std::basic_istream< _CharT, _Traits > &__is, binomial_distribution< _IntType > &__x)

- template<typename _IntType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **std::operator>>** (std::basic_istream< _CharT, _Traits > &__is, poisson_distribution< _IntType > &__x)

- template<typename _IntType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **std::operator>>** (std::basic_istream< _CharT, _Traits > &__is, negative_binomial_distribution< _IntType > &__x)
- template<typename _IntType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > &, std::geometric_distribution< _IntType > &)

- template<typename _RealType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > &, std::uniform_real_distribution< _RealType > &)
- template<typename _IntType , typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & std::operator>> (std::basic_istream< _CharT, _Traits > &, std::uniform_int_distribution< _IntType > &)
- template<typename _RandomNumberEngine , size_t __k, typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **std::operator**>> (std::basic_istream< _CharT, _Traits > &__is, shuffle_order_engine< _RandomNumberEngine, __k > &__x)
- template<typename _RandomNumberEngine , size_t __p, size_t __r, typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **std::operator**>> (std::basic_istream< _CharT, _Traits > &__is, discard_block_engine< _RandomNumberEngine, __p, __r > &__x)
- template<typename _UIntType , size_t __w, size_t __s, size_t __r, typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **std::operator**>> (std::basic_istream< _CharT, _Traits > &__is, subtract_with_carry_engine< _UIntType, __w, __s, __r > &__x)
- template<typename _UIntType , size_t __w, size_t __n, size_t __m, size_t __r, _UIntType __a, size_t __u, _UIntType __d, size_t __s, _UIntType __b, size_t __t, _UIntType __c, size_t __l, _UIntType __f, typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **std::operator**>> (std::basic_istream< _CharT, _Traits > &__is, mersenne_twister_engine< _UIntType, __w, __n, __m, __r, __a, __u, __d, __s, __b, __t, __c, __l, __f > &__x)
- template<typename _UIntType , _UIntType __a, _UIntType __c, _UIntType __m, typename _CharT , typename _Traits >
  std::basic_istream< _CharT, _Traits > & **std::operator**>> (std::basic_istream< _CharT, _Traits > &__is, linear_congruential_engine< _UIntType, __a, __c, __m > &__lcr)

6.252.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file random.tcc.

6.253 random_number.h File Reference

Random number generator based on the Mersenne twister. This file is a GNU parallel extension to the Standard C++ Library.

Classes

- class __gnu_parallel::_RandomNumber

  Random number generator, based on the Mersenne twister.

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_RANDOM_NUMBER_H**

6.253.1 Detailed Description

Random number generator based on the Mersenne twister. This file is a GNU parallel extension to the Standard C++ Library.

Definition in file random_number.h.

6.254 random_shuffle.h File Reference

Parallel implementation of std::random_shuffle(). This file is a GNU parallel extension to the Standard C++ Library.

Classes

- struct __gnu_parallel::_DRandomShufflingGlobalData< _RAIter >

  Data known to every thread participating in __gnu_parallel::__parallel_random_shuffle().

- struct __gnu_parallel::_DRSSorterPU< _RAIter, _RandomNumberGenerator >

  Local data for a thread participating in __gnu_parallel::__parallel_random_shuffle().

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_RANDOM_SHUFFLE_H**

Typedefs

- typedef unsigned short __gnu_parallel::_BinIndex

Functions

- template<typename _RAIter , typename _RandomNumberGenerator >
  void __gnu_parallel::__parallel_random_shuffle (_RAIter __begin, _RAIter __end, _RandomNumberGenerator __rng=_RandomNumber())
- template<typename _RAIter , typename _RandomNumberGenerator >
  void __gnu_parallel::__parallel_random_shuffle_drs (_RAIter __begin, _RAIter __end, typename std::iterator_traits< _RAIter >::difference_type __n, _ThreadIndex __num_threads, _RandomNumberGenerator &__rng)
- template<typename _RAIter , typename _RandomNumberGenerator >
  void __gnu_parallel::__parallel_random_shuffle_drs_pu (_DRSSorterPU< _RAIter, _RandomNumberGenerator > *__pus)

- template<typename _RandomNumberGenerator >
  int __gnu_parallel::__random_number_pow2 (int __logp, _-
  RandomNumberGenerator &__rng)
- template<typename _Tp >
  _Tp __gnu_parallel::__round_up_to_pow2 (_Tp __x)
- template<typename _RAIter , typename _RandomNumberGenerator >
  void __gnu_parallel::__sequential_random_shuffle (_RAIter __begin, _RAIter
  __end, _RandomNumberGenerator &__rng)

6.254.1 Detailed Description

Parallel implementation of std::random_shuffle(). This file is a GNU parallel extension to the Standard C++ Library.

Definition in file random_shuffle.h.

6.255 ratio File Reference

Classes

- struct std::ratio< _Num, _Den >
  Provides compile-time rational arithmetic.
- struct std::ratio_add< _R1, _R2 >
  ratio_add
- struct std::ratio_divide< _R1, _R2 >
  ratio_divide
- struct std::ratio_equal< _R1, _R2 >
  ratio_equal
- struct std::ratio_greater< _R1, _R2 >
  ratio_greater
- struct std::ratio_greater_equal< _R1, _R2 >
  ratio_greater_equal
- struct std::ratio_less< _R1, _R2 >
  ratio_less
- struct std::ratio_less_equal< _R1, _R2 >
  ratio_less_equal
- struct std::ratio_multiply< _R1, _R2 >
  ratio_multiply
- struct std::ratio_not_equal< _R1, _R2 >
  ratio_not_equal
- struct std::ratio_subtract< _R1, _R2 >
  ratio_subtract

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_RATIO**

Typedefs

- typedef ratio< 1, 1000000000000000000 > **std::atto**
- typedef ratio< 1, 100 > **std::centi**
- typedef ratio< 10, 1 > **std::deca**
- typedef ratio< 1, 10 > **std::deci**
- typedef ratio< 1000000000000000000, 1 > **std::exa**
- typedef ratio< 1, 1000000000000000 > **std::femto**
- typedef ratio< 1000000000, 1 > **std::giga**
- typedef ratio< 100, 1 > **std::hecto**
- typedef ratio< 1000, 1 > **std::kilo**
- typedef ratio< 1000000, 1 > **std::mega**
- typedef ratio< 1, 1000000 > **std::micro**
- typedef ratio< 1, 1000 > **std::milli**
- typedef ratio< 1, 1000000000 > **std::nano**
- typedef ratio< 1000000000000000, 1 > **std::peta**
- typedef ratio< 1, 1000000000000 > **std::pico**
- typedef ratio< 1000000000000, 1 > **std::tera**

6.255.1 Detailed Description

This is a Standard C++ Library header.

Definition in file ratio.

6.256 rb_tree File Reference

Classes

- struct __gnu_cxx::rb_tree< _Key, _Value, _KeyOfValue, _Compare, _Alloc >

Namespaces

- namespace __gnu_cxx

Defines

- #define **_RB_TREE**

6.256.1 Detailed Description

This file is a GNU extension to the Standard C++ Library (possibly containing extensions from the HP/SGI STL subset).

Definition in file rb_tree.

6.257 rc_string_base.h File Reference

Classes

- class __gnu_cxx::__rc_string_base< _CharT, _Traits, _Alloc >

Namespaces

- namespace __gnu_cxx

Defines

- #define **_RC_STRING_BASE_H**

6.257.1 Detailed Description

This file is a GNU extension to the Standard C++ Library. This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file rc_string_base.h.

6.258 regex File Reference

Defines

- #define **_GLIBCXX_REGEX**

6.258.1 Detailed Description

This is a Standard C++ Library header.

Definition in file regex.

6.259 regex File Reference

The common implementation file for tr1 and std regular expressions.

Classes

- class std::basic_regex< _Ch_type, _Rx_traits >
- class std::match_results< _Bi_iter, _Allocator >

  The results of a match or search operation.

- class std::regex_error

  A regular expression exception class.
  The regular expression library throws objects of this class on error.

- class std::regex_iterator< _Bi_iter, _Ch_type, _Rx_traits >
- class std::regex_token_iterator< _Bi_iter, _Ch_type, _Rx_traits >
- struct std::regex_traits< _Ch_type >

  Describes aspects of a regular expression.

- class std::sub_match< _BiIter >

Namespaces

- namespace std
- namespace std::regex_constants

Typedefs

- typedef match_results< const char * > **std::cmatch**
- typedef regex_iterator< const char * > **std::cregex_iterator**
- typedef regex_token_iterator< const char * > std::cregex_token_iterator
- typedef sub_match< const char * > std::csub_match
- typedef basic_regex< char > std::regex
- typedef match_results< string::const_iterator > **std::smatch**
- typedef regex_iterator< string::const_iterator > **std::sregex_iterator**
- typedef regex_token_iterator< string::const_iterator > std::sregex_token_iterator
- typedef sub_match< string::const_iterator > std::ssub_match
- typedef match_results< const wchar_t * > **std::wcmatch**
- typedef regex_iterator< const wchar_t * > **std::wcregex_iterator**
- typedef regex_token_iterator< const wchar_t * > std::wcregex_token_iterator

- typedef sub_match< const wchar_t * > std::wcsub_match
- typedef basic_regex< wchar_t > std::wregex
- typedef match_results< wstring::const_iterator > **std::wsmatch**
- typedef regex_iterator< wstring::const_iterator > **std::wsregex_iterator**
- typedef regex_token_iterator< wstring::const_iterator > std::wsregex_token_iterator
- typedef sub_match< wstring::const_iterator > std::wssub_match

Functions

- template<typename _Bi_iter , class _Allocator >
  bool std::operator!= (const match_results< _Bi_iter, _Allocator > &__m1, const match_results< _Bi_iter, _Allocator > &__m2)
- template<typename _Bi_iter >
  bool std::operator!= (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const &__rhs)
- template<typename _Bi_iter >
  bool std::operator!= (typename iterator_traits< _Bi_iter >::value_type const &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter >
  bool std::operator!= (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const *__rhs)
- template<typename _Bi_iter >
  bool std::operator!= (typename iterator_traits< _Bi_iter >::value_type const *__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc >
  bool std::operator!= (const sub_match< _Bi_iter > &__lhs, const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__rhs)
- template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc >
  bool std::operator!= (const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _BiIter >
  bool std::operator!= (const sub_match< _BiIter > &__lhs, const sub_match< _BiIter > &__rhs)
- template<typename _Bi_iter >
  bool std::operator< (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const &__rhs)
- template<typename _Bi_iter >
  bool std::operator< (typename iterator_traits< _Bi_iter >::value_type const &__lhs, const sub_match< _Bi_iter > &__rhs)

- template<typename _Bi_iter >
  bool std::operator< (const sub_match< _Bi_iter > &__lhs, typename iterator_-traits< _Bi_iter >::value_type const *__rhs)
- template<typename _Bi_iter >
  bool std::operator< (typename iterator_traits< _Bi_iter >::value_type const *_-_lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter , class _Ch_traits , class _Ch_alloc >
  bool std::operator< (const sub_match< _Bi_iter > &__lhs, const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &_-_rhs)
- template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc >
  bool std::operator< (const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _BiIter >
  bool std::operator< (const sub_match< _BiIter > &__lhs, const sub_match< _BiIter > &__rhs)
- template<typename _Ch_type , typename _Ch_traits , typename _Bi_iter >
  basic_ostream< _Ch_type, _Ch_traits > & std::operator<< (basic_ostream< _Ch_type, _Ch_traits > &__os, const sub_match< _Bi_iter > &__m)
- template<typename _Bi_iter >
  bool std::operator<= (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const &__rhs)
- template<typename _Bi_iter >
  bool std::operator<= (typename iterator_traits< _Bi_iter >::value_type const &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter >
  bool std::operator<= (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const *__rhs)
- template<typename _Bi_iter >
  bool std::operator<= (typename iterator_traits< _Bi_iter >::value_type const *__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter , class _Ch_traits , class _Ch_alloc >
  bool std::operator<= (const sub_match< _Bi_iter > &__lhs, const basic_-string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_-alloc > &__rhs)
- template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc >
  bool std::operator<= (const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _BiIter >
  bool std::operator<= (const sub_match< _BiIter > &__lhs, const sub_match< _BiIter > &__rhs)
- template<typename _Bi_iter , typename _Allocator >
  bool std::operator== (const match_results< _Bi_iter, _Allocator > &__m1, const match_results< _Bi_iter, _Allocator > &__m2)

- template<typename _Bi_iter >
  bool std::operator== (const sub_match< _Bi_iter > &__lhs, typename iterator_-traits< _Bi_iter >::value_type const &__rhs)
- template<typename _Bi_iter >
  bool std::operator== (typename iterator_traits< _Bi_iter >::value_type const &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter >
  bool std::operator== (const sub_match< _Bi_iter > &__lhs, typename iterator_-traits< _Bi_iter >::value_type const *__rhs)
- template<typename _Bi_iter >
  bool std::operator== (typename iterator_traits< _Bi_iter >::value_type const *__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc >
  bool std::operator== (const sub_match< _Bi_iter > &__lhs, const basic_-string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_-alloc > &__rhs)
- template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc >
  bool std::operator== (const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _BiIter >
  bool std::operator== (const sub_match< _BiIter > &__lhs, const sub_match< _BiIter > &__rhs)
- template<typename _Bi_iter >
  bool std::operator> (const sub_match< _Bi_iter > &__lhs, typename iterator_-traits< _Bi_iter >::value_type const &__rhs)
- template<typename _Bi_iter >
  bool std::operator> (typename iterator_traits< _Bi_iter >::value_type const &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter >
  bool std::operator> (const sub_match< _Bi_iter > &__lhs, typename iterator_-traits< _Bi_iter >::value_type const *__rhs)
- template<typename _Bi_iter >
  bool std::operator> (typename iterator_traits< _Bi_iter >::value_type const *_-_lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter , class _Ch_traits , class _Ch_alloc >
  bool std::operator> (const sub_match< _Bi_iter > &__lhs, const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &_-_rhs)
- template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc >
  bool std::operator> (const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _BiIter >
  bool std::operator> (const sub_match< _BiIter > &__lhs, const sub_match< _BiIter > &__rhs)

- template<typename _Bi_iter >
  bool std::operator>= (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const &__rhs)
- template<typename _Bi_iter >
  bool std::operator>= (typename iterator_traits< _Bi_iter >::value_type const &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter >
  bool std::operator>= (const sub_match< _Bi_iter > &__lhs, typename iterator_traits< _Bi_iter >::value_type const *__rhs)
- template<typename _Bi_iter >
  bool std::operator>= (typename iterator_traits< _Bi_iter >::value_type const *__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _Bi_iter , class _Ch_traits , class _Ch_alloc >
  bool std::operator>= (const sub_match< _Bi_iter > &__lhs, const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__rhs)
- template<typename _Bi_iter , typename _Ch_traits , typename _Ch_alloc >
  bool std::operator>= (const basic_string< typename iterator_traits< _Bi_iter >::value_type, _Ch_traits, _Ch_alloc > &__lhs, const sub_match< _Bi_iter > &__rhs)
- template<typename _BiIter >
  bool std::operator>= (const sub_match< _BiIter > &__lhs, const sub_match< _BiIter > &__rhs)
- template<typename _Bi_iter , typename _Allocator >
  void std::swap (match_results< _Bi_iter, _Allocator > &__lhs, match_results< _Bi_iter, _Allocator > &__rhs)
- template<typename _Ch_type , typename _Rx_traits >
  void std::swap (basic_regex< _Ch_type, _Rx_traits > &__lhs, basic_regex< _Ch_type, _Rx_traits > &__rhs)

Matching, Searching, and Replacing

- template<typename _Ch_traits , typename _Str_allocator , typename _Ch_type , typename _Rx_traits >
  bool std::regex_match (const basic_string< _Ch_type, _Ch_traits, _Str_allocator > &__s, const basic_regex< _Ch_type, _Rx_traits > &__re, regex_constants::match_flag_type __flags=regex_constants::match_default)
- template<typename _Ch_type , class _Rx_traits >
  bool std::regex_match (const _Ch_type *__s, const basic_regex< _Ch_type, _Rx_traits > &__re, regex_constants::match_flag_type __f=regex_constants::match_default)
- template<typename _Ch_traits , typename _Ch_alloc , typename _Allocator , typename _Ch_type , typename _Rx_traits >
  bool std::regex_match (const basic_string< _Ch_type, _Ch_traits, _Ch_alloc

> &__s, match_results< typename basic_string< _Ch_type, _Ch_traits, _Ch_alloc >::const_iterator, _Allocator > &__m, const basic_regex< _Ch_type, _Rx_traits > &__re, regex_constants::match_flag_type __flags=regex_constants::match_default)

- template<typename _Ch_type , typename _Allocator , typename _Rx_traits >
  bool std::regex_match (const _Ch_type *__s, match_results< const _Ch_type *, _Allocator > &__m, const basic_regex< _Ch_type, _Rx_traits > &__re, regex_constants::match_flag_type __f=regex_constants::match_default)
- template<typename _Bi_iter , typename _Ch_type , typename _Rx_traits >
  bool std::regex_match (_Bi_iter __first, _Bi_iter __last, const basic_regex< _Ch_type, _Rx_traits > &__re, regex_constants::match_flag_type __flags=regex_constants::match_default)
- template<typename _Bi_iter , typename _Allocator , typename _Ch_type , typename _Rx_traits >
  bool std::regex_match (_Bi_iter __first, _Bi_iter __last, match_results< _Bi_iter, _Allocator > &__m, const basic_regex< _Ch_type, _Rx_traits > &__re, regex_constants::match_flag_type __flags=regex_constants::match_default)
- template<typename _Rx_traits , typename _Ch_type >
  basic_string< _Ch_type > std::regex_replace (const basic_string< _Ch_type > &__s, const basic_regex< _Ch_type, _Rx_traits > &__e, const basic_string< _Ch_type > &__fmt, regex_constants::match_flag_type __flags=regex_constants::match_default)
- template<typename _Out_iter , typename _Bi_iter , typename _Rx_traits , typename _Ch_type >
  _Out_iter std::regex_replace (_Out_iter __out, _Bi_iter __first, _Bi_iter __last, const basic_regex< _Ch_type, _Rx_traits > &__e, const basic_string< _Ch_type > &__fmt, regex_constants::match_flag_type __flags=regex_constants::match_default)
- template<typename _Ch_traits , typename _Ch_alloc , typename _Allocator , typename _Ch_type , typename _Rx_traits >
  bool std::regex_search (const basic_string< _Ch_type, _Ch_traits, _Ch_alloc > &__s, match_results< typename basic_string< _Ch_type, _Ch_traits, _Ch_alloc >::const_iterator, _Allocator > &__m, const basic_regex< _Ch_type, _Rx_traits > &__e, regex_constants::match_flag_type __f=regex_constants::match_default)
- template<typename _Ch_traits , typename _String_allocator , typename _Ch_type , typename _Rx_traits >
  bool std::regex_search (const basic_string< _Ch_type, _Ch_traits, _String_allocator > &__s, const basic_regex< _Ch_type, _Rx_traits > &__e, regex_constants::match_flag_type __flags=regex_constants::match_default)
- template<typename _Ch_type , typename _Rx_traits >
  bool std::regex_search (const _Ch_type *__s, const basic_regex< _Ch_type, _Rx_traits > &__e, regex_constants::match_flag_type __f=regex_constants::match_default)
- template<typename _Ch_type , class _Allocator , class _Rx_traits >
  bool std::regex_search (const _Ch_type *__s, match_results< const _Ch_

type *, _Allocator > &__m, const basic_regex< _Ch_type, _Rx_traits > &_-
_e, regex_constants::match_flag_type __f=regex_constants::match_default)

- template<typename _Bi_iter , typename _Ch_type , typename _Rx_traits >
  bool std::regex_search (_Bi_iter __first, _Bi_iter __last, const basic_-
  regex< _Ch_type, _Rx_traits > &__re, regex_constants::match_flag_type _-
  _flags=regex_constants::match_default)
- template<typename _Bi_iter , typename _Allocator , typename _Ch_type , typename _Rx_traits
  >
  bool std::regex_search (_Bi_iter __first, _Bi_iter __last, match_results< _-
  Bi_iter, _Allocator > &__m, const basic_regex< _Ch_type, _Rx_traits >
  &__re, regex_constants::match_flag_type __flags=regex_constants::match_-
  default)

5.2 Matching Rules

Matching a regular expression against a sequence of characters [first, last) proceeds according to the rules of the grammar specified for the regular expression object, modified according to the effects listed below for any bitmask elements set.

- enum std::regex_constants::__match_flag {

  _S_not_bol, **_S_not_eol**, **_S_not_bow**, **_S_not_eow**,

  _S_any, **_S_not_null**, **_S_continuous**, **_S_prev_avail**,

  _S_sed, **_S_no_copy**, **_S_first_only**, **_S_match_flag_last** }
- typedef std::bitset< _S_match_flag_last > std::regex_constants::match_flag_-
  type
- static const match_flag_type std::regex_constants::format_default
- static const match_flag_type std::regex_constants::format_first_only
- static const match_flag_type std::regex_constants::format_no_copy
- static const match_flag_type std::regex_constants::format_sed
- static const match_flag_type std::regex_constants::match_any
- static const match_flag_type std::regex_constants::match_continuous
- static const match_flag_type std::regex_constants::match_default
- static const match_flag_type std::regex_constants::match_not_bol
- static const match_flag_type std::regex_constants::match_not_bow
- static const match_flag_type std::regex_constants::match_not_eol
- static const match_flag_type std::regex_constants::match_not_eow
- static const match_flag_type std::regex_constants::match_not_null
- static const match_flag_type std::regex_constants::match_prev_avail

5.1 Regular Expression Syntax Options

- enum std::regex_constants::__syntax_option {
  _S_icase, **_S_nosubs**, **_S_optimize**, **_S_collate**,
  _S_ECMAScript, **_S_basic**, **_S_extended**, **_S_awk**,
  _S_grep, **_S_egrep**, **_S_syntax_last** }
- typedef unsigned int std::regex_constants::syntax_option_type
- static const syntax_option_type std::regex_constants::awk
- static const syntax_option_type std::regex_constants::basic
- static const syntax_option_type std::regex_constants::collate
- static const syntax_option_type std::regex_constants::ECMAScript
- static const syntax_option_type std::regex_constants::egrep
- static const syntax_option_type std::regex_constants::extended
- static const syntax_option_type std::regex_constants::grep
- static const syntax_option_type std::regex_constants::icase
- static const syntax_option_type std::regex_constants::nosubs
- static const syntax_option_type std::regex_constants::optimize

5.3 Error Types

- enum std::regex_constants::error_type {
  _S_error_collate, **_S_error_ctype**, **_S_error_escape**, **_S_error_backref**,
  _S_error_brack, **_S_error_paren**, **_S_error_brace**, **_S_error_badbrace**,
  _S_error_range, **_S_error_space**, **_S_error_badrepeat**, **_S_error_-complexity**,
  _S_error_stack, **_S_error_last** }
- static const error_type std::regex_constants::error_backref (_S_error_backref)
- static const error_type std::regex_constants::error_badbrace (_S_error_-badbrace)
- static const error_type std::regex_constants::error_badrepeat (_S_error_-badrepeat)
- static const error_type std::regex_constants::error_brace (_S_error_brace)
- static const error_type std::regex_constants::error_brack (_S_error_brack)
- static const error_type std::regex_constants::error_collate (_S_error_collate)
- static const error_type std::regex_constants::error_complexity (_S_error_-complexity)
- static const error_type std::regex_constants::error_ctype (_S_error_ctype)
- static const error_type std::regex_constants::error_escape (_S_error_escape)
- static const error_type std::regex_constants::error_paren (_S_error_paren)
- static const error_type std::regex_constants::error_range (_S_error_range)
- static const error_type std::regex_constants::error_space (_S_error_space)
- static const error_type std::regex_constants::error_stack (_S_error_stack)

6.259.1 Detailed Description

The common implementation file for tr1 and std regular expressions. This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file tr1_impl/regex.

6.260 rope File Reference

Classes

- class __gnu_cxx::rope< _CharT, _Alloc >

Namespaces

- namespace __gnu_cxx
- namespace __gnu_cxx::__detail
- namespace std
- namespace std::tr1

Defines

- #define **__GC_CONST**
- #define **__ROPE_DEFINE_ALLOC**(_Tp, __name)
- #define **__ROPE_DEFINE_ALLOC**(_Tp, __name)
- #define **__ROPE_DEFINE_ALLOCS**(__a)
- #define **__STATIC_IF_SGI_ALLOC**
- #define **__STL_FREE_STRING**(__s, __l, __a)
- #define **__STL_ROPE_FROM_UNOWNED_CHAR_PTR**(__s, __size, __a)
- #define **_ROPE**

Typedefs

- typedef rope< char > **__gnu_cxx::crope**
- typedef rope< wchar_t > **__gnu_cxx::wrope**

Enumerations

- enum { **_S_max_rope_depth** }
- enum **_Tag** { **_S_leaf**, **_S_concat**, **_S_substringfn**, **_S_function** }

Functions

- crope::reference **__gnu_cxx::__mutable_reference_at** (crope &__c, size_t __i)

- template<typename _ForwardIterator , typename _Tp >
  void **__gnu_cxx::_Destroy_const** (_ForwardIterator __first, _ForwardIterator __last, allocator< _Tp >)

- template<typename _ForwardIterator , typename _Allocator >
  void **__gnu_cxx::_Destroy_const** (_ForwardIterator __first, _ForwardIterator __last, _Allocator __alloc)
- void **__gnu_cxx::_S_cond_store_eos** (wchar_t &__c)
- void **__gnu_cxx::_S_cond_store_eos** (char &__c)
- template<class _CharT >
  void **__gnu_cxx::_S_cond_store_eos** (_CharT &)
- template<class _CharT >
  _CharT **__gnu_cxx::_S_eos** (_CharT *)
- bool **__gnu_cxx::_S_is_basic_char_type** (wchar_t *)
- bool **__gnu_cxx::_S_is_basic_char_type** (char *)
- template<class _CharT >
  bool **__gnu_cxx::_S_is_basic_char_type** (_CharT *)
- bool **__gnu_cxx::_S_is_one_byte_char_type** (char *)
- template<class _CharT >
  bool **__gnu_cxx::_S_is_one_byte_char_type** (_CharT *)
- template<class _CharT , class _Alloc >
  bool **__gnu_cxx::operator!=** (const _Rope_char_ptr_proxy< _CharT, _Alloc > &__x, const _Rope_char_ptr_proxy< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  bool **__gnu_cxx::operator!=** (const rope< _CharT, _Alloc > &__x, const rope< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  bool **__gnu_cxx::operator!=** (const _Rope_iterator< _CharT, _Alloc > &__x, const _Rope_iterator< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  bool **__gnu_cxx::operator!=** (const _Rope_const_iterator< _CharT, _Alloc > &__x, const _Rope_const_iterator< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  rope< _CharT, _Alloc > **__gnu_cxx::operator+** (const rope< _CharT, _Alloc > &__left, _CharT __right)
- template<class _CharT , class _Alloc >
  rope< _CharT, _Alloc > **__gnu_cxx::operator+** (const rope< _CharT, _Alloc > &__left, const _CharT *__right)
- template<class _CharT , class _Alloc >
  rope< _CharT, _Alloc > **__gnu_cxx::operator+** (const rope< _CharT, _Alloc > &__left, const rope< _CharT, _Alloc > &__right)
- template<class _CharT , class _Alloc >
  _Rope_iterator< _CharT, _Alloc > **__gnu_cxx::operator+** (ptrdiff_t __n, const _Rope_iterator< _CharT, _Alloc > &__x)
- template<class _CharT , class _Alloc >
  _Rope_iterator< _CharT, _Alloc > **__gnu_cxx::operator+** (const _Rope_iterator< _CharT, _Alloc > &__x, ptrdiff_t __n)

- template<class _CharT , class _Alloc >
  _Rope_const_iterator< _CharT, _Alloc > **__gnu_cxx::operator+** (ptrdiff_t __n, const _Rope_const_iterator< _CharT, _Alloc > &__x)
- template<class _CharT , class _Alloc >
  _Rope_const_iterator< _CharT, _Alloc > **__gnu_cxx::operator+** (const _Rope_const_iterator< _CharT, _Alloc > &__x, ptrdiff_t __n)
- template<class _CharT , class _Alloc >
  rope< _CharT, _Alloc > & **__gnu_cxx::operator+=** (rope< _CharT, _Alloc > &__left, _CharT __right)
- template<class _CharT , class _Alloc >
  rope< _CharT, _Alloc > & **__gnu_cxx::operator+=** (rope< _CharT, _Alloc > &__left, const _CharT *__right)
- template<class _CharT , class _Alloc >
  rope< _CharT, _Alloc > & **__gnu_cxx::operator+=** (rope< _CharT, _Alloc > &__left, const rope< _CharT, _Alloc > &__right)
- template<class _CharT , class _Alloc >
  ptrdiff_t **__gnu_cxx::operator-** (const _Rope_iterator< _CharT, _Alloc > &__x, const _Rope_iterator< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  _Rope_iterator< _CharT, _Alloc > **__gnu_cxx::operator-** (const _Rope_iterator< _CharT, _Alloc > &__x, ptrdiff_t __n)
- template<class _CharT , class _Alloc >
  ptrdiff_t **__gnu_cxx::operator-** (const _Rope_const_iterator< _CharT, _Alloc > &__x, const _Rope_const_iterator< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  _Rope_const_iterator< _CharT, _Alloc > **__gnu_cxx::operator-** (const _Rope_const_iterator< _CharT, _Alloc > &__x, ptrdiff_t __n)
- template<class _CharT , class _Alloc >
  bool **__gnu_cxx::operator<** (const rope< _CharT, _Alloc > &__left, const rope< _CharT, _Alloc > &__right)
- template<class _CharT , class _Alloc >
  bool **__gnu_cxx::operator<** (const _Rope_iterator< _CharT, _Alloc > &__x, const _Rope_iterator< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  bool **__gnu_cxx::operator<** (const _Rope_const_iterator< _CharT, _Alloc > &__x, const _Rope_const_iterator< _CharT, _Alloc > &__y)
- template<class _CharT , class _Traits , class _Alloc >
  std::basic_ostream< _CharT, _Traits > & **__gnu_cxx::operator<<** (std::basic_ostream< _CharT, _Traits > &__o, const rope< _CharT, _Alloc > &__r)
- template<class _CharT , class _Alloc >
  bool **__gnu_cxx::operator<=** (const rope< _CharT, _Alloc > &__x, const rope< _CharT, _Alloc > &__y)

- template<class _CharT , class _Alloc >
  bool **__gnu_cxx::operator<=** (const _Rope_iterator< _CharT, _Alloc > &__x, const _Rope_iterator< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  bool **__gnu_cxx::operator<=** (const _Rope_const_iterator< _CharT, _Alloc > &__x, const _Rope_const_iterator< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  bool **__gnu_cxx::operator==** (const rope< _CharT, _Alloc > &__left, const rope< _CharT, _Alloc > &__right)
- template<class _CharT , class _Alloc >
  bool **__gnu_cxx::operator==** (const _Rope_iterator< _CharT, _Alloc > &__x, const _Rope_iterator< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  bool **__gnu_cxx::operator==** (const _Rope_const_iterator< _CharT, _Alloc > &__x, const _Rope_const_iterator< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  bool **__gnu_cxx::operator==** (const _Rope_char_ptr_proxy< _CharT, _Alloc > &__x, const _Rope_char_ptr_proxy< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  bool **__gnu_cxx::operator>** (const rope< _CharT, _Alloc > &__x, const rope< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  bool **__gnu_cxx::operator>** (const _Rope_iterator< _CharT, _Alloc > &__x, const _Rope_iterator< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  bool **__gnu_cxx::operator>** (const _Rope_const_iterator< _CharT, _Alloc > &__x, const _Rope_const_iterator< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  bool **__gnu_cxx::operator>=** (const rope< _CharT, _Alloc > &__x, const rope< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  bool **__gnu_cxx::operator>=** (const _Rope_iterator< _CharT, _Alloc > &__x, const _Rope_iterator< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  bool **__gnu_cxx::operator>=** (const _Rope_const_iterator< _CharT, _Alloc > &__x, const _Rope_const_iterator< _CharT, _Alloc > &__y)
- template<class _CharT , class _Alloc >
  void **__gnu_cxx::swap** (rope< _CharT, _Alloc > &__x, rope< _CharT, _Alloc > &__y)
- template<class _CharT , class __Alloc >
  void **__gnu_cxx::swap** (_Rope_char_ref_proxy< _CharT, __Alloc > __a, _Rope_char_ref_proxy< _CharT, __Alloc > __b)

Variables

- rope< _CharT, _Alloc > **__gnu_cxx::identity_element** (_Rope_Concat_fn< _CharT, _Alloc >)

6.260.1 Detailed Description

This file is a GNU extension to the Standard C++ Library (possibly containing extensions from the HP/SGI STL subset).

Definition in file rope.

6.261 ropeimpl.h File Reference

Namespaces

- namespace __gnu_cxx

Functions

- template<class _CharT , class _Traits >
  void **__gnu_cxx::_Rope_fill** (basic_ostream< _CharT, _Traits > &__o, size_t __n)
- bool **__gnu_cxx::_Rope_is_simple** (wchar_t *)
- bool **__gnu_cxx::_Rope_is_simple** (char *)
- template<class _CharT >
  bool **__gnu_cxx::_Rope_is_simple** (_CharT *)
- template<class _Rope_iterator >
  void **__gnu_cxx::_Rope_rotate** (_Rope_iterator __first, _Rope_iterator __middle, _Rope_iterator __last)
- template<class _CharT , class _Traits , class _Alloc >
  std::basic_ostream< _CharT, _Traits > & **__gnu_cxx::operator<<** (std::basic_ostream< _CharT, _Traits > &__o, const rope< _CharT, _Alloc > &__r)
- void **__gnu_cxx::rotate** (_Rope_iterator< char, __STL_DEFAULT_ALLOCATOR(char)> __first, _Rope_iterator< char, __STL_DEFAULT_ALLOCATOR(char)> __middle, _Rope_iterator< char, __STL_DEFAULT_ALLOCATOR(char)> __last)

6.261.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file ropeimpl.h.

6.262 safe_base.h File Reference

Classes

- class __gnu_debug::_Safe_iterator_base
  Basic functionality for a safe iterator.
- class __gnu_debug::_Safe_sequence_base
  Base class that supports tracking of iterators that reference a sequence.

Namespaces

- namespace __gnu_debug

Defines

- #define **_GLIBCXX_DEBUG_SAFE_BASE_H**

6.262.1 Detailed Description

This file is a GNU debug extension to the Standard C++ Library.

Definition in file safe_base.h.

6.263 safe_iterator.h File Reference

Classes

- class __gnu_debug::_Safe_iterator< _Iterator, _Sequence >
  Safe iterator wrapper.

Namespaces

- namespace __gnu_debug

Defines

- #define **_GLIBCXX_DEBUG_SAFE_ITERATOR_H**

Functions

- bool __gnu_debug::__check_singular_aux (const _Safe_iterator_base *__x)
- template<typename _Iterator , typename _Sequence >
  bool **__gnu_debug::operator!=** (const _Safe_iterator< _Iterator, _Sequence > &__lhs, const _Safe_iterator< _Iterator, _Sequence > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Sequence >
  bool **__gnu_debug::operator!=** (const _Safe_iterator< _IteratorL, _Sequence > &__lhs, const _Safe_iterator< _IteratorR, _Sequence > &__rhs)
- template<typename _Iterator , typename _Sequence >
  _Safe_iterator< _Iterator, _Sequence > **__gnu_debug::operator+** (typename _Safe_iterator< _Iterator, _Sequence >::difference_type __n, const _Safe_iterator< _Iterator, _Sequence > &__i)
- template<typename _Iterator , typename _Sequence >
  _Safe_iterator< _Iterator, _Sequence >::difference_type **__gnu_debug::operator-** (const _Safe_iterator< _Iterator, _Sequence > &__lhs, const _Safe_iterator< _Iterator, _Sequence > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Sequence >
  _Safe_iterator< _IteratorL, _Sequence >::difference_type **__gnu_debug::operator-** (const _Safe_iterator< _IteratorL, _Sequence > &__lhs, const _Safe_iterator< _IteratorR, _Sequence > &__rhs)
- template<typename _Iterator , typename _Sequence >
  bool **__gnu_debug::operator<** (const _Safe_iterator< _Iterator, _Sequence > &__lhs, const _Safe_iterator< _Iterator, _Sequence > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Sequence >
  bool **__gnu_debug::operator<** (const _Safe_iterator< _IteratorL, _Sequence > &__lhs, const _Safe_iterator< _IteratorR, _Sequence > &__rhs)

- template<typename _Iterator , typename _Sequence >
  bool **__gnu_debug::operator<=** (const _Safe_iterator< _Iterator, _Sequence > &__lhs, const _Safe_iterator< _Iterator, _Sequence > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Sequence >
  bool **__gnu_debug::operator<=** (const _Safe_iterator< _IteratorL, _Sequence > &__lhs, const _Safe_iterator< _IteratorR, _Sequence > &__rhs)
- template<typename _Iterator , typename _Sequence >
  bool **__gnu_debug::operator==** (const _Safe_iterator< _Iterator, _Sequence > &__lhs, const _Safe_iterator< _Iterator, _Sequence > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Sequence >
  bool **__gnu_debug::operator==** (const _Safe_iterator< _IteratorL, _Sequence > &__lhs, const _Safe_iterator< _IteratorR, _Sequence > &__rhs)
- template<typename _Iterator , typename _Sequence >
  bool **__gnu_debug::operator>** (const _Safe_iterator< _Iterator, _Sequence > &__lhs, const _Safe_iterator< _Iterator, _Sequence > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Sequence >
  bool **__gnu_debug::operator>** (const _Safe_iterator< _IteratorL, _Sequence > &__lhs, const _Safe_iterator< _IteratorR, _Sequence > &__rhs)
- template<typename _Iterator , typename _Sequence >
  bool **__gnu_debug::operator>=** (const _Safe_iterator< _Iterator, _Sequence > &__lhs, const _Safe_iterator< _Iterator, _Sequence > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Sequence >
  bool **__gnu_debug::operator>=** (const _Safe_iterator< _IteratorL, _Sequence > &__lhs, const _Safe_iterator< _IteratorR, _Sequence > &__rhs)

6.263.1 Detailed Description

This file is a GNU debug extension to the Standard C++ Library.

Definition in file safe_iterator.h.

6.264 safe_iterator.tcc File Reference

Namespaces

- namespace __gnu_debug

Defines

- #define **_GLIBCXX_DEBUG_SAFE_ITERATOR_TCC**

6.264.1 Detailed Description

This file is a GNU debug extension to the Standard C++ Library.

Definition in file safe_iterator.tcc.

6.265 safe_sequence.h File Reference

Classes

- class __gnu_debug::_After_nth_from< _Iterator >
- class __gnu_debug::_Not_equal_to< _Type >
- class __gnu_debug::_Safe_sequence< _Sequence >

  Base class for constructing a safe sequence type that tracks iterators that reference it.

Namespaces

- namespace __gnu_debug

Defines

- #define **_GLIBCXX_DEBUG_SAFE_SEQUENCE_H**

6.265.1 Detailed Description

This file is a GNU debug extension to the Standard C++ Library.

Definition in file safe_sequence.h.

6.266 search.h File Reference

Parallel implementation base for std::search() and std::search_n(). This file is a GNU parallel extension to the Standard C++ Library.

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_SEARCH_H**

Functions

- template<typename _RAIter , typename _DifferenceTp >
  void __gnu_parallel::__calc_borders (_RAIter __elements, _DifferenceTp __length, _DifferenceTp *__off)
- template<typename __RAIter1 , typename __RAIter2 , typename _Pred >
  __RAIter1 __gnu_parallel::__search_template (__RAIter1 __begin1, __RAIter1 __end1, __RAIter2 __begin2, __RAIter2 __end2, _Pred __pred)

6.266.1 Detailed Description

Parallel implementation base for std::search() and std::search_n(). This file is a GNU parallel extension to the Standard C++ Library.

Definition in file search.h.

6.267 set File Reference

Defines

- #define **_GLIBCXX_SET**

6.267.1 Detailed Description

This is a Standard C++ Library header.

Definition in file set.

6.268 set File Reference

Defines

- #define **_GLIBCXX_DEBUG_SET**

6.268.1 Detailed Description

This file is a GNU debug extension to the Standard C++ Library.

Definition in file debug/set.

6.269 set File Reference

Defines

- #define **_GLIBCXX_PROFILE_SET**

6.269.1 Detailed Description

This file is a GNU profile extension to the Standard C++ Library.

Definition in file profile/set.

6.270 set.h File Reference

Classes

- class std::__debug::set< _Key, _Compare, _Allocator >

  Class std::set with safety/checking/debug instrumentation.

Namespaces

- namespace std
- namespace std::__debug

Defines

- #define **_GLIBCXX_DEBUG_SET_H**

Functions

- template<typename _Key , typename _Compare , typename _Allocator >
  bool **std::__debug::operator!=** (const set< _Key, _Compare, _Allocator > &_-
  _lhs, const set< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **std::__debug::operator**< (const set< _Key, _Compare, _Allocator > &_-
  _lhs, const set< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **std::__debug::operator<=** (const set< _Key, _Compare, _Allocator >
  &__lhs, const set< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **std::__debug::operator==** (const set< _Key, _Compare, _Allocator >
  &__lhs, const set< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **std::__debug::operator**> (const set< _Key, _Compare, _Allocator > &_-
  _lhs, const set< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **std::__debug::operator>=** (const set< _Key, _Compare, _Allocator >
  &__lhs, const set< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  void **std::__debug::swap** (set< _Key, _Compare, _Allocator > &__x, set< _-
  Key, _Compare, _Allocator > &__y)

6.270.1 Detailed Description

This file is a GNU debug extension to the Standard C++ Library.

Definition in file debug/set.h.

6.271 set.h File Reference

Classes

- class std::__profile::set< _Key, _Compare, _Allocator >

  Class std::set wrapper with performance instrumentation.

Namespaces

- namespace std
- namespace std::__profile

Defines

- #define **_GLIBCXX_PROFILE_SET_H**

Functions

- template<typename _Key , typename _Compare , typename _Allocator >
  bool **std::__profile::operator!=** (const set< _Key, _Compare, _Allocator > &__lhs, const set< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **std::__profile::operator<** (const set< _Key, _Compare, _Allocator > &_-_lhs, const set< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **std::__profile::operator<=** (const set< _Key, _Compare, _Allocator > &__lhs, const set< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **std::__profile::operator==** (const set< _Key, _Compare, _Allocator > &__lhs, const set< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **std::__profile::operator>** (const set< _Key, _Compare, _Allocator > &_-_lhs, const set< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  bool **std::__profile::operator>=** (const set< _Key, _Compare, _Allocator > &__lhs, const set< _Key, _Compare, _Allocator > &__rhs)
- template<typename _Key , typename _Compare , typename _Allocator >
  void **std::__profile::swap** (set< _Key, _Compare, _Allocator > &__x, set< _-Key, _Compare, _Allocator > &__y)

6.271.1 Detailed Description

This file is a GNU profile extension to the Standard C++ Library.

Definition in file profile/set.h.

6.272 set_operations.h File Reference

Parallel implementations of set operations for random-access iterators. This file is a GNU parallel extension to the Standard C++ Library.

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_SET_OPERATIONS_H**

Functions

- template<typename _IIter , typename _OutputIterator > _OutputIterator **__gnu_parallel::__copy_tail** (std::pair< _IIter, _IIter > __b, std::pair< _IIter, _IIter > __e, _OutputIterator __r)
- template<typename _IIter , typename _OutputIterator , typename _Compare > _OutputIterator **__gnu_parallel::__parallel_set_difference** (_IIter __begin1, _IIter __end1, _IIter __begin2, _IIter __end2, _OutputIterator __result, _Compare __comp)
- template<typename _IIter , typename _OutputIterator , typename _Compare > _OutputIterator **__gnu_parallel::__parallel_set_intersection** (_IIter __begin1, _IIter __end1, _IIter __begin2, _IIter __end2, _OutputIterator __result, _Compare __comp)
- template<typename _IIter , typename _OutputIterator , typename Operation > _OutputIterator **__gnu_parallel::__parallel_set_operation** (_IIter __begin1, _IIter __end1, _IIter __begin2, _IIter __end2, _OutputIterator __result, Operation __op)
- template<typename _IIter , typename _OutputIterator , typename _Compare > _OutputIterator **__gnu_parallel::__parallel_set_symmetric_difference** (_IIter __begin1, _IIter __end1, _IIter __begin2, _IIter __end2, _OutputIterator __result, _Compare __comp)
- template<typename _IIter , typename _OutputIterator , typename _Compare > _OutputIterator **__gnu_parallel::__parallel_set_union** (_IIter __begin1, _IIter __end1, _IIter __begin2, _IIter __end2, _OutputIterator __result, _Compare __comp)

6.272.1 Detailed Description

Parallel implementations of set operations for random-access iterators. This file is a GNU parallel extension to the Standard C++ Library.

Definition in file set_operations.h.

6.273 settings.h File Reference

Runtime settings and tuning parameters, heuristics to decide whether to use parallelized algorithms. This file is a GNU parallel extension to the Standard C++ Library.

Classes

- struct __gnu_parallel::_Settings

  class _Settings Run-time settings for the parallel mode including all tunable parameters.

Namespaces

- namespace __gnu_parallel

Defines

- #define _GLIBCXX_PARALLEL_CONDITION(__c)
- #define **_GLIBCXX_PARALLEL_SETTINGS_H**

6.273.1 Detailed Description

Runtime settings and tuning parameters, heuristics to decide whether to use parallelized algorithms. This file is a GNU parallel extension to the Standard C++ Library.

6.273.2 parallelization_decision

The decision whether to run an algorithm in parallel.

There are several ways the user can switch on and __off the parallel execution of an algorithm, both at compile- and run-time.

Only sequential execution can be forced at compile-time. This reduces code size and protects code parts that have non-thread-safe side effects.

Ultimately, forcing parallel execution at compile-time makes sense. Often, the sequential algorithm implementation is used as a subroutine, so no reduction in code size can be achieved. Also, the machine the program is run on might have only one processor core, so to avoid overhead, the algorithm is executed sequentially.

To force sequential execution of an algorithm ultimately at compile-time, the user must add the tag gnu_parallel::sequential_tag() to the end of the parameter list, e. g.

```
std::sort(__v.begin(), __v.end(), __gnu_parallel::sequential_tag());
```

This is compatible with all overloaded algorithm variants. No additional code will be instantiated, at all. The same holds for most algorithm calls with iterators not providing random access.

If the algorithm call is not forced to be executed sequentially at compile-time, the decision is made at run-time. The global variable __gnu_parallel::_Settings::algorithm_strategy is checked. _It is a tristate variable corresponding to:

a. force_sequential, meaning the sequential algorithm is executed. b. force_parallel, meaning the parallel algorithm is executed. c. heuristic

For heuristic, the parallel algorithm implementation is called only if the input size is sufficiently large. For most algorithms, the input size is the (combined) length of the input sequence(__s). The threshold can be set by the user, individually for each algorithm. The according variables are called gnu_parallel::_Settings::[algorithm]_minimal_n .

For some of the algorithms, there are even more tuning options, e. g. the ability to choose from multiple algorithm variants. See below for details.

Definition in file settings.h.

6.273.3 Define Documentation

6.273.3.1 #define _GLIBCXX_PARALLEL_CONDITION(__c)

Determine at compile(?)-time if the parallel variant of an algorithm should be called.

Parameters:

__c A condition that is convertible to bool that is overruled by __gnu_parallel::_Settings::algorithm_strategy. Usually a decision based on the input size.

Definition at line 95 of file settings.h.

6.274 shared_ptr.h File Reference

Classes

- class std::enable_shared_from_this< _Tp >

  Base class allowing use of member function shared_from_this.

- struct std::owner_less< shared_ptr< _Tp > >

  Partial specialization of owner_less for shared_ptr.

- struct std::owner_less< weak_ptr< _Tp > >

  Partial specialization of owner_less for weak_ptr.

- class std::shared_ptr< _Tp >

  A smart pointer with reference-counted copy semantics.

- class std::weak_ptr< _Tp >

  A smart pointer with weak semantics.

Namespaces

- namespace std

Defines

- #define **_SHARED_PTR_H**

Functions

- template<typename _Tp , typename _Alloc , typename... _Args>
  shared_ptr< _Tp > std::allocate_shared (_Alloc __a, _Args &&...__args)
- template<typename _Tp , typename _Tp1 >
  shared_ptr< _Tp > **std::const_pointer_cast** (const shared_ptr< _Tp1 > &__r)
- template<typename _Tp , typename _Tp1 >
  shared_ptr< _Tp > **std::dynamic_pointer_cast** (const shared_ptr< _Tp1 > &__r)
- template<typename _Del , typename _Tp , _Lock_policy _Lp>
  _Del * std::get_deleter (const __shared_ptr< _Tp, _Lp > &__p)
- template<typename _Tp , typename... _Args>
  shared_ptr< _Tp > std::make_shared (_Args &&...__args)

- template<typename _Tp1 , typename _Tp2 >
  bool **std::operator!=** (const shared_ptr< _Tp1 > &__a, const shared_ptr< _Tp2 > &__b)
- template<typename _Tp1 , typename _Tp2 >
  bool **std::operator<** (const shared_ptr< _Tp1 > &__a, const shared_ptr< _Tp2 > &__b)
- template<typename _Ch , typename _Tr , typename _Tp , _Lock_policy _Lp>
  std::basic_ostream< _Ch, _Tr > & std::operator<< (std::basic_ostream< _Ch, _Tr > &__os, const __shared_ptr< _Tp, _Lp > &__p)
- template<typename _Tp1 , typename _Tp2 >
  bool **std::operator==** (const shared_ptr< _Tp1 > &__a, const shared_ptr< _Tp2 > &__b)
- template<typename _Tp , typename _Tp1 >
  shared_ptr< _Tp > **std::static_pointer_cast** (const shared_ptr< _Tp1 > &__r)

- template<typename _Tp >
  void **std::swap** (weak_ptr< _Tp > &__a, weak_ptr< _Tp > &__b)
- template<typename _Tp >
  void **std::swap** (shared_ptr< _Tp > &__a, shared_ptr< _Tp > &__b)

6.274.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file shared_ptr.h.

6.275 shared_ptr_base.h File Reference

Defines

- #define **_SHARED_PTR_BASE_H**

6.275.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file shared_ptr_base.h.

6.276 slice_array.h File Reference

Classes

- class std::slice

  Class defining one-dimensional subset of an array.

- class std::slice_array< _Tp >

  Reference to one-dimensional subset of an array.

Namespaces

- namespace std

Defines

- #define **_DEFINE_VALARRAY_OPERATOR**(_Op, _Name)
- #define **_SLICE_ARRAY_H**

6.276.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file slice_array.h.

6.277 slist File Reference

Classes

- class __gnu_cxx::slist< _Tp, _Alloc >

Namespaces

- namespace __gnu_cxx
- namespace std

Defines

- #define **_SLIST**

Functions

- _Slist_node_base * **__gnu_cxx::__slist_make_link** (_Slist_node_base *__prev_node, _Slist_node_base *__new_node)
- const _Slist_node_base * **__gnu_cxx::__slist_previous** (const _Slist_node_base *__head, const _Slist_node_base *__node)
- _Slist_node_base * **__gnu_cxx::__slist_previous** (_Slist_node_base *__head, const _Slist_node_base *__node)
- _Slist_node_base * **__gnu_cxx::__slist_reverse** (_Slist_node_base *__node)
- size_t **__gnu_cxx::__slist_size** (_Slist_node_base *__node)
- void **__gnu_cxx::__slist_splice_after** (_Slist_node_base *__pos, _Slist_node_base *__head)
- void **__gnu_cxx::__slist_splice_after** (_Slist_node_base *__pos, _Slist_node_base *__before_first, _Slist_node_base *__before_last)
- template<class _Tp , class _Alloc >
  bool **__gnu_cxx::operator!=** (const slist< _Tp, _Alloc > &_SL1, const slist< _Tp, _Alloc > &_SL2)
- template<class _Tp , class _Alloc >
  bool **__gnu_cxx::operator<** (const slist< _Tp, _Alloc > &_SL1, const slist< _Tp, _Alloc > &_SL2)
- template<class _Tp , class _Alloc >
  bool **__gnu_cxx::operator<=** (const slist< _Tp, _Alloc > &_SL1, const slist< _Tp, _Alloc > &_SL2)
- template<class _Tp , class _Alloc >
  bool **__gnu_cxx::operator==** (const slist< _Tp, _Alloc > &_SL1, const slist< _Tp, _Alloc > &_SL2)

- template<class _Tp , class _Alloc >
  bool **__gnu_cxx::operator>** (const slist< _Tp, _Alloc > &_SL1, const slist< _Tp, _Alloc > &_SL2)
- template<class _Tp , class _Alloc >
  bool **__gnu_cxx::operator>=** (const slist< _Tp, _Alloc > &_SL1, const slist< _Tp, _Alloc > &_SL2)
- template<class _Tp , class _Alloc >
  void **__gnu_cxx::swap** (slist< _Tp, _Alloc > &__x, slist< _Tp, _Alloc > &_-_y)

6.277.1 Detailed Description

This file is a GNU extension to the Standard C++ Library (possibly containing extensions from the HP/SGI STL subset).

Definition in file slist.

6.278 sort.h File Reference

Parallel sorting algorithm switch. This file is a GNU parallel extension to the Standard C++ Library.

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_SORT_H**

Functions

- template<bool __stable, typename _RAIter , typename _Compare >
  void __gnu_parallel::__parallel_sort (_RAIter __begin, _RAIter __end, _Compare __comp, parallel_tag __parallelism)
- template<bool __stable, typename _RAIter , typename _Compare >
  void __gnu_parallel::__parallel_sort (_RAIter __begin, _RAIter __end, _Compare __comp, default_parallel_tag __parallelism)
- template<bool __stable, typename _RAIter , typename _Compare >
  void __gnu_parallel::__parallel_sort (_RAIter __begin, _RAIter __end, _Compare __comp, balanced_quicksort_tag __parallelism)
- template<bool __stable, typename _RAIter , typename _Compare >
  void __gnu_parallel::__parallel_sort (_RAIter __begin, _RAIter __end, _Compare __comp, quicksort_tag __parallelism)
- template<bool __stable, typename _RAIter , typename _Compare >
  void __gnu_parallel::__parallel_sort (_RAIter __begin, _RAIter __end, _Compare __comp, multiway_mergesort_sampling_tag __parallelism)
- template<bool __stable, typename _RAIter , typename _Compare >
  void __gnu_parallel::__parallel_sort (_RAIter __begin, _RAIter __end, _Compare __comp, multiway_mergesort_exact_tag __parallelism)
- template<bool __stable, typename _RAIter , typename _Compare >
  void __gnu_parallel::__parallel_sort (_RAIter __begin, _RAIter __end, _Compare __comp, multiway_mergesort_tag __parallelism)
- template<bool __stable, typename _RAIter , typename _Compare , typename _Parallelism >
  void **__gnu_parallel::__parallel_sort** (_RAIter __begin, _RAIter __end, _Compare __comp, _Parallelism __parallelism)

6.278.1 Detailed Description

Parallel sorting algorithm switch. This file is a GNU parallel extension to the Standard C++ Library.

Definition in file sort.h.

6.279 sso_string_base.h File Reference

Namespaces

- namespace __gnu_cxx

Defines

- #define **_SSO_STRING_BASE_H**

6.279.1 Detailed Description

This file is a GNU extension to the Standard C++ Library. This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file sso_string_base.h.

6.280 sstream File Reference

Classes

- class std::basic_istringstream< _CharT, _Traits, _Alloc >

  Controlling input for std::string.
  This class supports reading from objects of type std::basic_string, using the inherited functions from std::basic_istream. To control the associated sequence, an instance of std::basic_stringbuf is used, which this page refers to as `sb`.

- class std::basic_ostringstream< _CharT, _Traits, _Alloc >

  Controlling output for std::string.
  This class supports writing to objects of type std::basic_string, using the inherited functions from std::basic_ostream. To control the associated sequence, an instance of std::basic_stringbuf is used, which this page refers to as `sb`.

- class std::basic_stringbuf< _CharT, _Traits, _Alloc >

  The actual work of input and output (for std::string).
  This class associates either or both of its input and output sequences with a sequence of characters, which can be initialized from, or made available as, a `std::basic_string`. *(Paraphrased from [27.7.1]/1.).*

- class std::basic_stringstream< _CharT, _Traits, _Alloc >

  Controlling input and output for std::string.
  This class supports reading from and writing to objects of type std::basic_string, using the inherited functions from std::basic_iostream. To control the associated sequence, an instance of std::basic_stringbuf is used, which this page refers to as `sb`.

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_SSTREAM**

6.280.1 Detailed Description

This is a Standard C++ Library header.

Definition in file sstream.

6.281 sstream.tcc File Reference

Namespaces

- namespace std

Defines

- #define **_SSTREAM_TCC**

6.281.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file sstream.tcc.

6.282 stack File Reference

Defines

- #define **_GLIBCXX_STACK**

6.282.1 Detailed Description

This is a Standard C++ Library header.

Definition in file stack.

6.283 standard_policies.hpp File Reference

Namespaces

- namespace __gnu_pbds

Enumerations

- enum { **default_store_hash** }

6.283.1 Detailed Description

Contains standard policies for containers.

Definition in file standard_policies.hpp.

6.284 stdatomic.h File Reference

Defines

- #define **_GLIBCXX_STDATOMIC_H**

6.284.1 Detailed Description

This is a Standard C++ Library header.

Definition in file stdatomic.h.

6.285 stdexcept File Reference

Classes

- class std::domain_error
- class std::invalid_argument
- class std::length_error
- class std::logic_error

  One of two subclasses of exception.

- class std::out_of_range
- class std::overflow_error
- class std::range_error
- class std::runtime_error

  One of two subclasses of exception.

- class std::underflow_error

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_STDEXCEPT**

6.285.1 Detailed Description

This is a Standard C++ Library header.

Definition in file stdexcept.

6.286 stdio_filebuf.h File Reference

Classes

- class __gnu_cxx::stdio_filebuf< _CharT, _Traits >

  Provides a layer of compatibility for C/POSIX.
  This GNU extension provides extensions for working with standard C FILE∗'s and POSIX file descriptors. It must be instantiated by the user with the type of character used in the file stream, e.g., stdio_filebuf<char>.

Namespaces

- namespace __gnu_cxx

Defines

- #define **_STDIO_FILEBUF_H**

6.286.1 Detailed Description

This file is a GNU extension to the Standard C++ Library.

Definition in file stdio_filebuf.h.

6.287 stdio_sync_filebuf.h File Reference

Classes

- class __gnu_cxx::stdio_sync_filebuf< _CharT, _Traits >

  Provides a layer of compatibility for C.
  This GNU extension provides extensions for working with standard C FILE∗'s. It must be instantiated by the user with the type of character used in the file stream, e.g., stdio_filebuf<char>.

Namespaces

- namespace __gnu_cxx

Defines

- #define **_STDIO_SYNC_FILEBUF_H**

6.287.1 Detailed Description

This file is a GNU extension to the Standard C++ Library.

Definition in file stdio_sync_filebuf.h.

6.288 stl_algo.h File Reference

Namespaces

- namespace std

Defines

- #define **_STL_ALGO_H**

Enumerations

- enum { **_S_threshold** }
- enum { **_S_chunk_size** }

Functions

- template<typename _RandomAccessIterator , typename _Distance , typename _Compare >
  void **std::__chunk_insertion_sort** (_RandomAccessIterator __first, _RandomAccessIterator __last, _Distance __chunk_size, _Compare __comp)
- template<typename _RandomAccessIterator , typename _Distance >
  void **std::__chunk_insertion_sort** (_RandomAccessIterator __first, _RandomAccessIterator __last, _Distance __chunk_size)
- template<typename _RandomAccessIterator , typename _Size , typename _OutputIterator >
  _OutputIterator **std::__copy_n** (_RandomAccessIterator __first, _Size __n, _OutputIterator __result, random_access_iterator_tag)
- template<typename _InputIterator , typename _Size , typename _OutputIterator >
  _OutputIterator **std::__copy_n** (_InputIterator __first, _Size __n, _OutputIterator __result, input_iterator_tag)
- template<typename _RandomAccessIterator , typename _Compare >
  void std::__final_insertion_sort (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  void std::__final_insertion_sort (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _RandomAccessIterator , typename _Tp >
  _RandomAccessIterator std::__find (_RandomAccessIterator __first, _RandomAccessIterator __last, const _Tp &__val, random_access_iterator_tag)
- template<typename _InputIterator , typename _Tp >
  _InputIterator std::__find (_InputIterator __first, _InputIterator __last, const _Tp &__val, input_iterator_tag)

- template<typename _BidirectionalIterator1 , typename _BidirectionalIterator2 , typename _BinaryPredicate >
  _BidirectionalIterator1 **std::__find_end** (_BidirectionalIterator1 __first1, _BidirectionalIterator1 __last1, _BidirectionalIterator2 __first2, _BidirectionalIterator2 __last2, bidirectional_iterator_tag, bidirectional_iterator_tag, _BinaryPredicate __comp)
- template<typename _BidirectionalIterator1 , typename _BidirectionalIterator2 >
  _BidirectionalIterator1 **std::__find_end** (_BidirectionalIterator1 __first1, _BidirectionalIterator1 __last1, _BidirectionalIterator2 __first2, _BidirectionalIterator2 __last2, bidirectional_iterator_tag, bidirectional_iterator_tag)
- template<typename _ForwardIterator1 , typename _ForwardIterator2 , typename _BinaryPredicate >
  _ForwardIterator1 **std::__find_end** (_ForwardIterator1 __first1, _ForwardIterator1 __last1, _ForwardIterator2 __first2, _ForwardIterator2 __last2, forward_iterator_tag, forward_iterator_tag, _BinaryPredicate __comp)
- template<typename _ForwardIterator1 , typename _ForwardIterator2 >
  _ForwardIterator1 **std::__find_end** (_ForwardIterator1 __first1, _ForwardIterator1 __last1, _ForwardIterator2 __first2, _ForwardIterator2 __last2, forward_iterator_tag, forward_iterator_tag)
- template<typename _RandomAccessIterator , typename _Predicate >
  _RandomAccessIterator std::__find_if (_RandomAccessIterator __first, _RandomAccessIterator __last, _Predicate __pred, random_access_iterator_tag)
- template<typename _InputIterator , typename _Predicate >
  _InputIterator std::__find_if (_InputIterator __first, _InputIterator __last, _Predicate __pred, input_iterator_tag)
- template<typename _RandomAccessIterator , typename _Predicate >
  _RandomAccessIterator std::__find_if_not (_RandomAccessIterator __first, _RandomAccessIterator __last, _Predicate __pred, random_access_iterator_tag)
- template<typename _InputIterator , typename _Predicate >
  _InputIterator std::__find_if_not (_InputIterator __first, _InputIterator __last, _Predicate __pred, input_iterator_tag)
- template<typename _EuclideanRingElement >
  _EuclideanRingElement std::__gcd (_EuclideanRingElement __m, _EuclideanRingElement __n)
- template<typename _RandomAccessIterator , typename _Compare >
  void std::__heap_select (_RandomAccessIterator __first, _RandomAccessIterator __middle, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  void std::__heap_select (_RandomAccessIterator __first, _RandomAccessIterator __middle, _RandomAccessIterator __last)
- template<typename _ForwardIterator , typename _Predicate , typename _Distance >
  _ForwardIterator std::__inplace_stable_partition (_ForwardIterator __first, _ForwardIterator __last, _Predicate __pred, _Distance __len)

- template<typename _RandomAccessIterator , typename _Compare >
  void std::__inplace_stable_sort (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  void std::__inplace_stable_sort (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _RandomAccessIterator , typename _Compare >
  void std::__insertion_sort (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  void std::__insertion_sort (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _RandomAccessIterator , typename _Size , typename _Compare >
  void **std::__introselect** (_RandomAccessIterator __first, _RandomAccessIterator __nth, _RandomAccessIterator __last, _Size __depth_limit, _Compare __comp)
- template<typename _RandomAccessIterator , typename _Size >
  void **std::__introselect** (_RandomAccessIterator __first, _RandomAccessIterator __nth, _RandomAccessIterator __last, _Size __depth_limit)
- template<typename _RandomAccessIterator , typename _Size , typename _Compare >
  void std::__introsort_loop (_RandomAccessIterator __first, _RandomAccessIterator __last, _Size __depth_limit, _Compare __comp)
- template<typename _RandomAccessIterator , typename _Size >
  void std::__introsort_loop (_RandomAccessIterator __first, _RandomAccessIterator __last, _Size __depth_limit)
- long long **std::__lg** (long long __n)
- long **std::__lg** (long __n)
- int **std::__lg** (int __n)
- template<typename _Size >
  _Size std::__lg (_Size __n)
- template<typename _BidirectionalIterator , typename _Distance , typename _Pointer , typename _Compare >
  void std::__merge_adaptive (_BidirectionalIterator __first, _BidirectionalIterator __middle, _BidirectionalIterator __last, _Distance __len1, _Distance __len2, _Pointer __buffer, _Distance __buffer_size, _Compare __comp)
- template<typename _BidirectionalIterator , typename _Distance , typename _Pointer >
  void std::__merge_adaptive (_BidirectionalIterator __first, _BidirectionalIterator __middle, _BidirectionalIterator __last, _Distance __len1, _Distance __len2, _Pointer __buffer, _Distance __buffer_size)
- template<typename _BidirectionalIterator1 , typename _BidirectionalIterator2 , typename _BidirectionalIterator3 , typename _Compare >

_BidirectionalIterator3 std::__merge_backward (_BidirectionalIterator1 __first1, _BidirectionalIterator1 __last1, _BidirectionalIterator2 __first2, _BidirectionalIterator2 __last2, _BidirectionalIterator3 __result, _Compare __comp)

- template<typename _BidirectionalIterator1 , typename _BidirectionalIterator2 , typename _BidirectionalIterator3 >
  _BidirectionalIterator3 std::__merge_backward (_BidirectionalIterator1 __first1, _BidirectionalIterator1 __last1, _BidirectionalIterator2 __first2, _BidirectionalIterator2 __last2, _BidirectionalIterator3 __result)
- template<typename _RandomAccessIterator1 , typename _RandomAccessIterator2 , typename _Distance , typename _Compare >
  void **std::__merge_sort_loop** (_RandomAccessIterator1 __first, _RandomAccessIterator1 __last, _RandomAccessIterator2 __result, _Distance __step_size, _Compare __comp)
- template<typename _RandomAccessIterator1 , typename _RandomAccessIterator2 , typename _Distance >
  void **std::__merge_sort_loop** (_RandomAccessIterator1 __first, _RandomAccessIterator1 __last, _RandomAccessIterator2 __result, _Distance __step_size)
- template<typename _RandomAccessIterator , typename _Pointer , typename _Compare >
  void **std::__merge_sort_with_buffer** (_RandomAccessIterator __first, _RandomAccessIterator __last, _Pointer __buffer, _Compare __comp)
- template<typename _RandomAccessIterator , typename _Pointer >
  void **std::__merge_sort_with_buffer** (_RandomAccessIterator __first, _RandomAccessIterator __last, _Pointer __buffer)
- template<typename _BidirectionalIterator , typename _Distance , typename _Compare >
  void std::__merge_without_buffer (_BidirectionalIterator __first, _BidirectionalIterator __middle, _BidirectionalIterator __last, _Distance __len1, _Distance __len2, _Compare __comp)
- template<typename _BidirectionalIterator , typename _Distance >
  void std::__merge_without_buffer (_BidirectionalIterator __first, _BidirectionalIterator __middle, _BidirectionalIterator __last, _Distance __len1, _Distance __len2)
- template<typename _Iterator , typename _Compare >
  void std::__move_median_first (_Iterator __a, _Iterator __b, _Iterator __c, _Compare __comp)
- template<typename _Iterator >
  void std::__move_median_first (_Iterator __a, _Iterator __b, _Iterator __c)
- template<typename _BidirectionalIterator , typename _Predicate >
  _BidirectionalIterator std::__partition (_BidirectionalIterator __first, _BidirectionalIterator __last, _Predicate __pred, bidirectional_iterator_tag)
- template<typename _ForwardIterator , typename _Predicate >
  _ForwardIterator std::__partition (_ForwardIterator __first, _ForwardIterator __last, _Predicate __pred, forward_iterator_tag)

- template<typename _RandomAccessIterator >
  void std::__reverse (_RandomAccessIterator __first, _RandomAccessIterator __last, random_access_iterator_tag)
- template<typename _BidirectionalIterator >
  void std::__reverse (_BidirectionalIterator __first, _BidirectionalIterator __last, bidirectional_iterator_tag)
- template<typename _RandomAccessIterator >
  void std::__rotate (_RandomAccessIterator __first, _RandomAccessIterator __middle, _RandomAccessIterator __last, random_access_iterator_tag)
- template<typename _BidirectionalIterator >
  void std::__rotate (_BidirectionalIterator __first, _BidirectionalIterator __middle, _BidirectionalIterator __last, bidirectional_iterator_tag)
- template<typename _ForwardIterator >
  void std::__rotate (_ForwardIterator __first, _ForwardIterator __middle, _ForwardIterator __last, forward_iterator_tag)
- template<typename _BidirectionalIterator1 , typename _BidirectionalIterator2 , typename _Distance >
  _BidirectionalIterator1 std::__rotate_adaptive (_BidirectionalIterator1 __first, _BidirectionalIterator1 __middle, _BidirectionalIterator1 __last, _Distance __len1, _Distance __len2, _BidirectionalIterator2 __buffer, _Distance __buffer_size)
- template<typename _RandomAccessIter , typename _Integer , typename _Tp , typename _BinaryPredicate >
  _RandomAccessIter std::__search_n (_RandomAccessIter __first, _RandomAccessIter __last, _Integer __count, const _Tp &__val, _BinaryPredicate __binary_pred, std::random_access_iterator_tag)
- template<typename _ForwardIterator , typename _Integer , typename _Tp , typename _BinaryPredicate >
  _ForwardIterator std::__search_n (_ForwardIterator __first, _ForwardIterator __last, _Integer __count, const _Tp &__val, _BinaryPredicate __binary_pred, std::forward_iterator_tag)
- template<typename _RandomAccessIter , typename _Integer , typename _Tp >
  _RandomAccessIter std::__search_n (_RandomAccessIter __first, _RandomAccessIter __last, _Integer __count, const _Tp &__val, std::random_access_iterator_tag)
- template<typename _ForwardIterator , typename _Integer , typename _Tp >
  _ForwardIterator std::__search_n (_ForwardIterator __first, _ForwardIterator __last, _Integer __count, const _Tp &__val, std::forward_iterator_tag)
- template<typename _ForwardIterator , typename _Pointer , typename _Predicate , typename _Distance >
  _ForwardIterator std::__stable_partition_adaptive (_ForwardIterator __first, _ForwardIterator __last, _Predicate __pred, _Distance __len, _Pointer __buffer, _Distance __buffer_size)
- template<typename _RandomAccessIterator , typename _Pointer , typename _Distance , typename _Compare >

void **std::__stable_sort_adaptive** (_RandomAccessIterator __first, _RandomAccessIterator __last, _Pointer __buffer, _Distance __buffer_size, _Compare __comp)

- template<typename _RandomAccessIterator , typename _Pointer , typename _Distance >
void **std::__stable_sort_adaptive** (_RandomAccessIterator __first, _RandomAccessIterator __last, _Pointer __buffer, _Distance __buffer_size)

- template<typename _RandomAccessIterator , typename _Compare >
void std::__unguarded_insertion_sort (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
void std::__unguarded_insertion_sort (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _RandomAccessIterator , typename _Compare >
void std::__unguarded_linear_insert (_RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
void std::__unguarded_linear_insert (_RandomAccessIterator __last)
- template<typename _RandomAccessIterator , typename _Tp , typename _Compare >
_RandomAccessIterator std::__unguarded_partition (_RandomAccessIterator __first, _RandomAccessIterator __last, const _Tp &__pivot, _Compare __comp)
- template<typename _RandomAccessIterator , typename _Tp >
_RandomAccessIterator std::__unguarded_partition (_RandomAccessIterator __first, _RandomAccessIterator __last, const _Tp &__pivot)
- template<typename _RandomAccessIterator , typename _Compare >
_RandomAccessIterator std::__unguarded_partition_pivot (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
_RandomAccessIterator std::__unguarded_partition_pivot (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _InputIterator , typename _ForwardIterator , typename _BinaryPredicate >
_ForwardIterator std::__unique_copy (_InputIterator __first, _InputIterator __last, _ForwardIterator __result, _BinaryPredicate __binary_pred, input_iterator_tag, forward_iterator_tag)
- template<typename _InputIterator , typename _OutputIterator , typename _BinaryPredicate >
_OutputIterator std::__unique_copy (_InputIterator __first, _InputIterator __last, _OutputIterator __result, _BinaryPredicate __binary_pred, input_iterator_tag, output_iterator_tag)
- template<typename _ForwardIterator , typename _OutputIterator , typename _BinaryPredicate >
_OutputIterator std::__unique_copy (_ForwardIterator __first, _ForwardIterator __last, _OutputIterator __result, _BinaryPredicate __binary_pred, forward_iterator_tag, output_iterator_tag)
- template<typename _InputIterator , typename _ForwardIterator >
_ForwardIterator std::__unique_copy (_InputIterator __first, _InputIterator __last, _ForwardIterator __result, input_iterator_tag, forward_iterator_tag)

- template<typename _InputIterator , typename _OutputIterator >
  _OutputIterator std::__unique_copy (_InputIterator __first, _InputIterator __last, _OutputIterator __result, input_iterator_tag, output_iterator_tag)
- template<typename _ForwardIterator , typename _OutputIterator >
  _OutputIterator std::__unique_copy (_ForwardIterator __first, _ForwardIterator __last, _OutputIterator __result, forward_iterator_tag, output_iterator_tag)
- template<typename _ForwardIterator , typename _BinaryPredicate >
  _ForwardIterator std::adjacent_find (_ForwardIterator __first, _ForwardIterator __last, _BinaryPredicate __binary_pred)
- template<typename _ForwardIterator >
  _ForwardIterator std::adjacent_find (_ForwardIterator __first, _ForwardIterator __last)
- template<typename _InputIterator , typename _Predicate >
  bool std::all_of (_InputIterator __first, _InputIterator __last, _Predicate __pred)
- template<typename _InputIterator , typename _Predicate >
  bool std::any_of (_InputIterator __first, _InputIterator __last, _Predicate __pred)
- template<typename _ForwardIterator , typename _Tp , typename _Compare >
  bool std::binary_search (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__val, _Compare __comp)
- template<typename _ForwardIterator , typename _Tp >
  bool std::binary_search (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__val)
- template<typename _InputIterator , typename _OutputIterator , typename _Predicate >
  _OutputIterator std::copy_if (_InputIterator __first, _InputIterator __last, _OutputIterator __result, _Predicate __pred)
- template<typename _InputIterator , typename _Size , typename _OutputIterator >
  _OutputIterator std::copy_n (_InputIterator __first, _Size __n, _OutputIterator __result)
- template<typename _InputIterator , typename _Tp >
  iterator_traits< _InputIterator >::difference_type std::count (_InputIterator __first, _InputIterator __last, const _Tp &__value)
- template<typename _InputIterator , typename _Predicate >
  iterator_traits< _InputIterator >::difference_type std::count_if (_InputIterator __first, _InputIterator __last, _Predicate __pred)
- template<typename _ForwardIterator , typename _Tp , typename _Compare >
  pair< _ForwardIterator, _ForwardIterator > std::equal_range (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__val, _Compare __comp)
- template<typename _ForwardIterator , typename _Tp >
  pair< _ForwardIterator, _ForwardIterator > std::equal_range (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__val)
- template<typename _InputIterator , typename _Tp >
  _InputIterator std::find (_InputIterator __first, _InputIterator __last, const _Tp &__val)

- template<typename _ForwardIterator1 , typename _ForwardIterator2 , typename _BinaryPredicate >
_ForwardIterator1 std::find_end (_ForwardIterator1 __first1, _ForwardIterator1 __last1, _ForwardIterator2 __first2, _ForwardIterator2 __last2, _BinaryPredicate __comp)
- template<typename _ForwardIterator1 , typename _ForwardIterator2 >
_ForwardIterator1 std::find_end (_ForwardIterator1 __first1, _ForwardIterator1 __last1, _ForwardIterator2 __first2, _ForwardIterator2 __last2)
- template<typename _InputIterator , typename _ForwardIterator , typename _BinaryPredicate >
_InputIterator std::find_first_of (_InputIterator __first1, _InputIterator __last1, _ForwardIterator __first2, _ForwardIterator __last2, _BinaryPredicate __comp)
- template<typename _InputIterator , typename _ForwardIterator >
_InputIterator std::find_first_of (_InputIterator __first1, _InputIterator __last1, _ForwardIterator __first2, _ForwardIterator __last2)
- template<typename _InputIterator , typename _Predicate >
_InputIterator std::find_if (_InputIterator __first, _InputIterator __last, _Predicate __pred)
- template<typename _InputIterator , typename _Predicate >
_InputIterator std::find_if_not (_InputIterator __first, _InputIterator __last, _Predicate __pred)
- template<typename _InputIterator , typename _Function >
_Function std::for_each (_InputIterator __first, _InputIterator __last, _Function __f)
- template<typename _ForwardIterator , typename _Generator >
void std::generate (_ForwardIterator __first, _ForwardIterator __last, _Generator __gen)
- template<typename _OutputIterator , typename _Size , typename _Generator >
_OutputIterator std::generate_n (_OutputIterator __first, _Size __n, _Generator __gen)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _Compare >
bool std::includes (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _Compare __comp)
- template<typename _InputIterator1 , typename _InputIterator2 >
bool std::includes (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2)
- template<typename _BidirectionalIterator , typename _Compare >
void std::inplace_merge (_BidirectionalIterator __first, _BidirectionalIterator __middle, _BidirectionalIterator __last, _Compare __comp)
- template<typename _BidirectionalIterator >
void std::inplace_merge (_BidirectionalIterator __first, _BidirectionalIterator __middle, _BidirectionalIterator __last)
- template<typename _InputIterator , typename _Predicate >
bool std::is_partitioned (_InputIterator __first, _InputIterator __last, _Predicate __pred)

- template<typename _ForwardIterator , typename _Compare >
  bool std::is_sorted (_ForwardIterator __first, _ForwardIterator __last, _Compare __comp)
- template<typename _ForwardIterator >
  bool std::is_sorted (_ForwardIterator __first, _ForwardIterator __last)
- template<typename _ForwardIterator , typename _Compare >
  _ForwardIterator std::is_sorted_until (_ForwardIterator __first, _ForwardIterator __last, _Compare __comp)
- template<typename _ForwardIterator >
  _ForwardIterator std::is_sorted_until (_ForwardIterator __first, _ForwardIterator __last)
- template<typename _ForwardIterator , typename _Tp , typename _Compare >
  _ForwardIterator std::lower_bound (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__val, _Compare __comp)
- template<typename _ForwardIterator , typename _Tp >
  _ForwardIterator std::lower_bound (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__val)
- template<typename _Tp , typename _Compare >
  _Tp **std::max** (initializer_list< _Tp >, _Compare)
- template<typename _Tp >
  _Tp **std::max** (initializer_list< _Tp >)
- template<typename _ForwardIterator , typename _Compare >
  _ForwardIterator std::max_element (_ForwardIterator __first, _ForwardIterator __last, _Compare __comp)
- template<typename _ForwardIterator >
  _ForwardIterator std::max_element (_ForwardIterator __first, _ForwardIterator __last)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator , typename _Compare >
  _OutputIterator std::merge (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result, _Compare __comp)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator >
  _OutputIterator std::merge (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result)
- template<typename _Tp , typename _Compare >
  _Tp **std::min** (initializer_list< _Tp >, _Compare)
- template<typename _Tp >
  _Tp **std::min** (initializer_list< _Tp >)
- template<typename _ForwardIterator , typename _Compare >
  _ForwardIterator std::min_element (_ForwardIterator __first, _ForwardIterator __last, _Compare __comp)
- template<typename _ForwardIterator >
  _ForwardIterator std::min_element (_ForwardIterator __first, _ForwardIterator __last)

- template<typename _Tp , typename _Compare >
  pair< _Tp, _Tp > **std::minmax** (initializer_list< _Tp >, _Compare)
- template<typename _Tp >
  pair< _Tp, _Tp > **std::minmax** (initializer_list< _Tp >)
- template<typename _Tp , typename _Compare >
  pair< const _Tp &, const _Tp & > std::minmax (const _Tp &__a, const _Tp &__b, _Compare __comp)
- template<typename _Tp >
  pair< const _Tp &, const _Tp & > std::minmax (const _Tp &__a, const _Tp &__b)
- template<typename _ForwardIterator , typename _Compare >
  pair< _ForwardIterator, _ForwardIterator > std::minmax_element (_ForwardIterator __first, _ForwardIterator __last, _Compare __comp)
- template<typename _ForwardIterator >
  pair< _ForwardIterator, _ForwardIterator > std::minmax_element (_ForwardIterator __first, _ForwardIterator __last)
- template<typename _BidirectionalIterator , typename _Compare >
  bool std::next_permutation (_BidirectionalIterator __first, _BidirectionalIterator __last, _Compare __comp)
- template<typename _BidirectionalIterator >
  bool std::next_permutation (_BidirectionalIterator __first, _BidirectionalIterator __last)
- template<typename _InputIterator , typename _Predicate >
  bool std::none_of (_InputIterator __first, _InputIterator __last, _Predicate __pred)
- template<typename _RandomAccessIterator , typename _Compare >
  void std::nth_element (_RandomAccessIterator __first, _RandomAccessIterator __nth, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  void std::nth_element (_RandomAccessIterator __first, _RandomAccessIterator __nth, _RandomAccessIterator __last)
- template<typename _RandomAccessIterator , typename _Compare >
  void std::partial_sort (_RandomAccessIterator __first, _RandomAccessIterator __middle, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  void std::partial_sort (_RandomAccessIterator __first, _RandomAccessIterator __middle, _RandomAccessIterator __last)
- template<typename _InputIterator , typename _RandomAccessIterator , typename _Compare >
  _RandomAccessIterator std::partial_sort_copy (_InputIterator __first, _InputIterator __last, _RandomAccessIterator __result_first, _RandomAccessIterator __result_last, _Compare __comp)
- template<typename _InputIterator , typename _RandomAccessIterator >
  _RandomAccessIterator std::partial_sort_copy (_InputIterator __first, _InputIterator __last, _RandomAccessIterator __result_first, _RandomAccessIterator __result_last)

- template<typename _ForwardIterator , typename _Predicate >
  _ForwardIterator std::partition (_ForwardIterator __first, _ForwardIterator __last, _Predicate __pred)
- template<typename _InputIterator , typename _OutputIterator1 , typename _OutputIterator2 , typename _Predicate >
  pair< _OutputIterator1, _OutputIterator2 > std::partition_copy (_InputIterator __first, _InputIterator __last, _OutputIterator1 __out_true, _OutputIterator2 __out_false, _Predicate __pred)
- template<typename _ForwardIterator , typename _Predicate >
  _ForwardIterator std::partition_point (_ForwardIterator __first, _ForwardIterator __last, _Predicate __pred)
- template<typename _BidirectionalIterator , typename _Compare >
  bool std::prev_permutation (_BidirectionalIterator __first, _BidirectionalIterator __last, _Compare __comp)
- template<typename _BidirectionalIterator >
  bool std::prev_permutation (_BidirectionalIterator __first, _BidirectionalIterator __last)
- template<typename _RandomAccessIterator , typename _RandomNumberGenerator >
  void std::random_shuffle (_RandomAccessIterator __first, _RandomAccessIterator __last, _RandomNumberGenerator &__rand)
- template<typename _RandomAccessIterator >
  void std::random_shuffle (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _ForwardIterator , typename _Tp >
  _ForwardIterator std::remove (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__value)
- template<typename _InputIterator , typename _OutputIterator , typename _Tp >
  _OutputIterator std::remove_copy (_InputIterator __first, _InputIterator __last, _OutputIterator __result, const _Tp &__value)
- template<typename _InputIterator , typename _OutputIterator , typename _Predicate >
  _OutputIterator std::remove_copy_if (_InputIterator __first, _InputIterator __last, _OutputIterator __result, _Predicate __pred)
- template<typename _ForwardIterator , typename _Predicate >
  _ForwardIterator std::remove_if (_ForwardIterator __first, _ForwardIterator __last, _Predicate __pred)
- template<typename _ForwardIterator , typename _Tp >
  void std::replace (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__old_value, const _Tp &__new_value)
- template<typename _InputIterator , typename _OutputIterator , typename _Tp >
  _OutputIterator std::replace_copy (_InputIterator __first, _InputIterator __last, _OutputIterator __result, const _Tp &__old_value, const _Tp &__new_value)
- template<typename _InputIterator , typename _OutputIterator , typename _Predicate , typename _Tp >
  _OutputIterator std::replace_copy_if (_InputIterator __first, _InputIterator __last, _OutputIterator __result, _Predicate __pred, const _Tp &__new_value)

- template<typename _ForwardIterator , typename _Predicate , typename _Tp >
  void std::replace_if (_ForwardIterator __first, _ForwardIterator __last, _-Predicate __pred, const _Tp &__new_value)
- template<typename _BidirectionalIterator >
  void std::reverse (_BidirectionalIterator __first, _BidirectionalIterator __last)
- template<typename _BidirectionalIterator , typename _OutputIterator >
  _OutputIterator std::reverse_copy (_BidirectionalIterator __first, _-BidirectionalIterator __last, _OutputIterator __result)
- template<typename _ForwardIterator >
  void std::rotate (_ForwardIterator __first, _ForwardIterator __middle, _-ForwardIterator __last)
- template<typename _ForwardIterator , typename _OutputIterator >
  _OutputIterator std::rotate_copy (_ForwardIterator __first, _ForwardIterator __-middle, _ForwardIterator __last, _OutputIterator __result)
- template<typename _ForwardIterator1 , typename _ForwardIterator2 , typename _BinaryPredicate >
  _ForwardIterator1 std::search (_ForwardIterator1 __first1, _ForwardIterator1 _-_last1, _ForwardIterator2 __first2, _ForwardIterator2 __last2, _BinaryPredicate __predicate)
- template<typename _ForwardIterator1 , typename _ForwardIterator2 >
  _ForwardIterator1 std::search (_ForwardIterator1 __first1, _ForwardIterator1 _-_last1, _ForwardIterator2 __first2, _ForwardIterator2 __last2)
- template<typename _ForwardIterator , typename _Integer , typename _Tp , typename _-BinaryPredicate >
  _ForwardIterator std::search_n (_ForwardIterator __first, _ForwardIterator __-last, _Integer __count, const _Tp &__val, _BinaryPredicate __binary_pred)
- template<typename _ForwardIterator , typename _Integer , typename _Tp >
  _ForwardIterator std::search_n (_ForwardIterator __first, _ForwardIterator __-last, _Integer __count, const _Tp &__val)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator , typename _Compare >
  _OutputIterator std::set_difference (_InputIterator1 __first1, _InputIterator1 __-last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result, _Compare __comp)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator >
  _OutputIterator std::set_difference (_InputIterator1 __first1, _InputIterator1 __-last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator , typename _Compare >
  _OutputIterator std::set_intersection (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __-result, _Compare __comp)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator >
  _OutputIterator std::set_intersection (_InputIterator1 __first1, _InputIterator1

__last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result)

- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator , typename _Compare >
  _OutputIterator std::set_symmetric_difference (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result, _Compare __comp)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator >
  _OutputIterator std::set_symmetric_difference (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator , typename _Compare >
  _OutputIterator std::set_union (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result, _Compare __comp)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator >
  _OutputIterator std::set_union (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _OutputIterator __result)
- template<typename _RandomAccessIterator , typename _Compare >
  void std::sort (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  void std::sort (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _ForwardIterator , typename _Predicate >
  _ForwardIterator std::stable_partition (_ForwardIterator __first, _ForwardIterator __last, _Predicate __pred)
- template<typename _RandomAccessIterator , typename _Compare >
  void std::stable_sort (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  void std::stable_sort (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _OutputIterator , typename _BinaryOperation >
  _OutputIterator std::transform (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _OutputIterator __result, _BinaryOperation __binary_op)
- template<typename _InputIterator , typename _OutputIterator , typename _UnaryOperation >
  _OutputIterator std::transform (_InputIterator __first, _InputIterator __last, _OutputIterator __result, _UnaryOperation __unary_op)
- template<typename _ForwardIterator , typename _BinaryPredicate >
  _ForwardIterator std::unique (_ForwardIterator __first, _ForwardIterator __last, _BinaryPredicate __binary_pred)

- template<typename _ForwardIterator >
  _ForwardIterator std::unique (_ForwardIterator __first, _ForwardIterator __last)
- template<typename _InputIterator , typename _OutputIterator , typename _BinaryPredicate >
  _OutputIterator std::unique_copy (_InputIterator __first, _InputIterator __last, _OutputIterator __result, _BinaryPredicate __binary_pred)
- template<typename _InputIterator , typename _OutputIterator >
  _OutputIterator std::unique_copy (_InputIterator __first, _InputIterator __last, _OutputIterator __result)
- template<typename _ForwardIterator , typename _Tp , typename _Compare >
  _ForwardIterator std::upper_bound (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__val, _Compare __comp)
- template<typename _ForwardIterator , typename _Tp >
  _ForwardIterator std::upper_bound (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__val)

6.288.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file stl_algo.h.

6.289 stl_algobase.h File Reference

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_MOVE3**(_Tp, _Up, _Vp)
- #define **_GLIBCXX_MOVE_BACKWARD3**(_Tp, _Up, _Vp)
- #define **_STL_ALGOBASE_H**

Functions

- template<bool _IsMove, typename _II , typename _OI >
  _OI **std::__copy_move_a** (_II __first, _II __last, _OI __result)
- template<bool _IsMove, typename _II , typename _OI >
  _OI **std::__copy_move_a2** (_II __first, _II __last, _OI __result)
- template<bool _IsMove, typename _CharT >
  __gnu_cxx::__enable_if< __is_char< _CharT >::__value, _CharT * >::__type **std::__copy_move_a2** (istreambuf_iterator< _CharT, char_traits< _CharT > >, istreambuf_iterator< _CharT, char_traits< _CharT > >, _CharT *)
- template<bool _IsMove, typename _CharT >
  __gnu_cxx::__enable_if< __is_char< _CharT >::__value, ostreambuf_iterator< _CharT, char_traits< _CharT > > >::__type **std::__copy_move_a2** (const _CharT *, const _CharT *, ostreambuf_iterator< _CharT, char_traits< _CharT > >)
- template<bool _IsMove, typename _CharT >
  __gnu_cxx::__enable_if< __is_char< _CharT >::__value, ostreambuf_iterator< _CharT, char_traits< _CharT > > >::__type **std::__copy_move_a2** (_CharT *, _CharT *, ostreambuf_iterator< _CharT, char_traits< _CharT > >)
- template<bool _IsMove, typename _BI1 , typename _BI2 >
  _BI2 **std::__copy_move_backward_a** (_BI1 __first, _BI1 __last, _BI2 __result)
- template<bool _IsMove, typename _BI1 , typename _BI2 >
  _BI2 **std::__copy_move_backward_a2** (_BI1 __first, _BI1 __last, _BI2 __result)
- template<typename _II1 , typename _II2 >
  bool **std::__equal_aux** (_II1 __first1, _II1 __last1, _II2 __first2)
- template<typename _Tp >
  __gnu_cxx::__enable_if< __is_byte< _Tp >::__value, void >::__type **std::__fill_a** (_Tp *__first, _Tp *__last, const _Tp &__c)

- template<typename _ForwardIterator , typename _Tp >
__gnu_cxx::__enable_if<!__is_scalar< _Tp >::__value, void >::__type **std::__fill_a** (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__value)

- template<typename _Size , typename _Tp >
__gnu_cxx::__enable_if< __is_byte< _Tp >::__value, _Tp * >::__type **std::__fill_n_a** (_Tp *__first, _Size __n, const _Tp &__c)
- template<typename _OutputIterator , typename _Size , typename _Tp >
__gnu_cxx::__enable_if<!__is_scalar< _Tp >::__value, _OutputIterator >::__type **std::__fill_n_a** (_OutputIterator __first, _Size __n, const _Tp &__value)

- template<typename _II1 , typename _II2 >
bool **std::__lexicographical_compare_aux** (_II1 __first1, _II1 __last1, _II2 __first2, _II2 __last2)
- template<typename _Iterator >
_Miter_base< _Iterator >::iterator_type **std::__miter_base** (_Iterator __it)
- template<typename _Iterator >
_Niter_base< _Iterator >::iterator_type **std::__niter_base** (_Iterator __it)
- template<typename _II , typename _OI >
_OI std::copy (_II __first, _II __last, _OI __result)
- template<typename _BI1 , typename _BI2 >
_BI2 std::copy_backward (_BI1 __first, _BI1 __last, _BI2 __result)
- template<typename _IIter1 , typename _IIter2 , typename _BinaryPredicate >
bool std::equal (_IIter1 __first1, _IIter1 __last1, _IIter2 __first2, _BinaryPredicate __binary_pred)
- template<typename _II1 , typename _II2 >
bool std::equal (_II1 __first1, _II1 __last1, _II2 __first2)
- template<typename _ForwardIterator , typename _Tp >
void std::fill (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__value)
- template<typename _OI , typename _Size , typename _Tp >
_OI std::fill_n (_OI __first, _Size __n, const _Tp &__value)
- template<typename _ForwardIterator1 , typename _ForwardIterator2 >
void std::iter_swap (_ForwardIterator1 __a, _ForwardIterator2 __b)
- template<typename _II1 , typename _II2 , typename _Compare >
bool std::lexicographical_compare (_II1 __first1, _II1 __last1, _II2 __first2, _II2 __last2, _Compare __comp)
- template<typename _II1 , typename _II2 >
bool std::lexicographical_compare (_II1 __first1, _II1 __last1, _II2 __first2, _II2 __last2)
- template<typename _Tp , typename _Compare >
const _Tp & std::max (const _Tp &__a, const _Tp &__b, _Compare __comp)
- template<typename _Tp >
const _Tp & std::max (const _Tp &__a, const _Tp &__b)

- template<typename _Tp , typename _Compare >
  const _Tp & std::min (const _Tp &__a, const _Tp &__b, _Compare __comp)
- template<typename _Tp >
  const _Tp & std::min (const _Tp &__a, const _Tp &__b)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _BinaryPredicate >
  pair< _InputIterator1, _InputIterator2 > std::mismatch (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _BinaryPredicate __binary_pred)
- template<typename _InputIterator1 , typename _InputIterator2 >
  pair< _InputIterator1, _InputIterator2 > std::mismatch (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2)
- template<typename _II , typename _OI >
  _OI std::move (_II __first, _II __last, _OI __result)
- template<typename _BI1 , typename _BI2 >
  _BI2 std::move_backward (_BI1 __first, _BI1 __last, _BI2 __result)
- template<typename _ForwardIterator1 , typename _ForwardIterator2 >
  _ForwardIterator2 std::swap_ranges (_ForwardIterator1 __first1, _ForwardIterator1 __last1, _ForwardIterator2 __first2)

6.289.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file stl_algobase.h.

6.290 stl_bvector.h File Reference

Classes

- struct std::hash< ::vector< bool, _Alloc > >

  std::hash specialization for vector<bool>.

- class std::vector< bool, _Alloc >

  A specialization of vector for booleans which offers fixed time access to individual elements in any order.

Namespaces

- namespace std

Defines

- #define **_STL_BVECTOR_H**

Typedefs

- typedef unsigned long **std::_Bit_type**

Enumerations

- enum { **_S_word_bit** }

Functions

- void **std::__fill_bvector** (_Bit_iterator __first, _Bit_iterator __last, bool __x)
- void **std::fill** (_Bit_iterator __first, _Bit_iterator __last, const bool &__x)
- _Bit_const_iterator **std::operator+** (ptrdiff_t __n, const _Bit_const_iterator &__x)
- _Bit_iterator **std::operator+** (ptrdiff_t __n, const _Bit_iterator &__x)
- ptrdiff_t **std::operator-** (const _Bit_iterator_base &__x, const _Bit_iterator_base &__y)

6.290.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file stl_bvector.h.

6.291 stl_construct.h File Reference

Namespaces

- namespace std

Defines

- #define **_STL_CONSTRUCT_H**

Functions

- template<typename _T1 , typename _T2 >
  void std::_Construct (_T1 *__p, _T2 &&__value)
- template<typename _ForwardIterator , typename _Tp >
  void **std::_Destroy** (_ForwardIterator __first, _ForwardIterator __last, allocator< _Tp > &)
- template<typename _ForwardIterator , typename _Allocator >
  void **std::_Destroy** (_ForwardIterator __first, _ForwardIterator __last, _Allocator &__alloc)
- template<typename _ForwardIterator >
  void std::_Destroy (_ForwardIterator __first, _ForwardIterator __last)
- template<typename _Tp >
  void std::_Destroy (_Tp *__pointer)

6.291.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file stl_construct.h.

6.292 stl_deque.h File Reference

Classes

- class std::_Deque_base< _Tp, _Alloc >
- struct std::_Deque_iterator< _Tp, _Ref, _Ptr >

  A deque::iterator.

- class std::deque< _Tp, _Alloc >

  A standard container using fixed-size memory allocation and constant-time manipulation of elements at either end.

Namespaces

- namespace std

Defines

- #define _GLIBCXX_DEQUE_BUF_SIZE
- #define **_STL_DEQUE_H**

Functions

- size_t **std::__deque_buf_size** (size_t __size)
- template<typename _Tp >
  _Deque_iterator< _Tp, _Tp &, _Tp * > **std::copy** (_Deque_iterator< _Tp, _Tp &, _Tp * > __first, _Deque_iterator< _Tp, _Tp &, _Tp * > __last, _Deque_iterator< _Tp, _Tp &, _Tp * > __result)
- template<typename _Tp >
  _Deque_iterator< _Tp, _Tp &, _Tp * > **std::copy** (_Deque_iterator< _Tp, const _Tp &, const _Tp * > __first, _Deque_iterator< _Tp, const _Tp &, const _Tp * > __last, _Deque_iterator< _Tp, _Tp &, _Tp * > __result)
- template<typename _Tp >
  _Deque_iterator< _Tp, _Tp &, _Tp * > **std::copy_backward** (_Deque_iterator< _Tp, _Tp &, _Tp * > __first, _Deque_iterator< _Tp, _Tp &, _Tp * > __last, _Deque_iterator< _Tp, _Tp &, _Tp * > __result)
- template<typename _Tp >
  _Deque_iterator< _Tp, _Tp &, _Tp * > **std::copy_backward** (_Deque_iterator< _Tp, const _Tp &, const _Tp * > __first, _Deque_iterator< _Tp, const _Tp &, const _Tp * > __last, _Deque_iterator< _Tp, _Tp &, _Tp * > __result)

- template<typename _Tp >
  void **std::fill** (const _Deque_iterator< _Tp, _Tp &, _Tp * > &__first, const _Deque_iterator< _Tp, _Tp &, _Tp * > &__last, const _Tp &__value)
- template<typename _Tp >
  _Deque_iterator< _Tp, _Tp &, _Tp * > **std::move** (_Deque_iterator< _Tp, _Tp &, _Tp * > __first, _Deque_iterator< _Tp, _Tp &, _Tp * > __last, _Deque_iterator< _Tp, _Tp &, _Tp * > __result)
- template<typename _Tp >
  _Deque_iterator< _Tp, _Tp &, _Tp * > **std::move** (_Deque_iterator< _Tp, const _Tp &, const _Tp * > __first, _Deque_iterator< _Tp, const _Tp &, const _Tp * > __last, _Deque_iterator< _Tp, _Tp &, _Tp * > __result)
- template<typename _Tp >
  _Deque_iterator< _Tp, _Tp &, _Tp * > **std::move_backward** (_Deque_iterator< _Tp, _Tp &, _Tp * > __first, _Deque_iterator< _Tp, _Tp &, _Tp * > __last, _Deque_iterator< _Tp, _Tp &, _Tp * > __result)
- template<typename _Tp >
  _Deque_iterator< _Tp, _Tp &, _Tp * > **std::move_backward** (_Deque_iterator< _Tp, const _Tp &, const _Tp * > __first, _Deque_iterator< _Tp, const _Tp &, const _Tp * > __last, _Deque_iterator< _Tp, _Tp &, _Tp * > __result)
- template<typename _Tp , typename _Alloc >
  bool std::operator!= (const deque< _Tp, _Alloc > &__x, const deque< _Tp, _Alloc > &__y)
- template<typename _Tp , typename _RefL , typename _PtrL , typename _RefR , typename _PtrR >
  bool **std::operator!=** (const _Deque_iterator< _Tp, _RefL, _PtrL > &__x, const _Deque_iterator< _Tp, _RefR, _PtrR > &__y)
- template<typename _Tp , typename _Ref , typename _Ptr >
  bool **std::operator!=** (const _Deque_iterator< _Tp, _Ref, _Ptr > &__x, const _Deque_iterator< _Tp, _Ref, _Ptr > &__y)
- template<typename _Tp , typename _Ref , typename _Ptr >
  _Deque_iterator< _Tp, _Ref, _Ptr > **std::operator+** (ptrdiff_t __n, const _Deque_iterator< _Tp, _Ref, _Ptr > &__x)
- template<typename _Tp , typename _RefL , typename _PtrL , typename _RefR , typename _PtrR >
  _Deque_iterator< _Tp, _RefL, _PtrL >::difference_type **std::operator-** (const _Deque_iterator< _Tp, _RefL, _PtrL > &__x, const _Deque_iterator< _Tp, _RefR, _PtrR > &__y)
- template<typename _Tp , typename _Ref , typename _Ptr >
  _Deque_iterator< _Tp, _Ref, _Ptr >::difference_type **std::operator-** (const _Deque_iterator< _Tp, _Ref, _Ptr > &__x, const _Deque_iterator< _Tp, _Ref, _Ptr > &__y)
- template<typename _Tp , typename _Alloc >
  bool std::operator< (const deque< _Tp, _Alloc > &__x, const deque< _Tp, _Alloc > &__y)

- template<typename _Tp , typename _RefL , typename _PtrL , typename _RefR , typename _PtrR >
  bool **std::operator<** (const _Deque_iterator< _Tp, _RefL, _PtrL > &__x, const _Deque_iterator< _Tp, _RefR, _PtrR > &__y)
- template<typename _Tp , typename _Ref , typename _Ptr >
  bool **std::operator<** (const _Deque_iterator< _Tp, _Ref, _Ptr > &__x, const _Deque_iterator< _Tp, _Ref, _Ptr > &__y)
- template<typename _Tp , typename _Alloc >
  bool std::operator<= (const deque< _Tp, _Alloc > &__x, const deque< _Tp, _Alloc > &__y)
- template<typename _Tp , typename _RefL , typename _PtrL , typename _RefR , typename _PtrR >
  bool **std::operator<=** (const _Deque_iterator< _Tp, _RefL, _PtrL > &__x, const _Deque_iterator< _Tp, _RefR, _PtrR > &__y)
- template<typename _Tp , typename _Ref , typename _Ptr >
  bool **std::operator<=** (const _Deque_iterator< _Tp, _Ref, _Ptr > &__x, const _Deque_iterator< _Tp, _Ref, _Ptr > &__y)
- template<typename _Tp , typename _Alloc >
  bool std::operator== (const deque< _Tp, _Alloc > &__x, const deque< _Tp, _Alloc > &__y)
- template<typename _Tp , typename _RefL , typename _PtrL , typename _RefR , typename _PtrR >
  bool **std::operator==** (const _Deque_iterator< _Tp, _RefL, _PtrL > &__x, const _Deque_iterator< _Tp, _RefR, _PtrR > &__y)
- template<typename _Tp , typename _Ref , typename _Ptr >
  bool **std::operator==** (const _Deque_iterator< _Tp, _Ref, _Ptr > &__x, const _Deque_iterator< _Tp, _Ref, _Ptr > &__y)
- template<typename _Tp , typename _Alloc >
  bool std::operator> (const deque< _Tp, _Alloc > &__x, const deque< _Tp, _Alloc > &__y)
- template<typename _Tp , typename _RefL , typename _PtrL , typename _RefR , typename _PtrR >
  bool **std::operator>** (const _Deque_iterator< _Tp, _RefL, _PtrL > &__x, const _Deque_iterator< _Tp, _RefR, _PtrR > &__y)
- template<typename _Tp , typename _Ref , typename _Ptr >
  bool **std::operator>** (const _Deque_iterator< _Tp, _Ref, _Ptr > &__x, const _Deque_iterator< _Tp, _Ref, _Ptr > &__y)
- template<typename _Tp , typename _Alloc >
  bool std::operator>= (const deque< _Tp, _Alloc > &__x, const deque< _Tp, _Alloc > &__y)
- template<typename _Tp , typename _RefL , typename _PtrL , typename _RefR , typename _PtrR >
  bool **std::operator>=** (const _Deque_iterator< _Tp, _RefL, _PtrL > &__x, const _Deque_iterator< _Tp, _RefR, _PtrR > &__y)

- template<typename _Tp , typename _Ref , typename _Ptr >
  bool **std::operator>=** (const _Deque_iterator< _Tp, _Ref, _Ptr > &__x, const _Deque_iterator< _Tp, _Ref, _Ptr > &__y)
- template<typename _Tp , typename _Alloc >
  void std::swap (deque< _Tp, _Alloc > &__x, deque< _Tp, _Alloc > &__y)

6.292.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file stl_deque.h.

6.292.2 Define Documentation

6.292.2.1 #define _GLIBCXX_DEQUE_BUF_SIZE

This function controls the size of memory nodes.

Parameters:

size The size of an element.

Returns:

The number (not byte size) of elements per node.

This function started off as a compiler kludge from SGI, but seems to be a useful wrapper around a repeated constant expression. The **512** is tunable (and no other code needs to change), but no investigation has been done since inheriting the SGI code. Touch _GLIBCXX_DEQUE_BUF_SIZE only if you know what you are doing, however: changing it breaks the binary compatibility!!

Definition at line 82 of file stl_deque.h.

6.293 stl_function.h File Reference

Classes

- struct std::binary_function< _Arg1, _Arg2, _Result >
- class std::binary_negate< _Predicate >

  One of the negation functors.

- class std::const_mem_fun1_ref_t< _Ret, _Tp, _Arg >

  One of the adaptors for member pointers.

- class std::const_mem_fun1_t< _Ret, _Tp, _Arg >

  One of the adaptors for member pointers.

- class std::const_mem_fun_ref_t< _Ret, _Tp >

  One of the adaptors for member pointers.

- class std::const_mem_fun_t< _Ret, _Tp >

  One of the adaptors for member pointers.

- struct std::divides< _Tp >

  One of the math functors.

- struct std::equal_to< _Tp >

  One of the comparison functors.

- struct std::greater< _Tp >

  One of the comparison functors.

- struct std::greater_equal< _Tp >

  One of the comparison functors.

- struct std::less< _Tp >

  One of the comparison functors.

- struct std::less_equal< _Tp >

  One of the comparison functors.

- struct std::logical_and< _Tp >

  One of the Boolean operations functors.

- struct std::logical_not< _Tp >

One of the Boolean operations functors.

- struct std::logical_or< _Tp >
  One of the Boolean operations functors.
- class std::mem_fun1_ref_t< _Ret, _Tp, _Arg >
  One of the adaptors for member pointers.
- class std::mem_fun1_t< _Ret, _Tp, _Arg >
  One of the adaptors for member pointers.
- class std::mem_fun_ref_t< _Ret, _Tp >
  One of the adaptors for member pointers.
- class std::mem_fun_t< _Ret, _Tp >
  One of the adaptors for member pointers.
- struct std::minus< _Tp >
  One of the math functors.
- struct std::modulus< _Tp >
  One of the math functors.
- struct std::multiplies< _Tp >
  One of the math functors.
- struct std::negate< _Tp >
  One of the math functors.
- struct std::not_equal_to< _Tp >
  One of the comparison functors.
- struct std::plus< _Tp >
  One of the math functors.
- class std::pointer_to_binary_function< _Arg1, _Arg2, _Result >
  One of the adaptors for function pointers.
- class std::pointer_to_unary_function< _Arg, _Result >
  One of the adaptors for function pointers.
- struct std::unary_function< _Arg, _Result >
- class std::unary_negate< _Predicate >

One of the negation functors.

Namespaces

- namespace std

Defines

- #define **_STL_FUNCTION_H**

Functions

- template<typename _Ret , typename _Tp , typename _Arg >
  mem_fun1_t< _Ret, _Tp, _Arg > **std::mem_fun** (_Ret(_Tp::*__f)(_Arg))
- template<typename _Ret , typename _Tp >
  mem_fun_t< _Ret, _Tp > **std::mem_fun** (_Ret(_Tp::*__f)())
- template<typename _Ret , typename _Tp , typename _Arg >
  mem_fun1_ref_t< _Ret, _Tp, _Arg > **std::mem_fun_ref** (_Ret(_Tp::*__f)(_Arg))
- template<typename _Ret , typename _Tp >
  mem_fun_ref_t< _Ret, _Tp > **std::mem_fun_ref** (_Ret(_Tp::*__f)())
- template<typename _Predicate >
  unary_negate< _Predicate > std::not1 (const _Predicate &__pred)
- template<typename _Predicate >
  binary_negate< _Predicate > std::not2 (const _Predicate &__pred)
- template<typename _Arg1 , typename _Arg2 , typename _Result >
  pointer_to_binary_function< _Arg1, _Arg2, _Result > std::ptr_fun (_Result(*__x)(_Arg1, _Arg2))
- template<typename _Arg , typename _Result >
  pointer_to_unary_function< _Arg, _Result > std::ptr_fun (_Result(*__x)(_Arg))

6.293.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file stl_function.h.

6.294 stl_heap.h File Reference

Namespaces

- namespace std

Defines

- #define **_STL_HEAP_H**

Functions

- template<typename _RandomAccessIterator , typename _Distance , typename _Tp , typename _Compare >
  void **std::__adjust_heap** (_RandomAccessIterator __first, _Distance __holeIndex, _Distance __len, _Tp __value, _Compare __comp)
- template<typename _RandomAccessIterator , typename _Distance , typename _Tp >
  void **std::__adjust_heap** (_RandomAccessIterator __first, _Distance __holeIndex, _Distance __len, _Tp __value)
- template<typename _RandomAccessIterator , typename _Compare >
  bool **std::__is_heap** (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  bool **std::__is_heap** (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _RandomAccessIterator , typename _Compare , typename _Distance >
  bool **std::__is_heap** (_RandomAccessIterator __first, _Compare __comp, _Distance __n)
- template<typename _RandomAccessIterator , typename _Distance >
  bool **std::__is_heap** (_RandomAccessIterator __first, _Distance __n)
- template<typename _RandomAccessIterator , typename _Distance , typename _Compare >
  _Distance **std::__is_heap_until** (_RandomAccessIterator __first, _Distance __n, _Compare __comp)
- template<typename _RandomAccessIterator , typename _Distance >
  _Distance **std::__is_heap_until** (_RandomAccessIterator __first, _Distance __n)
- template<typename _RandomAccessIterator , typename _Compare >
  void **std::__pop_heap** (_RandomAccessIterator __first, _RandomAccessIterator __last, _RandomAccessIterator __result, _Compare __comp)
- template<typename _RandomAccessIterator >
  void **std::__pop_heap** (_RandomAccessIterator __first, _RandomAccessIterator __last, _RandomAccessIterator __result)

- template<typename _RandomAccessIterator , typename _Distance , typename _Tp , typename _Compare >
  void **std::__push_heap** (_RandomAccessIterator __first, _Distance __holeIndex, _Distance __topIndex, _Tp __value, _Compare __comp)
- template<typename _RandomAccessIterator , typename _Distance , typename _Tp >
  void **std::__push_heap** (_RandomAccessIterator __first, _Distance __holeIndex, _Distance __topIndex, _Tp __value)
- template<typename _RandomAccessIterator , typename _Compare >
  bool std::is_heap (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  bool std::is_heap (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _RandomAccessIterator , typename _Compare >
  _RandomAccessIterator std::is_heap_until (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  _RandomAccessIterator std::is_heap_until (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _RandomAccessIterator , typename _Compare >
  void std::make_heap (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  void std::make_heap (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _RandomAccessIterator , typename _Compare >
  void std::pop_heap (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  void std::pop_heap (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _RandomAccessIterator , typename _Compare >
  void std::push_heap (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  void std::push_heap (_RandomAccessIterator __first, _RandomAccessIterator __last)
- template<typename _RandomAccessIterator , typename _Compare >
  void std::sort_heap (_RandomAccessIterator __first, _RandomAccessIterator __last, _Compare __comp)
- template<typename _RandomAccessIterator >
  void std::sort_heap (_RandomAccessIterator __first, _RandomAccessIterator __last)

6.294.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file stl_heap.h.

6.295 stl_iterator.h File Reference

Classes

- class std::back_insert_iterator< _Container >
  Turns assignment into insertion.
- class std::front_insert_iterator< _Container >
  Turns assignment into insertion.
- class std::insert_iterator< _Container >
  Turns assignment into insertion.
- class std::move_iterator< _Iterator >
- class std::reverse_iterator< _Iterator >

Namespaces

- namespace __gnu_cxx
- namespace std

Defines

- #define **_GLIBCXX_MAKE_MOVE_ITERATOR**(_Iter)
- #define **_STL_ITERATOR_H**

Functions

- template<typename _Container >
  back_insert_iterator< _Container > std::back_inserter (_Container &__x)
- template<typename _Container >
  front_insert_iterator< _Container > std::front_inserter (_Container &__x)
- template<typename _Container , typename _Iterator >
  insert_iterator< _Container > std::inserter (_Container &__x, _Iterator __i)
- template<typename _Iterator >
  move_iterator< _Iterator > **std::make_move_iterator** (const _Iterator &__i)
- template<typename _IteratorL , typename _IteratorR >
  bool **std::operator!=** (const move_iterator< _IteratorL > &__x, const move_-iterator< _IteratorR > &__y)
- template<typename _Iterator , typename _Container >
  bool **__gnu_cxx::operator!=** (const __normal_iterator< _Iterator, _Container > &__lhs, const __normal_iterator< _Iterator, _Container > &__rhs)

- template<typename _IteratorL , typename _IteratorR , typename _Container >
  bool **__gnu_cxx::operator!=** (const __normal_iterator< _IteratorL, _Container > &__lhs, const __normal_iterator< _IteratorR, _Container > &__rhs)
- template<typename _IteratorL , typename _IteratorR >
  bool **std::operator!=** (const reverse_iterator< _IteratorL > &__x, const reverse_iterator< _IteratorR > &__y)
- template<typename _Iterator >
  bool **std::operator!=** (const reverse_iterator< _Iterator > &__x, const reverse_iterator< _Iterator > &__y)
- template<typename _Iterator >
  move_iterator< _Iterator > **std::operator+** (typename move_iterator< _Iterator >::difference_type __n, const move_iterator< _Iterator > &__x)
- template<typename _Iterator , typename _Container >
  __normal_iterator< _Iterator, _Container > **__gnu_cxx::operator+** (typename __normal_iterator< _Iterator, _Container >::difference_type __n, const __normal_iterator< _Iterator, _Container > &__i)
- template<typename _Iterator >
  reverse_iterator< _Iterator > **std::operator+** (typename reverse_iterator< _Iterator >::difference_type __n, const reverse_iterator< _Iterator > &__x)
- template<typename _IteratorL , typename _IteratorR >
  auto **std::operator-** (const move_iterator< _IteratorL > &__x, const move_iterator< _IteratorR > &__y)-> decltype(__x.base()-__y.base())
- template<typename _Iterator , typename _Container >
  __normal_iterator< _Iterator, _Container >::difference_type **__gnu_cxx::operator-** (const __normal_iterator< _Iterator, _Container > &__lhs, const __normal_iterator< _Iterator, _Container > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Container >
  auto **__gnu_cxx::operator-** (const __normal_iterator< _IteratorL, _Container > &__lhs, const __normal_iterator< _IteratorR, _Container > &__rhs)-> decltype(__lhs.base()-__rhs.base())
- template<typename _IteratorL , typename _IteratorR >
  auto **std::operator-** (const reverse_iterator< _IteratorL > &__x, const reverse_iterator< _IteratorR > &__y)-> decltype(__y.base()-__x.base())
- template<typename _Iterator >
  reverse_iterator< _Iterator >::difference_type **std::operator-** (const reverse_iterator< _Iterator > &__x, const reverse_iterator< _Iterator > &__y)
- template<typename _IteratorL , typename _IteratorR >
  bool **std::operator**< (const move_iterator< _IteratorL > &__x, const move_iterator< _IteratorR > &__y)
- template<typename _Iterator , typename _Container >
  bool **__gnu_cxx::operator**< (const __normal_iterator< _Iterator, _Container > &__lhs, const __normal_iterator< _Iterator, _Container > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Container >
  bool **__gnu_cxx::operator**< (const __normal_iterator< _IteratorL, _Container > &__lhs, const __normal_iterator< _IteratorR, _Container > &__rhs)

- template<typename _IteratorL , typename _IteratorR >
  bool **std::operator<** (const reverse_iterator< _IteratorL > &__x, const reverse_iterator< _IteratorR > &__y)
- template<typename _Iterator >
  bool **std::operator<** (const reverse_iterator< _Iterator > &__x, const reverse_iterator< _Iterator > &__y)
- template<typename _IteratorL , typename _IteratorR >
  bool **std::operator<=** (const move_iterator< _IteratorL > &__x, const move_iterator< _IteratorR > &__y)
- template<typename _Iterator , typename _Container >
  bool **__gnu_cxx::operator<=** (const __normal_iterator< _Iterator, _Container > &__lhs, const __normal_iterator< _Iterator, _Container > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Container >
  bool **__gnu_cxx::operator<=** (const __normal_iterator< _IteratorL, _Container > &__lhs, const __normal_iterator< _IteratorR, _Container > &__rhs)
- template<typename _IteratorL , typename _IteratorR >
  bool **std::operator<=** (const reverse_iterator< _IteratorL > &__x, const reverse_iterator< _IteratorR > &__y)
- template<typename _Iterator >
  bool **std::operator<=** (const reverse_iterator< _Iterator > &__x, const reverse_iterator< _Iterator > &__y)
- template<typename _IteratorL , typename _IteratorR >
  bool **std::operator==** (const move_iterator< _IteratorL > &__x, const move_iterator< _IteratorR > &__y)
- template<typename _Iterator , typename _Container >
  bool **__gnu_cxx::operator==** (const __normal_iterator< _Iterator, _Container > &__lhs, const __normal_iterator< _Iterator, _Container > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Container >
  bool **__gnu_cxx::operator==** (const __normal_iterator< _IteratorL, _Container > &__lhs, const __normal_iterator< _IteratorR, _Container > &__rhs)
- template<typename _IteratorL , typename _IteratorR >
  bool **std::operator==** (const reverse_iterator< _IteratorL > &__x, const reverse_iterator< _IteratorR > &__y)
- template<typename _Iterator >
  bool std::operator== (const reverse_iterator< _Iterator > &__x, const reverse_iterator< _Iterator > &__y)
- template<typename _IteratorL , typename _IteratorR >
  bool **std::operator>** (const move_iterator< _IteratorL > &__x, const move_iterator< _IteratorR > &__y)
- template<typename _Iterator , typename _Container >
  bool **__gnu_cxx::operator>** (const __normal_iterator< _Iterator, _Container > &__lhs, const __normal_iterator< _Iterator, _Container > &__rhs)

- template<typename _IteratorL , typename _IteratorR , typename _Container >
  bool **__gnu_cxx::operator>** (const __normal_iterator< _IteratorL, _Container > &__lhs, const __normal_iterator< _IteratorR, _Container > &__rhs)
- template<typename _IteratorL , typename _IteratorR >
  bool **std::operator>** (const reverse_iterator< _IteratorL > &__x, const reverse_iterator< _IteratorR > &__y)
- template<typename _Iterator >
  bool **std::operator>** (const reverse_iterator< _Iterator > &__x, const reverse_iterator< _Iterator > &__y)
- template<typename _IteratorL , typename _IteratorR >
  bool **std::operator>=** (const move_iterator< _IteratorL > &__x, const move_iterator< _IteratorR > &__y)
- template<typename _Iterator , typename _Container >
  bool **__gnu_cxx::operator>=** (const __normal_iterator< _Iterator, _Container > &__lhs, const __normal_iterator< _Iterator, _Container > &__rhs)
- template<typename _IteratorL , typename _IteratorR , typename _Container >
  bool **__gnu_cxx::operator>=** (const __normal_iterator< _IteratorL, _Container > &__lhs, const __normal_iterator< _IteratorR, _Container > &__rhs)
- template<typename _IteratorL , typename _IteratorR >
  bool **std::operator>=** (const reverse_iterator< _IteratorL > &__x, const reverse_iterator< _IteratorR > &__y)
- template<typename _Iterator >
  bool **std::operator>=** (const reverse_iterator< _Iterator > &__x, const reverse_iterator< _Iterator > &__y)

6.295.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

This file implements reverse_iterator, back_insert_iterator, front_insert_iterator, insert_iterator, __normal_iterator, and their supporting functions and overloaded operators.

Definition in file stl_iterator.h.

6.296 stl_iterator_base_funcs.h File Reference

Namespaces

- namespace std

Defines

- #define **_STL_ITERATOR_BASE_FUNCS_H**

Functions

- template<typename _RandomAccessIterator , typename _Distance >
  void **std::__advance** (_RandomAccessIterator &__i, _Distance __n, random_access_iterator_tag)
- template<typename _BidirectionalIterator , typename _Distance >
  void **std::__advance** (_BidirectionalIterator &__i, _Distance __n, bidirectional_iterator_tag)
- template<typename _InputIterator , typename _Distance >
  void **std::__advance** (_InputIterator &__i, _Distance __n, input_iterator_tag)
- template<typename _RandomAccessIterator >
  iterator_traits< _RandomAccessIterator >::difference_type **std::__distance** (_RandomAccessIterator __first, _RandomAccessIterator __last, random_access_iterator_tag)
- template<typename _InputIterator >
  iterator_traits< _InputIterator >::difference_type **std::__distance** (_InputIterator __first, _InputIterator __last, input_iterator_tag)
- template<typename _InputIterator , typename _Distance >
  void std::advance (_InputIterator &__i, _Distance __n)
- template<typename _InputIterator >
  iterator_traits< _InputIterator >::difference_type std::distance (_InputIterator __first, _InputIterator __last)
- template<typename _ForwardIterator >
  _ForwardIterator **std::next** (_ForwardIterator __x, typename iterator_traits< _ForwardIterator >::difference_type __n=1)
- template<typename _BidirectionalIterator >
  _BidirectionalIterator **std::prev** (_BidirectionalIterator __x, typename iterator_traits< _BidirectionalIterator >::difference_type __n=1)

6.296.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

This file contains all of the general iterator-related utility functions, such as distance() and advance().

Definition in file stl_iterator_base_funcs.h.

6.297 stl_iterator_base_types.h File Reference

Classes

- struct std::bidirectional_iterator_tag

  Bidirectional iterators support a superset of forward iterator operations.

- struct std::forward_iterator_tag

  Forward iterators support a superset of input iterator operations.

- struct std::input_iterator_tag

  Marking input iterators.

- struct std::iterator< _Category, _Tp, _Distance, _Pointer, _Reference >

  Common iterator class.

- struct std::iterator_traits< _Iterator >

  Traits class for iterators.

- struct std::iterator_traits< _Tp * >

  Partial specialization for pointer types.

- struct std::iterator_traits< const _Tp * >

  Partial specialization for const pointer types.

- struct std::output_iterator_tag

  Marking output iterators.

- struct std::random_access_iterator_tag

  Random-access iterators support a superset of bidirectional iterator operations.

Namespaces

- namespace std

Defines

- #define **_STL_ITERATOR_BASE_TYPES_H**

Functions

- template<typename _Iter >
  iterator_traits< _Iter >::iterator_category std::__iterator_category (const _Iter &)

6.297.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

This file contains all of the general iterator-related utility types, such as iterator_traits and struct iterator.

Definition in file stl_iterator_base_types.h.

6.298 stl_list.h File Reference

Classes

- class std::_List_base< _Tp, _Alloc >

  See bits/stl_deque.h's _Deque_base for an explanation.

- struct std::_List_const_iterator< _Tp >

  A list::const_iterator.

- struct std::_List_iterator< _Tp >

  A list::iterator.

- struct std::_List_node< _Tp >

  An actual node in the list.

- struct std::_List_node_base

  Common part of a node in the list.

- class std::list< _Tp, _Alloc >

  A standard container with linear time access to elements, and fixed time insertion/deletion at any point in the sequence.

Namespaces

- namespace std

Defines

- #define **_STL_LIST_H**

Functions

- template<typename _Tp , typename _Alloc >
  bool std::operator!= (const list< _Tp, _Alloc > &__x, const list< _Tp, _Alloc > &__y)
- template<typename _Val >
  bool **std::operator!=** (const _List_iterator< _Val > &__x, const _List_const_iterator< _Val > &__y)

- template<typename _Tp , typename _Alloc >
  bool std::operator< (const list< _Tp, _Alloc > &__x, const list< _Tp, _Alloc > &__y)
- template<typename _Tp , typename _Alloc >
  bool std::operator<= (const list< _Tp, _Alloc > &__x, const list< _Tp, _Alloc > &__y)
- template<typename _Tp , typename _Alloc >
  bool std::operator== (const list< _Tp, _Alloc > &__x, const list< _Tp, _Alloc > &__y)
- template<typename _Val >
  bool **std::operator==** (const _List_iterator< _Val > &__x, const _List_const_iterator< _Val > &__y)
- template<typename _Tp , typename _Alloc >
  bool std::operator> (const list< _Tp, _Alloc > &__x, const list< _Tp, _Alloc > &__y)
- template<typename _Tp , typename _Alloc >
  bool std::operator>= (const list< _Tp, _Alloc > &__x, const list< _Tp, _Alloc > &__y)
- template<typename _Tp , typename _Alloc >
  void std::swap (list< _Tp, _Alloc > &__x, list< _Tp, _Alloc > &__y)

6.298.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file stl_list.h.

6.299 stl_map.h File Reference

Classes

- class std::map< _Key, _Tp, _Compare, _Alloc >

  A standard container made up of (key,value) pairs, which can be retrieved based on a key, in logarithmic time.

Namespaces

- namespace std

Defines

- #define **_STL_MAP_H**

Functions

- template<typename _Key , typename _Tp , typename _Compare , typename _Alloc >
  bool std::operator!= (const map< _Key, _Tp, _Compare, _Alloc > &__x, const map< _Key, _Tp, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Compare , typename _Alloc >
  bool std::operator< (const map< _Key, _Tp, _Compare, _Alloc > &__x, const map< _Key, _Tp, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Compare , typename _Alloc >
  bool std::operator<= (const map< _Key, _Tp, _Compare, _Alloc > &__x, const map< _Key, _Tp, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Compare , typename _Alloc >
  bool std::operator== (const map< _Key, _Tp, _Compare, _Alloc > &__x, const map< _Key, _Tp, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Compare , typename _Alloc >
  bool std::operator> (const map< _Key, _Tp, _Compare, _Alloc > &__x, const map< _Key, _Tp, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Compare , typename _Alloc >
  bool std::operator>= (const map< _Key, _Tp, _Compare, _Alloc > &__x, const map< _Key, _Tp, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Compare , typename _Alloc >
  void std::swap (map< _Key, _Tp, _Compare, _Alloc > &__x, map< _Key, _Tp, _Compare, _Alloc > &__y)

6.299.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file stl_map.h.

6.300 stl_multimap.h File Reference

Classes

- class std::multimap< _Key, _Tp, _Compare, _Alloc >

  A standard container made up of (key,value) pairs, which can be retrieved based on a key, in logarithmic time.

Namespaces

- namespace std

Defines

- #define **_STL_MULTIMAP_H**

Functions

- template<typename _Key , typename _Tp , typename _Compare , typename _Alloc >
  bool std::operator!= (const multimap< _Key, _Tp, _Compare, _Alloc > &__x, const multimap< _Key, _Tp, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Compare , typename _Alloc >
  bool std::operator< (const multimap< _Key, _Tp, _Compare, _Alloc > &__x, const multimap< _Key, _Tp, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Compare , typename _Alloc >
  bool std::operator<= (const multimap< _Key, _Tp, _Compare, _Alloc > &__x, const multimap< _Key, _Tp, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Compare , typename _Alloc >
  bool std::operator== (const multimap< _Key, _Tp, _Compare, _Alloc > &__x, const multimap< _Key, _Tp, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Compare , typename _Alloc >
  bool std::operator> (const multimap< _Key, _Tp, _Compare, _Alloc > &__x, const multimap< _Key, _Tp, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Compare , typename _Alloc >
  bool std::operator>= (const multimap< _Key, _Tp, _Compare, _Alloc > &__x, const multimap< _Key, _Tp, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Compare , typename _Alloc >
  void std::swap (multimap< _Key, _Tp, _Compare, _Alloc > &__x, multimap< _Key, _Tp, _Compare, _Alloc > &__y)

6.300.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file stl_multimap.h.

6.301 stl_multiset.h File Reference

Classes

- class std::multiset< _Key, _Compare, _Alloc >

  A standard container made up of elements, which can be retrieved in logarithmic time.

Namespaces

- namespace std

Defines

- #define **_STL_MULTISET_H**

Functions

- template<typename _Key , typename _Compare , typename _Alloc >
  bool std::operator!= (const multiset< _Key, _Compare, _Alloc > &__x, const multiset< _Key, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Compare , typename _Alloc >
  bool std::operator< (const multiset< _Key, _Compare, _Alloc > &__x, const multiset< _Key, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Compare , typename _Alloc >
  bool std::operator<= (const multiset< _Key, _Compare, _Alloc > &__x, const multiset< _Key, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Compare , typename _Alloc >
  bool std::operator== (const multiset< _Key, _Compare, _Alloc > &__x, const multiset< _Key, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Compare , typename _Alloc >
  bool std::operator> (const multiset< _Key, _Compare, _Alloc > &__x, const multiset< _Key, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Compare , typename _Alloc >
  bool std::operator>= (const multiset< _Key, _Compare, _Alloc > &__x, const multiset< _Key, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Compare , typename _Alloc >
  void std::swap (multiset< _Key, _Compare, _Alloc > &__x, multiset< _Key, _Compare, _Alloc > &__y)

6.301.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file stl_multiset.h.

6.302 stl_numeric.h File Reference

Namespaces

- namespace std

Defines

- #define **_STL_NUMERIC_H**

Functions

- template<typename _InputIterator , typename _Tp , typename _BinaryOperation >
  _Tp std::accumulate (_InputIterator __first, _InputIterator __last, _Tp __init, _BinaryOperation __binary_op)
- template<typename _InputIterator , typename _Tp >
  _Tp std::accumulate (_InputIterator __first, _InputIterator __last, _Tp __init)
- template<typename _InputIterator , typename _OutputIterator , typename _BinaryOperation >
  _OutputIterator std::adjacent_difference (_InputIterator __first, _InputIterator __last, _OutputIterator __result, _BinaryOperation __binary_op)
- template<typename _InputIterator , typename _OutputIterator >
  _OutputIterator std::adjacent_difference (_InputIterator __first, _InputIterator __last, _OutputIterator __result)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _Tp , typename _BinaryOperation1 , typename _BinaryOperation2 >
  _Tp std::inner_product (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _Tp __init, _BinaryOperation1 __binary_op1, _BinaryOperation2 __binary_op2)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _Tp >
  _Tp std::inner_product (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _Tp __init)
- template<typename _ForwardIterator , typename _Tp >
  void std::iota (_ForwardIterator __first, _ForwardIterator __last, _Tp __value)
- template<typename _InputIterator , typename _OutputIterator , typename _BinaryOperation >
  _OutputIterator std::partial_sum (_InputIterator __first, _InputIterator __last, _OutputIterator __result, _BinaryOperation __binary_op)
- template<typename _InputIterator , typename _OutputIterator >
  _OutputIterator std::partial_sum (_InputIterator __first, _InputIterator __last, _OutputIterator __result)

6.302.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file stl_numeric.h.

6.303 stl_pair.h File Reference

Classes

- struct std::pair< _T1, _T2 >

  pair holds two objects of arbitrary type.

Namespaces

- namespace std

Defines

- #define **_STL_PAIR_H**

Functions

- template<class _T1 , class _T2 >
  pair< typename __decay_and_strip< _T1 >::__type, typename __decay_and_-strip< _T2 >::__type > **std::make_pair** (_T1 &&__x, _T2 &&__y)
- template<class _T1 , class _T2 >
  bool std::operator!= (const pair< _T1, _T2 > &__x, const pair< _T1, _T2 > &__y)
- template<class _T1 , class _T2 >
  bool std::operator< (const pair< _T1, _T2 > &__x, const pair< _T1, _T2 > &__y)
- template<class _T1 , class _T2 >
  bool std::operator<= (const pair< _T1, _T2 > &__x, const pair< _T1, _T2 > &__y)
- template<class _T1 , class _T2 >
  bool std::operator== (const pair< _T1, _T2 > &__x, const pair< _T1, _T2 > &__y)
- template<class _T1 , class _T2 >
  bool std::operator> (const pair< _T1, _T2 > &__x, const pair< _T1, _T2 > &__y)
- template<class _T1 , class _T2 >
  bool std::operator>= (const pair< _T1, _T2 > &__x, const pair< _T1, _T2 > &__y)
- template<class _T1 , class _T2 >
  void std::swap (pair< _T1, _T2 > &__x, pair< _T1, _T2 > &__y)

6.303.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file stl_pair.h.

6.304 stl_queue.h File Reference

Classes

- class std::priority_queue< _Tp, _Sequence, _Compare >

  A standard container automatically sorting its contents.

- class std::queue< _Tp, _Sequence >

  A standard container giving FIFO behavior.

Namespaces

- namespace std

Defines

- #define **_STL_QUEUE_H**

Functions

- template<typename _Tp , typename _Seq >
  bool std::operator!= (const queue< _Tp, _Seq > &__x, const queue< _Tp, _Seq > &__y)
- template<typename _Tp , typename _Seq >
  bool std::operator< (const queue< _Tp, _Seq > &__x, const queue< _Tp, _Seq > &__y)
- template<typename _Tp , typename _Seq >
  bool std::operator<= (const queue< _Tp, _Seq > &__x, const queue< _Tp, _Seq > &__y)
- template<typename _Tp , typename _Seq >
  bool std::operator== (const queue< _Tp, _Seq > &__x, const queue< _Tp, _Seq > &__y)
- template<typename _Tp , typename _Seq >
  bool std::operator> (const queue< _Tp, _Seq > &__x, const queue< _Tp, _Seq > &__y)
- template<typename _Tp , typename _Seq >
  bool std::operator>= (const queue< _Tp, _Seq > &__x, const queue< _Tp, _Seq > &__y)
- template<typename _Tp , typename _Sequence , typename _Compare >
  void **std::swap** (priority_queue< _Tp, _Sequence, _Compare > &__x, priority_queue< _Tp, _Sequence, _Compare > &__y)

- template<typename _Tp , typename _Seq >
  void **std::swap** (queue< _Tp, _Seq > &__x, queue< _Tp, _Seq > &__y)

6.304.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file stl_queue.h.

6.305 stl_raw_storage_iter.h File Reference

Classes

- class std::raw_storage_iterator< _OutputIterator, _Tp >

Namespaces

- namespace std

Defines

- #define **_STL_RAW_STORAGE_ITERATOR_H**

6.305.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file stl_raw_storage_iter.h.

6.306 stl_relops.h File Reference

Namespaces

- namespace std
- namespace std::rel_ops

Defines

- #define **_STL_RELOPS_H**

Functions

- template<class _Tp >
  bool std::rel_ops::operator!= (const _Tp &__x, const _Tp &__y)
- template<class _Tp >
  bool std::rel_ops::operator<= (const _Tp &__x, const _Tp &__y)
- template<class _Tp >
  bool std::rel_ops::operator> (const _Tp &__x, const _Tp &__y)
- template<class _Tp >
  bool std::rel_ops::operator>= (const _Tp &__x, const _Tp &__y)

6.306.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Inclusion of this file has been removed from all of the other STL headers for safety reasons, except std_utility.h. For more information, see the thread of about twenty messages starting with http://gcc.gnu.org/ml/libstdc++/2001-01/msg00223.html, or http://gcc.gnu.org/onlinedocs/libstdc++/faq.html#faq.ambiguous_overloads

Short summary: the rel_ops operators should be avoided for the present.

Definition in file stl_relops.h.

6.307 stl_set.h File Reference

Classes

- class std::set< _Key, _Compare, _Alloc >

  A standard container made up of unique keys, which can be retrieved in logarithmic time.

Namespaces

- namespace std

Defines

- #define **_STL_SET_H**

Functions

- template<typename _Key , typename _Compare , typename _Alloc >
  bool std::operator!= (const set< _Key, _Compare, _Alloc > &__x, const set< _Key, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Compare , typename _Alloc >
  bool std::operator< (const set< _Key, _Compare, _Alloc > &__x, const set< _Key, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Compare , typename _Alloc >
  bool std::operator<= (const set< _Key, _Compare, _Alloc > &__x, const set< _Key, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Compare , typename _Alloc >
  bool std::operator== (const set< _Key, _Compare, _Alloc > &__x, const set< _Key, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Compare , typename _Alloc >
  bool std::operator> (const set< _Key, _Compare, _Alloc > &__x, const set< _Key, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Compare , typename _Alloc >
  bool std::operator>= (const set< _Key, _Compare, _Alloc > &__x, const set< _Key, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Compare , typename _Alloc >
  void std::swap (set< _Key, _Compare, _Alloc > &__x, set< _Key, _Compare, _Alloc > &__y)

6.307.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file stl_set.h.

6.308 stl_stack.h File Reference

Classes

- class std::stack< _Tp, _Sequence >

  A standard container giving FILO behavior.

Namespaces

- namespace std

Defines

- #define **_STL_STACK_H**

Functions

- template<typename _Tp , typename _Seq >
  bool std::operator!= (const stack< _Tp, _Seq > &__x, const stack< _Tp, _Seq > &__y)
- template<typename _Tp , typename _Seq >
  bool std::operator< (const stack< _Tp, _Seq > &__x, const stack< _Tp, _Seq > &__y)
- template<typename _Tp , typename _Seq >
  bool std::operator<= (const stack< _Tp, _Seq > &__x, const stack< _Tp, _Seq > &__y)
- template<typename _Tp , typename _Seq >
  bool std::operator== (const stack< _Tp, _Seq > &__x, const stack< _Tp, _Seq > &__y)
- template<typename _Tp , typename _Seq >
  bool std::operator> (const stack< _Tp, _Seq > &__x, const stack< _Tp, _Seq > &__y)
- template<typename _Tp , typename _Seq >
  bool std::operator>= (const stack< _Tp, _Seq > &__x, const stack< _Tp, _Seq > &__y)
- template<typename _Tp , typename _Seq >
  void **std::swap** (stack< _Tp, _Seq > &__x, stack< _Tp, _Seq > &__y)

6.308.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file stl_stack.h.

6.309 stl_tempbuf.h File Reference

Classes

- class std::_Temporary_buffer< _ForwardIterator, _Tp >

Namespaces

- namespace std

Defines

- #define **_STL_TEMPBUF_H**

Functions

- template<typename _Tp >
  pair< _Tp *, ptrdiff_t > std::get_temporary_buffer (ptrdiff_t __len)
- template<typename _Tp >
  void std::return_temporary_buffer (_Tp *__p)

6.309.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file stl_tempbuf.h.

6.310 stl_tree.h File Reference

Namespaces

- namespace std

Defines

- #define **_STL_TREE_H**

Enumerations

- enum **_Rb_tree_color** { **_S_red**, **_S_black** }

Functions

- **std::__attribute__** ((__pure__)) bool __verify_grouping(const char *__grouping
- void **std::_Rb_tree_insert_and_rebalance** (const bool __insert_left, _Rb_tree_node_base *__x, _Rb_tree_node_base *__p, _Rb_tree_node_base &__header) throw ()
- _Rb_tree_node_base * **std::_Rb_tree_rebalance_for_erase** (_Rb_tree_node_base *const __z, _Rb_tree_node_base &__header) throw ()
- template<typename _Key , typename _Val , typename _KeyOfValue , typename _Compare , typename _Alloc >
  bool **std::operator!=** (const _Rb_tree< _Key, _Val, _KeyOfValue, _Compare, _Alloc > &__x, const _Rb_tree< _Key, _Val, _KeyOfValue, _Compare, _Alloc > &__y)
- template<typename _Val >
  bool **std::operator!=** (const _Rb_tree_iterator< _Val > &__x, const _Rb_tree_const_iterator< _Val > &__y)
- template<typename _Key , typename _Val , typename _KeyOfValue , typename _Compare , typename _Alloc >
  bool **std::operator**< (const _Rb_tree< _Key, _Val, _KeyOfValue, _Compare, _Alloc > &__x, const _Rb_tree< _Key, _Val, _KeyOfValue, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Val , typename _KeyOfValue , typename _Compare , typename _Alloc >
  bool **std::operator<=** (const _Rb_tree< _Key, _Val, _KeyOfValue, _Compare, _Alloc > &__x, const _Rb_tree< _Key, _Val, _KeyOfValue, _Compare, _Alloc > &__y)

- template<typename _Key , typename _Val , typename _KeyOfValue , typename _Compare , typename _Alloc >
  bool **std::operator==** (const _Rb_tree< _Key, _Val, _KeyOfValue, _Compare, _Alloc > &__x, const _Rb_tree< _Key, _Val, _KeyOfValue, _Compare, _Alloc > &__y)
- template<typename _Val >
  bool **std::operator==** (const _Rb_tree_iterator< _Val > &__x, const _Rb_tree_const_iterator< _Val > &__y)
- template<typename _Key , typename _Val , typename _KeyOfValue , typename _Compare , typename _Alloc >
  bool **std::operator>** (const _Rb_tree< _Key, _Val, _KeyOfValue, _Compare, _Alloc > &__x, const _Rb_tree< _Key, _Val, _KeyOfValue, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Val , typename _KeyOfValue , typename _Compare , typename _Alloc >
  bool **std::operator>=** (const _Rb_tree< _Key, _Val, _KeyOfValue, _Compare, _Alloc > &__x, const _Rb_tree< _Key, _Val, _KeyOfValue, _Compare, _Alloc > &__y)
- template<typename _Key , typename _Val , typename _KeyOfValue , typename _Compare , typename _Alloc >
  void **std::swap** (_Rb_tree< _Key, _Val, _KeyOfValue, _Compare, _Alloc > &__x, _Rb_tree< _Key, _Val, _KeyOfValue, _Compare, _Alloc > &__y)
- size_t const string &__grouping_tmp **std::throw** ()

6.310.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file stl_tree.h.

6.311 stl_uninitialized.h File Reference

Namespaces

- namespace std

Defines

- #define **_STL_UNINITIALIZED_H**

Functions

- template<typename _ForwardIterator , typename _Tp >
  void **std::__uninitialized_construct_range** (_ForwardIterator __first, _ForwardIterator __last, _Tp &__value)
- template<typename _InputIterator , typename _ForwardIterator , typename _Tp >
  _ForwardIterator **std::__uninitialized_copy_a** (_InputIterator __first, _InputIterator __last, _ForwardIterator __result, allocator< _Tp > &)
- template<typename _InputIterator , typename _ForwardIterator , typename _Allocator >
  _ForwardIterator **std::__uninitialized_copy_a** (_InputIterator __first, _InputIterator __last, _ForwardIterator __result, _Allocator &__alloc)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _ForwardIterator , typename _Allocator >
  _ForwardIterator **std::__uninitialized_copy_move** (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _ForwardIterator __result, _Allocator &__alloc)
- template<typename _RandomAccessIterator , typename _Size , typename _ForwardIterator >
  _ForwardIterator **std::__uninitialized_copy_n** (_RandomAccessIterator __first, _Size __n, _ForwardIterator __result, random_access_iterator_tag)
- template<typename _InputIterator , typename _Size , typename _ForwardIterator >
  _ForwardIterator **std::__uninitialized_copy_n** (_InputIterator __first, _Size __n, _ForwardIterator __result, input_iterator_tag)
- template<typename _ForwardIterator , typename _Tp , typename _Tp2 >
  void **std::__uninitialized_fill_a** (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__x, allocator< _Tp2 > &)
- template<typename _ForwardIterator , typename _Tp , typename _Allocator >
  void **std::__uninitialized_fill_a** (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__x, _Allocator &__alloc)
- template<typename _ForwardIterator , typename _Tp , typename _InputIterator , typename _Allocator >
  _ForwardIterator **std::__uninitialized_fill_move** (_ForwardIterator __result, _ForwardIterator __mid, const _Tp &__x, _InputIterator __first, _InputIterator __last, _Allocator &__alloc)

- template<typename _ForwardIterator , typename _Size , typename _Tp , typename _Tp2 >
  void **std::__uninitialized_fill_n_a** (_ForwardIterator __first, _Size __n, const _Tp &__x, allocator< _Tp2 > &)
- template<typename _ForwardIterator , typename _Size , typename _Tp , typename _Allocator >
  void **std::__uninitialized_fill_n_a** (_ForwardIterator __first, _Size __n, const _Tp &__x, _Allocator &__alloc)
- template<typename _InputIterator , typename _ForwardIterator , typename _Allocator >
  _ForwardIterator **std::__uninitialized_move_a** (_InputIterator __first, _InputIterator __last, _ForwardIterator __result, _Allocator &__alloc)
- template<typename _InputIterator1 , typename _InputIterator2 , typename _ForwardIterator , typename _Allocator >
  _ForwardIterator **std::__uninitialized_move_copy** (_InputIterator1 __first1, _InputIterator1 __last1, _InputIterator2 __first2, _InputIterator2 __last2, _ForwardIterator __result, _Allocator &__alloc)
- template<typename _InputIterator , typename _ForwardIterator , typename _Tp , typename _Allocator >
  void **std::__uninitialized_move_fill** (_InputIterator __first1, _InputIterator __last1, _ForwardIterator __first2, _ForwardIterator __last2, const _Tp &__x, _Allocator &__alloc)
- template<typename _InputIterator , typename _ForwardIterator >
  _ForwardIterator std::uninitialized_copy (_InputIterator __first, _InputIterator __last, _ForwardIterator __result)
- template<typename _InputIterator , typename _Size , typename _ForwardIterator >
  _ForwardIterator std::uninitialized_copy_n (_InputIterator __first, _Size __n, _ForwardIterator __result)
- template<typename _ForwardIterator , typename _Tp >
  void std::uninitialized_fill (_ForwardIterator __first, _ForwardIterator __last, const _Tp &__x)
- template<typename _ForwardIterator , typename _Size , typename _Tp >
  void std::uninitialized_fill_n (_ForwardIterator __first, _Size __n, const _Tp &__x)

6.311.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file stl_uninitialized.h.

6.312 stl_vector.h File Reference

Classes

- struct std::_Vector_base< _Tp, _Alloc >

  See bits/stl_deque.h's _Deque_base for an explanation.

- class std::vector< _Tp, _Alloc >

  A standard container which offers fixed time access to individual elements in any order.

Namespaces

- namespace std

Defines

- #define **_STL_VECTOR_H**

Functions

- template<typename _Tp , typename _Alloc >
  bool std::operator!= (const vector< _Tp, _Alloc > &__x, const vector< _Tp, _Alloc > &__y)
- template<typename _Tp , typename _Alloc >
  bool std::operator< (const vector< _Tp, _Alloc > &__x, const vector< _Tp, _Alloc > &__y)
- template<typename _Tp , typename _Alloc >
  bool std::operator<= (const vector< _Tp, _Alloc > &__x, const vector< _Tp, _Alloc > &__y)
- template<typename _Tp , typename _Alloc >
  bool std::operator== (const vector< _Tp, _Alloc > &__x, const vector< _Tp, _Alloc > &__y)
- template<typename _Tp , typename _Alloc >
  bool std::operator> (const vector< _Tp, _Alloc > &__x, const vector< _Tp, _Alloc > &__y)
- template<typename _Tp , typename _Alloc >
  bool std::operator>= (const vector< _Tp, _Alloc > &__x, const vector< _Tp, _Alloc > &__y)
- template<typename _Tp , typename _Alloc >
  void std::swap (vector< _Tp, _Alloc > &__x, vector< _Tp, _Alloc > &__y)

6.312.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file stl_vector.h.

6.313 stream_iterator.h File Reference

Classes

- class std::istream_iterator< _Tp, _CharT, _Traits, _Dist >

  Provides input iterator semantics for streams.

- class std::ostream_iterator< _Tp, _CharT, _Traits >

  Provides output iterator semantics for streams.

Namespaces

- namespace std

Defines

- #define **_STREAM_ITERATOR_H**

Functions

- template<class _Tp , class _CharT , class _Traits , class _Dist >
  bool std::operator!= (const istream_iterator< _Tp, _CharT, _Traits, _Dist > &_-
  _x, const istream_iterator< _Tp, _CharT, _Traits, _Dist > &__y)
- template<typename _Tp , typename _CharT , typename _Traits , typename _Dist >
  bool std::operator== (const istream_iterator< _Tp, _CharT, _Traits, _Dist > &_-
  _x, const istream_iterator< _Tp, _CharT, _Traits, _Dist > &__y)

6.313.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file stream_iterator.h.

6.314 streambuf File Reference

Classes

- class std::basic_streambuf< _CharT, _Traits >

  The actual work of input and output (interface).
  This is a base class. Derived stream buffers each control a pair of character sequences: one for input, and one for output.

Namespaces

- namespace std

Defines

- #define **_GLIBXX_STREAMBUF**

Functions

- template<>
  streamsize **std::__copy_streambufs_eof** (basic_streambuf< wchar_t > *__sbin, basic_streambuf< wchar_t > *__sbout, bool &__ineof)
- template<>
  streamsize **std::__copy_streambufs_eof** (basic_streambuf< char > *__sbin, basic_streambuf< char > *__sbout, bool &__ineof)
- template<typename _CharT , typename _Traits >
  streamsize **std::__copy_streambufs_eof** (basic_streambuf< _CharT, _Traits > *, basic_streambuf< _CharT, _Traits > *, bool &)

6.314.1 Detailed Description

This is a Standard C++ Library header.

Definition in file streambuf.

6.315 streambuf.tcc File Reference

Namespaces

- namespace std

Defines

- #define **_STREAMBUF_TCC**

Functions

- template streamsize **std::__copy_streambufs** (basic_streambuf< wchar_t > *, basic_streambuf< wchar_t > *)
- template streamsize **std::__copy_streambufs** (basic_streambuf< char > *, basic_streambuf< char > *)
- template<typename _CharT , typename _Traits >
  streamsize **std::__copy_streambufs** (basic_streambuf< _CharT, _Traits > *_-_sbin, basic_streambuf< _CharT, _Traits > *__sbout)
- template<>
  streamsize **std::__copy_streambufs_eof** (basic_streambuf< wchar_t > *__-sbin, basic_streambuf< wchar_t > *__sbout, bool &__ineof)
- template<>
  streamsize **std::__copy_streambufs_eof** (basic_streambuf< char > *__sbin, basic_streambuf< char > *__sbout, bool &__ineof)
- template<typename _CharT , typename _Traits >
  streamsize **std::__copy_streambufs_eof** (basic_streambuf< _CharT, _Traits > *, basic_streambuf< _CharT, _Traits > *, bool &)

6.315.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file streambuf.tcc.

6.316 streambuf_iterator.h File Reference

Classes

- class std::istreambuf_iterator< _CharT, _Traits >

  Provides input iterator semantics for streambufs.

- class std::ostreambuf_iterator< _CharT, _Traits >

  Provides output iterator semantics for streambufs.

Namespaces

- namespace std

Defines

- #define **_STREAMBUF_ITERATOR_H**

Functions

- template<bool _IsMove, typename _CharT >
  __gnu_cxx::__enable_if< __is_char< _CharT >::__value, _CharT * >::__type **std::__copy_move_a2** (istreambuf_iterator< _CharT > __first, istreambuf_iterator< _CharT > __last, _CharT *__result)
- template<bool _IsMove, typename _CharT >
  __gnu_cxx::__enable_if< __is_char< _CharT >::__value, ostreambuf_iterator< _CharT > >::__type **std::__copy_move_a2** (const _CharT *__first, const _CharT *__last, ostreambuf_iterator< _CharT > __result)
- template<bool _IsMove, typename _CharT >
  __gnu_cxx::__enable_if< __is_char< _CharT >::__value, ostreambuf_iterator< _CharT > >::__type **std::__copy_move_a2** (_CharT *__first, _CharT *__last, ostreambuf_iterator< _CharT > __result)
- template<typename _CharT >
  __gnu_cxx::__enable_if< __is_char< _CharT >::__value, ostreambuf_iterator< _CharT > >::__type **std::copy** (istreambuf_iterator< _CharT > __first, istreambuf_iterator< _CharT > __last, ostreambuf_iterator< _CharT > __result)
- template<typename _CharT >
  __gnu_cxx::__enable_if< __is_char< _CharT >::__value, istreambuf_iterator< _CharT > >::__type **std::find** (istreambuf_iterator< _CharT > __first, istreambuf_iterator< _CharT > __last, const _CharT &__val)

- template<typename _CharT , typename _Traits >
  bool **std::operator!=** (const istreambuf_iterator< _CharT, _Traits > &__a, const istreambuf_iterator< _CharT, _Traits > &__b)
- template<typename _CharT , typename _Traits >
  bool **std::operator==** (const istreambuf_iterator< _CharT, _Traits > &__a, const istreambuf_iterator< _CharT, _Traits > &__b)

6.316.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file streambuf_iterator.h.

6.317 string File Reference

Defines

- #define **_GLIBCXX_STRING**

6.317.1 Detailed Description

This is a Standard C++ Library header.

Definition in file string.

6.318 string File Reference

Classes

- class __gnu_debug::basic_string< _CharT, _Traits, _Allocator >

  Class std::basic_string with safety/checking/debug instrumentation.

Namespaces

- namespace __gnu_debug

Defines

- #define **_GLIBCXX_DEBUG_STRING**

Typedefs

- typedef basic_string< char > **__gnu_debug::string**
- typedef basic_string< wchar_t > **__gnu_debug::wstring**

Functions

- template<typename _CharT , typename _Traits , typename _Allocator >
  std::basic_istream< _CharT, _Traits > & **__gnu_debug::getline** (std::basic_istream< _CharT, _Traits > &__is, basic_string< _CharT, _Traits, _Allocator > &__str)
- template<typename _CharT , typename _Traits , typename _Allocator >
  std::basic_istream< _CharT, _Traits > & **__gnu_debug::getline** (std::basic_istream< _CharT, _Traits > &__is, basic_string< _CharT, _Traits, _Allocator > &__str, _CharT __delim)
- template<typename _CharT , typename _Traits , typename _Allocator >
  bool **__gnu_debug::operator!=** (const basic_string< _CharT, _Traits, _Allocator > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
  bool **__gnu_debug::operator!=** (const _CharT *__lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
  bool **__gnu_debug::operator!=** (const basic_string< _CharT, _Traits, _Allocator > &__lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)

- template<typename _CharT , typename _Traits , typename _Allocator >
basic_string< _CharT, _Traits, _Allocator > **__gnu_debug::operator+** (const basic_string< _CharT, _Traits, _Allocator > &__lhs, _CharT __rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
basic_string< _CharT, _Traits, _Allocator > **__gnu_debug::operator+** (const basic_string< _CharT, _Traits, _Allocator > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
basic_string< _CharT, _Traits, _Allocator > **__gnu_debug::operator+** (_CharT __lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
basic_string< _CharT, _Traits, _Allocator > **__gnu_debug::operator+** (const _CharT *__lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
basic_string< _CharT, _Traits, _Allocator > **__gnu_debug::operator+** (const basic_string< _CharT, _Traits, _Allocator > &__lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
bool **__gnu_debug::operator<** (const basic_string< _CharT, _Traits, _Allocator > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
bool **__gnu_debug::operator<** (const _CharT *__lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
bool **__gnu_debug::operator<** (const basic_string< _CharT, _Traits, _Allocator > &__lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)

- template<typename _CharT , typename _Traits , typename _Allocator >
std::basic_ostream< _CharT, _Traits > & **__gnu_debug::operator<<** (std::basic_ostream< _CharT, _Traits > &__os, const basic_string< _CharT, _Traits, _Allocator > &__str)
- template<typename _CharT , typename _Traits , typename _Allocator >
bool **__gnu_debug::operator<=** (const basic_string< _CharT, _Traits, _Allocator > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
bool **__gnu_debug::operator<=** (const _CharT *__lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
bool **__gnu_debug::operator<=** (const basic_string< _CharT, _Traits, _Allocator > &__lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)

- template<typename _CharT , typename _Traits , typename _Allocator >
bool **__gnu_debug::operator==** (const basic_string< _CharT, _Traits, _Allocator > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
bool **__gnu_debug::operator==** (const _CharT *__lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)

- template<typename _CharT , typename _Traits , typename _Allocator >
  bool **__gnu_debug::operator==** (const basic_string< _CharT, _Traits, _Allocator > &__lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)

- template<typename _CharT , typename _Traits , typename _Allocator >
  bool **__gnu_debug::operator>** (const basic_string< _CharT, _Traits, _Allocator > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
  bool **__gnu_debug::operator>** (const _CharT *__lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
  bool **__gnu_debug::operator>** (const basic_string< _CharT, _Traits, _Allocator > &__lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)

- template<typename _CharT , typename _Traits , typename _Allocator >
  bool **__gnu_debug::operator>=** (const basic_string< _CharT, _Traits, _Allocator > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
  bool **__gnu_debug::operator>=** (const _CharT *__lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)
- template<typename _CharT , typename _Traits , typename _Allocator >
  bool **__gnu_debug::operator>=** (const basic_string< _CharT, _Traits, _Allocator > &__lhs, const basic_string< _CharT, _Traits, _Allocator > &__rhs)

- template<typename _CharT , typename _Traits , typename _Allocator >
  std::basic_istream< _CharT, _Traits > & **__gnu_debug::operator>>** (std::basic_istream< _CharT, _Traits > &__is, basic_string< _CharT, _Traits, _Allocator > &__str)
- template<typename _CharT , typename _Traits , typename _Allocator >
  void **__gnu_debug::swap** (basic_string< _CharT, _Traits, _Allocator > &__lhs, basic_string< _CharT, _Traits, _Allocator > &__rhs)

6.318.1 Detailed Description

This file is a GNU debug extension to the Standard C++ Library.

Definition in file debug/string.

6.319 stringfwd.h File Reference

Namespaces

- namespace std

Defines

- #define **_STRINGFWD_H**

Typedefs

- typedef basic_string< char > **std::string**
- typedef basic_string< char16_t > **std::u16string**
- typedef basic_string< char32_t > **std::u32string**
- typedef basic_string< wchar_t > **std::wstring**

6.319.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file stringfwd.h.

6.320 system_error File Reference

Classes

- class std::error_category
  error_category
- struct std::error_code
  error_code
- struct std::error_condition
  error_condition
- struct std::hash< error_code >
  std::hash specialization for error_code.
- struct std::is_error_code_enum< _Tp >
  is_error_code_enum
- struct std::is_error_condition_enum< _Tp >
  is_error_condition_enum
- class std::system_error
  Thrown to indicate error code of underlying system.

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_SYSTEM_ERROR**

Functions

- _GLIBCXX_CONST const error_category & **std::generic_category** () throw ()
- error_code **std::make_error_code** (errc __e)
- error_condition **std::make_error_condition** (errc __e)
- bool **std::operator!=** (const error_condition &__lhs, const error_condition &_-_rhs)

- bool **std::operator!=** (const error_condition &__lhs, const error_code &__rhs)
- bool **std::operator!=** (const error_code &__lhs, const error_condition &__rhs)
- bool **std::operator!=** (const error_code &__lhs, const error_code &__rhs)
- bool **std::operator<** (const error_condition &__lhs, const error_condition &_-_rhs)
- bool **std::operator<** (const error_code &__lhs, const error_code &__rhs)
- template<typename _CharT , typename _Traits > basic_ostream< _CharT, _Traits > & **std::operator<<** (basic_ostream< _-CharT, _Traits > &__os, const error_code &__e)
- bool **std::operator==** (const error_condition &__lhs, const error_condition &_-_rhs)
- bool **std::operator==** (const error_condition &__lhs, const error_code &__rhs)
- bool **std::operator==** (const error_code &__lhs, const error_condition &__rhs)
- bool **std::operator==** (const error_code &__lhs, const error_code &__rhs)
- _GLIBCXX_CONST const error_category & **std::system_category** () throw ()

Variables

- error_code **std::make_error_code** (errc)
- error_condition **std::make_error_condition** (errc)

6.320.1 Detailed Description

This is a Standard C++ Library header.

Definition in file system_error.

6.321 tag_and_trait.hpp File Reference

Classes

- struct __gnu_pbds::associative_container_tag
  Basic associative-container.
- struct __gnu_pbds::basic_hash_tag
  Basic hash.
- struct __gnu_pbds::basic_tree_tag
  Basic tree.
- struct __gnu_pbds::binary_heap_tag
  Binary-heap (array-based).
- struct __gnu_pbds::binomial_heap_tag
  Binomial-heap.
- struct __gnu_pbds::cc_hash_tag
  Collision-chaining hash.
- struct __gnu_pbds::container_tag
  Base data structure tag.
- struct __gnu_pbds::container_traits< Cntnr >
  container_traits
- struct __gnu_pbds::gp_hash_tag
  General-probing hash.
- struct __gnu_pbds::list_update_tag
  List-update.
- struct __gnu_pbds::null_mapped_type
  A mapped-policy indicating that an associative container is a set.
- struct __gnu_pbds::ov_tree_tag
  Ordered-vector tree.
- struct __gnu_pbds::pairing_heap_tag
  Pairing-heap.

- struct __gnu_pbds::pat_trie_tag

  PATRICIA trie.

- struct __gnu_pbds::priority_queue_tag

  Basic priority-queue.

- struct __gnu_pbds::rb_tree_tag

  Red-black tree.

- struct __gnu_pbds::rc_binomial_heap_tag

  Redundant-counter binomial-heap.

- struct __gnu_pbds::sequence_tag

  Basic sequence.

- struct __gnu_pbds::splay_tree_tag

  Splay tree.

- struct __gnu_pbds::string_tag

  Basic string container, inclusive of strings, ropes, etc.

- struct __gnu_pbds::thin_heap_tag

  Thin heap.

- struct __gnu_pbds::tree_tag

  tree.

- struct __gnu_pbds::trie_tag

  trie.

Namespaces

- namespace __gnu_pbds

Typedefs

- typedef void **__gnu_pbds::trivial_iterator_difference_type**

6.321.1 Detailed Description

Contains tags and traits, e.g., ones describing underlying data structures.

Definition in file tag_and_trait.hpp.

6.322 tags.h File Reference

Tags for compile-time selection. This file is a GNU parallel extension to the Standard C++ Library.

Classes

- struct __gnu_parallel::balanced_quicksort_tag

  Forces parallel sorting using balanced quicksort at compile time.

- struct __gnu_parallel::balanced_tag

  Recommends parallel execution using dynamic load-balancing at compile time.

- struct __gnu_parallel::constant_size_blocks_tag

  Selects the constant block size variant for std::find().

- struct __gnu_parallel::default_parallel_tag

  Recommends parallel execution using the default parallel algorithm.

- struct __gnu_parallel::equal_split_tag

  Selects the equal splitting variant for std::find().

- struct __gnu_parallel::exact_tag

  Forces parallel merging with exact splitting, at compile time.

- struct __gnu_parallel::find_tag

  Base class for for std::find() variants.

- struct __gnu_parallel::growing_blocks_tag

  Selects the growing block size variant for std::find().

- struct __gnu_parallel::multiway_mergesort_exact_tag

  Forces parallel sorting using multiway mergesort with exact splitting at compile time.

- struct __gnu_parallel::multiway_mergesort_sampling_tag

  Forces parallel sorting using multiway mergesort with splitting by sampling at compile time.

- struct __gnu_parallel::multiway_mergesort_tag

  Forces parallel sorting using multiway mergesort at compile time.

- struct __gnu_parallel::omp_loop_static_tag

Recommends parallel execution using OpenMP static load-balancing at compile time.

- struct __gnu_parallel::omp_loop_tag

  Recommends parallel execution using OpenMP dynamic load-balancing at compile time.

- struct __gnu_parallel::parallel_tag

  Recommends parallel execution at compile time, optionally using a user-specified number of threads.

- struct __gnu_parallel::quicksort_tag

  Forces parallel sorting using unbalanced quicksort at compile time.

- struct __gnu_parallel::sampling_tag

  Forces parallel merging with exact splitting, at compile time.

- struct __gnu_parallel::sequential_tag

  Forces sequential execution at compile time.

- struct __gnu_parallel::unbalanced_tag

  Recommends parallel execution using static load-balancing at compile time.

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_TAGS_H**

6.322.1 Detailed Description

Tags for compile-time selection. This file is a GNU parallel extension to the Standard C++ Library.

Definition in file tags.h.

6.323 tgmath.h File Reference

Defines

- #define **_GLIBCXX_TGMATH_H**

6.323.1 Detailed Description

This is a Standard C++ Library header.

Definition in file tgmath.h.

6.324 thread File Reference

Classes

- struct std::hash< thread::id >
  std::hash specialization for thread::id.
- class std::thread
  thread
- class std::thread::id
  thread::id

Namespaces

- namespace std
- namespace std::this_thread

Defines

- #define **_GLIBCXX_THREAD**

Functions

- thread::id std::this_thread::get_id ()
- bool **std::operator!=** (thread::id __x, thread::id __y)
- template<class _CharT , class _Traits >
  basic_ostream< _CharT, _Traits > & **std::operator**<< (basic_ostream< _CharT, _Traits > &__out, thread::id __id)
- bool **std::operator**<= (thread::id __x, thread::id __y)
- bool **std::operator**> (thread::id __x, thread::id __y)
- bool **std::operator**>= (thread::id __x, thread::id __y)
- template<typename _Rep , typename _Period >
  void std::this_thread::sleep_for (const chrono::duration< _Rep, _Period > &__rtime)
- template<typename _Clock , typename _Duration >
  void std::this_thread::sleep_until (const chrono::time_point< _Clock, _Duration > &__atime)
- void **std::swap** (thread &__x, thread &__y)
- void std::this_thread::yield ()

6.324.1 Detailed Description

This is a Standard C++ Library header.

Definition in file thread.

6.325 throw_allocator.h File Reference

Classes

- struct __gnu_cxx::annotate_base

  Base class for checking address and label information about allocations. Create a std::map between the allocated address (void) and a datum for annotations, which are a pair of numbers corresponding to label and allocated size.*

- struct __gnu_cxx::condition_base

  Base struct for condition policy.

- struct __gnu_cxx::forced_error

  Thown by exception safety machinery.

- struct __gnu_cxx::limit_condition

  Base class for incremental control and throw.

- struct __gnu_cxx::limit_condition::always_adjustor

  Always enter the condition.

- struct __gnu_cxx::limit_condition::limit_adjustor

  Enter the nth condition.

- struct __gnu_cxx::limit_condition::never_adjustor

  Never enter the condition.

- struct __gnu_cxx::random_condition

  Base class for random probability control and throw.

- struct __gnu_cxx::random_condition::always_adjustor

  Always enter the condition.

- struct __gnu_cxx::random_condition::group_adjustor

  Group condition.

- struct __gnu_cxx::random_condition::never_adjustor

  Never enter the condition.

- class __gnu_cxx::throw_allocator_base< _Tp, _Cond >

  Allocator class with logging and exception generation control. Intended to be used as an allocator_type in templatized code.
  Note: Deallocate not allowed to throw.

- struct __gnu_cxx::throw_allocator_limit< _Tp >

  Allocator throwing via limit condition.

- struct __gnu_cxx::throw_allocator_random< _Tp >

  Allocator throwing via random condition.

- struct __gnu_cxx::throw_value_base< _Cond >

  Class with exception generation control. Intended to be used as a value_type in templatized code.

- struct __gnu_cxx::throw_value_limit

  Type throwing via limit condition.

- struct __gnu_cxx::throw_value_random

  Type throwing via random condition.

- struct std::hash< __gnu_cxx::throw_value_limit >

  Explicit specialization of std::hash for __gnu_cxx::throw_value_limit.

- struct std::hash< __gnu_cxx::throw_value_random >

  Explicit specialization of std::hash for __gnu_cxx::throw_value_limit.

Namespaces

- namespace __gnu_cxx
- namespace std

Defines

- #define **_THROW_ALLOCATOR_H**

Functions

- void **__gnu_cxx::__throw_forced_error** ()
- template<typename _Tp , typename _Cond >
  bool **__gnu_cxx::operator!=** (const throw_allocator_base< _Tp, _Cond > &, const throw_allocator_base< _Tp, _Cond > &)
- template<typename _Cond >
  throw_value_base< _Cond > **__gnu_cxx::operator*** (const throw_value_base< _Cond > &__a, const throw_value_base< _Cond > &__b)

- template<typename _Cond >
  throw_value_base< _Cond > **__gnu_cxx::operator+** (const throw_value_base< _Cond > &__a, const throw_value_base< _Cond > &__b)
- template<typename _Cond >
  throw_value_base< _Cond > **__gnu_cxx::operator-** (const throw_value_base< _Cond > &__a, const throw_value_base< _Cond > &__b)
- template<typename _Cond >
  bool **__gnu_cxx::operator<** (const throw_value_base< _Cond > &__a, const throw_value_base< _Cond > &__b)
- std::ostream & **__gnu_cxx::operator<<** (std::ostream &os, const annotate_base &__b)
- template<typename _Tp , typename _Cond >
  bool **__gnu_cxx::operator==** (const throw_allocator_base< _Tp, _Cond > &, const throw_allocator_base< _Tp, _Cond > &)
- template<typename _Cond >
  bool **__gnu_cxx::operator==** (const throw_value_base< _Cond > &__a, const throw_value_base< _Cond > &__b)
- template<typename _Cond >
  void **__gnu_cxx::swap** (throw_value_base< _Cond > &__a, throw_value_base< _Cond > &__b)

6.325.1 Detailed Description

This file is a GNU extension to the Standard C++ Library.

Contains two exception-generating types (throw_value, throw_allocator) intended to be used as value and allocator types while testing exception safety in templatized containers and algorithms. The allocator has additional log and debug features. The exception generated is of type forced_exception_error.

Definition in file throw_allocator.h.

6.326 time_members.h File Reference

Namespaces

- namespace std

6.326.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file time_members.h.

6.327 tree_policy.hpp File Reference

Namespaces

- namespace __gnu_pbds

Defines

- #define **PB_DS_BASE_C_DEC**
- #define **PB_DS_CLASS_C_DEC**
- #define **PB_DS_CLASS_T_DEC**

6.327.1 Detailed Description

Contains tree-related policies.

Definition in file tree_policy.hpp.

6.328 tree_trace_base.hpp File Reference

6.328.1 Detailed Description

Contains tree-related policies.

Definition in file tree_trace_base.hpp.

6.329 trie_policy.hpp File Reference

Namespaces

- namespace __gnu_pbds

Defines

- #define **PB_DS_BASE_C_DEC**
- #define **PB_DS_CLASS_C_DEC**
- #define **PB_DS_CLASS_C_DEC**
- #define **PB_DS_CLASS_C_DEC**
- #define **PB_DS_CLASS_T_DEC**
- #define **PB_DS_CLASS_T_DEC**

6.329.1 Detailed Description

Contains trie-related policies.

Definition in file trie_policy.hpp.

6.330 tuple File Reference

Classes

- struct std::_Tuple_impl< _Idx >
- struct std::_Tuple_impl< _Idx, _Head, _Tail...>
- class std::tuple< _Elements >

  tuple

- class std::tuple< _T1, _T2 >

  tuple (2-element), with construction and assignment from a pair.

- struct std::tuple_element< 0, tuple< _Head, _Tail...> >
- struct std::tuple_element< __i, tuple< _Head, _Tail...> >
- struct std::tuple_size< tuple< _Elements...> >

  class tuple_size

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_TUPLE**

Functions

- template<std::size_t __i, typename _Head , typename... _Tail>
  __add_c_ref< _Head >::type **std::__get_helper** (const _Tuple_impl< __i, _Head, _Tail...> &__t)
- template<std::size_t __i, typename _Head , typename... _Tail>
  __add_ref< _Head >::type **std::__get_helper** (_Tuple_impl< __i, _Head, _Tail...> &__t)
- template<typename... _TElements, std::size_t... _TIdx, typename... _UElements, std::size_t... _UIdx>
  tuple< _TElements..., _UElements...> **std::__tuple_cat_helper** (tuple< _TElements...> &&__t, const __index_holder< _TIdx...> &, tuple< _UElements...> &&__u, const __index_holder< _UIdx...> &)

- template<typename... _TElements, std::size_t... _TIdx, typename... _UElements, std::size_t... _UIdx>
  tuple< _TElements..., _UElements...> **std::__tuple_cat_helper** (const tuple< _TElements...> &__t, const __index_holder< _TIdx...> &, tuple< _UElements...> &&__u, const __index_holder< _UIdx...> &)
- template<typename... _TElements, std::size_t... _TIdx, typename... _UElements, std::size_t... _UIdx>
  tuple< _TElements..., _UElements...> **std::__tuple_cat_helper** (tuple< _TElements...> &&__t, const __index_holder< _TIdx...> &, const tuple< _UElements...> &__u, const __index_holder< _UIdx...> &)
- template<typename... _TElements, std::size_t... _TIdx, typename... _UElements, std::size_t... _UIdx>
  tuple< _TElements..., _UElements...> **std::__tuple_cat_helper** (const tuple< _TElements...> &__t, const __index_holder< _TIdx...> &, const tuple< _UElements...> &__u, const __index_holder< _UIdx...> &)
- template<std::size_t __i, typename... _Elements>
  __add_c_ref< typename tuple_element< __i, tuple< _Elements...> >::type >::type **std::get** (const tuple< _Elements...> &__t)
- template<std::size_t __i, typename... _Elements>
  __add_ref< typename tuple_element< __i, tuple< _Elements...> >::type >::type **std::get** (tuple< _Elements...> &__t)
- template<typename... _Elements>
  tuple< typename __decay_and_strip< _Elements >::__type...> **std::make_tuple** (_Elements &&...__args)
- template<typename... _TElements, typename... _UElements>
  bool **std::operator!=** (const tuple< _TElements...> &__t, const tuple< _UElements...> &__u)
- template<typename... _TElements, typename... _UElements>
  bool **std::operator**< (const tuple< _TElements...> &__t, const tuple< _UElements...> &__u)
- template<typename... _TElements, typename... _UElements>
  bool **std::operator<=** (const tuple< _TElements...> &__t, const tuple< _UElements...> &__u)
- template<typename... _TElements, typename... _UElements>
  bool **std::operator==** (const tuple< _TElements...> &__t, const tuple< _UElements...> &__u)
- template<typename... _TElements, typename... _UElements>
  bool **std::operator**> (const tuple< _TElements...> &__t, const tuple< _UElements...> &__u)
- template<typename... _TElements, typename... _UElements>
  bool **std::operator>=** (const tuple< _TElements...> &__t, const tuple< _UElements...> &__u)
- template<typename... _Elements>
  void **std::swap** (tuple< _Elements...> &__x, tuple< _Elements...> &__y)

- template<typename... _Elements>
  tuple< _Elements &...> **std::tie** (_Elements &...__args)
- template<typename... _TElements, typename... _UElements>
  tuple< _TElements..., _UElements...> **std::tuple_cat** (tuple< _TElements...> &&__t, tuple< _UElements...> &&__u)
- template<typename... _TElements, typename... _UElements>
  tuple< _TElements..., _UElements...> **std::tuple_cat** (const tuple< _TElements...> &__t, tuple< _UElements...> &&__u)
- template<typename... _TElements, typename... _UElements>
  tuple< _TElements..., _UElements...> **std::tuple_cat** (tuple< _TElements...> &&__t, const tuple< _UElements...> &__u)
- template<typename... _TElements, typename... _UElements>
  tuple< _TElements..., _UElements...> **std::tuple_cat** (const tuple< _TElements...> &__t, const tuple< _UElements...> &__u)

6.330.1 Detailed Description

This is a Standard C++ Library header.

Definition in file tuple.

6.331 type_traits File Reference

Classes

- struct std::__declval_protector< _Tp >
  declval
- struct std::add_lvalue_reference< _Tp >
  add_lvalue_reference
- struct std::add_rvalue_reference< _Tp >
  add_rvalue_reference
- struct std::aligned_storage< _Len, _Align >
  Alignment type.
- struct std::conditional< _Cond, _Iftrue, _Iffalse >
  conditional
- class std::decay< _Tp >
  decay
- struct std::enable_if< bool, _Tp >
  enable_if
- struct std::has_nothrow_assign< _Tp >
  has_nothrow_assign
- struct std::has_nothrow_copy_constructor< _Tp >
  has_nothrow_copy_constructor
- struct std::has_nothrow_default_constructor< _Tp >
  has_nothrow_default_constructor
- struct std::has_trivial_assign< _Tp >
  has_trivial_assign
- struct std::has_trivial_copy_constructor< _Tp >
  has_trivial_copy_constructor
- struct std::has_trivial_default_constructor< _Tp >
  has_trivial_default_constructor

- struct std::has_trivial_destructor< _Tp >
  has_trivial_destructor
- struct std::is_base_of< _Base, _Derived >
  is_base_of
- struct std::is_constructible< _Tp, _Args >
  is_constructible
- struct std::is_convertible< _From, _To >
  is_convertible
- struct std::is_explicitly_convertible< _From, _To >
  is_explicitly_convertible
- struct std::is_lvalue_reference< typename >
  is_lvalue_reference
- struct std::is_pod< _Tp >
  is_pod
- struct std::is_reference< _Tp >
  is_reference
- struct std::is_rvalue_reference< typename >
  is_rvalue_reference
- struct std::is_signed< _Tp >
  is_signed
- struct std::is_standard_layout< _Tp >
  is_standard_layout
- struct std::is_trivial< _Tp >
  is_trivial
- struct std::is_unsigned< _Tp >
  is_unsigned
- struct std::make_signed< _Tp >
  make_signed

- struct std::make_unsigned< _Tp >
  make_unsigned
- struct std::remove_reference< _Tp >
  remove_reference

Namespaces

- namespace std

Defines

- #define **_GLIBCXX_TYPE_TRAITS**

Functions

- template<typename _Tp >
  add_rvalue_reference< _Tp >::type **std::declval** ()

6.331.1 Detailed Description

This is a Standard C++ Library header.

Definition in file type_traits.

6.332 type_traits File Reference

Classes

- struct std::__is_member_pointer_helper< _Tp >
  is_member_pointer
- struct std::add_const< _Tp >
  add_const
- struct std::add_cv< _Tp >
  add_cv
- struct std::add_pointer< _Tp >
  add_pointer
- struct std::add_volatile< _Tp >
  add_volatile
- struct std::alignment_of< _Tp >
  alignment_of
- struct std::extent< typename, _Uint >
  extent
- struct std::has_virtual_destructor< _Tp >
  has_virtual_destructor
- struct std::integral_constant< _Tp, __v >
  integral_constant
- struct std::is_abstract< _Tp >
  is_abstract
- struct std::is_arithmetic< _Tp >
  is_arithmetic
- struct std::is_array< typename >
  is_array
- struct std::is_class< _Tp >
  is_class

- struct std::is_compound< _Tp >
  is_compound
- struct std::is_const< typename >
  is_const
- struct std::is_empty< _Tp >
  is_empty
- struct std::is_enum< _Tp >
  is_enum
- struct std::is_floating_point< _Tp >
  is_floating_point
- struct std::is_function< typename >
  is_function
- struct std::is_fundamental< _Tp >
  is_fundamental
- struct std::is_integral< _Tp >
  is_integral
- struct std::is_member_function_pointer< _Tp >
  is_member_function_pointer
- struct std::is_member_object_pointer< _Tp >
  is_member_object_pointer
- struct std::is_object< _Tp >
  is_object
- struct std::is_pointer< _Tp >
  is_pointer
- struct std::is_polymorphic< _Tp >
  is_polymorphic
- struct std::is_same< typename, typename >
  is_same

- struct std::is_scalar< _Tp >
  is_scalar
- struct std::is_union< _Tp >
  is_union
- struct std::is_void< _Tp >
  is_void
- struct std::is_volatile< typename >
  is_volatile
- struct std::rank< typename >
  rank
- struct std::remove_all_extents< _Tp >
  remove_all_extents
- struct std::remove_const< _Tp >
  remove_const
- struct std::remove_cv< _Tp >
  remove_cv
- struct std::remove_extent< _Tp >
  remove_extent
- struct std::remove_pointer< _Tp >
  remove_pointer
- struct std::remove_volatile< _Tp >
  remove_volatile

Namespaces

- namespace std

Defines

- #define **_DEFINE_SPEC**(_Order, _Trait, _Type, _Value)
- #define **_DEFINE_SPEC_0_HELPER**
- #define **_DEFINE_SPEC_1_HELPER**
- #define **_DEFINE_SPEC_2_HELPER**

Typedefs

- typedef integral_constant< bool, false > std::false_type
- typedef integral_constant< bool, true > std::true_type

6.332.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file tr1_impl/type_traits.

6.333 type_traits.h File Reference

Namespaces

- namespace __gnu_cxx

Defines

- #define **_EXT_TYPE_TRAITS**

Functions

- template<typename _Type >
  bool **__gnu_cxx::__is_null_pointer** (_Type)
- template<typename _Type >
  bool **__gnu_cxx::__is_null_pointer** (_Type *__ptr)

6.333.1 Detailed Description

This file is a GNU extension to the Standard C++ Library.

Definition in file type_traits.h.

6.334 type_utils.hpp File Reference

Namespaces

- namespace __gnu_pbds

Defines

- #define **PB_DS_STATIC_ASSERT**(UNIQUE, E)

Typedefs

- typedef std::tr1::integral_constant< int, 0 > **__gnu_pbds::detail::false_type**
- typedef std::tr1::integral_constant< int, 1 > **__gnu_pbds::detail::true_type**

6.334.1 Detailed Description

Contains utilities for handnling types. All of these classes are based on Modern C++ by Andrei Alxandrescu.

Definition in file type_utils.hpp.

6.335 typeinfo File Reference

Classes

- class std::bad_cast

  Thrown during incorrect typecasting.
  If you attempt an invalid `dynamic_cast` *expression, an instance of this class (or something derived from this class) is thrown.*

- class std::bad_typeid

  Thrown when a NULL pointer in a `typeid` *expression is used.*

- class std::type_info

  Part of RTTI.

Namespaces

- namespace std

Defines

- #define **__GXX_MERGED_TYPEINFO_NAMES**
- #define **__GXX_TYPEINFO_EQUALITY_INLINE**

6.335.1 Detailed Description

This is a Standard C++ Library header.

Definition in file typeinfo.

6.336 typelist.h File Reference

Namespaces

- namespace __gnu_cxx
- namespace __gnu_cxx::typelist

Defines

- #define **_GLIBCXX_TYPELIST_CHAIN1**(X0)
- #define **_GLIBCXX_TYPELIST_CHAIN10**(X0, X1, X2, X3, X4, X5, X6, X7, X8, X9)
- #define **_GLIBCXX_TYPELIST_CHAIN11**(X0, X1, X2, X3, X4, X5, X6, X7, X8, X9, X10)
- #define **_GLIBCXX_TYPELIST_CHAIN12**(X0, X1, X2, X3, X4, X5, X6, X7, X8, X9, X10, X11)
- #define **_GLIBCXX_TYPELIST_CHAIN13**(X0, X1, X2, X3, X4, X5, X6, X7, X8, X9, X10, X11, X12)
- #define **_GLIBCXX_TYPELIST_CHAIN14**(X0, X1, X2, X3, X4, X5, X6, X7, X8, X9, X10, X11, X12, X13)
- #define **_GLIBCXX_TYPELIST_CHAIN15**(X0, X1, X2, X3, X4, X5, X6, X7, X8, X9, X10, X11, X12, X13, X14)
- #define **_GLIBCXX_TYPELIST_CHAIN2**(X0, X1)
- #define **_GLIBCXX_TYPELIST_CHAIN3**(X0, X1, X2)
- #define **_GLIBCXX_TYPELIST_CHAIN4**(X0, X1, X2, X3)
- #define **_GLIBCXX_TYPELIST_CHAIN5**(X0, X1, X2, X3, X4)
- #define **_GLIBCXX_TYPELIST_CHAIN6**(X0, X1, X2, X3, X4, X5)
- #define **_GLIBCXX_TYPELIST_CHAIN7**(X0, X1, X2, X3, X4, X5, X6)
- #define **_GLIBCXX_TYPELIST_CHAIN8**(X0, X1, X2, X3, X4, X5, X6, X7)
- #define **_GLIBCXX_TYPELIST_CHAIN9**(X0, X1, X2, X3, X4, X5, X6, X7, X8)
- #define **_TYPELIST_H**

Functions

- template<typename Fn , typename Typelist >
  void **__gnu_cxx::typelist::apply** (Fn &, Typelist)
- template<typename Fn , typename TypelistT , typename TypelistV >
  void **__gnu_cxx::typelist::apply_generator** (Fn &fn, TypelistT, TypelistV)
- template<typename Fn , typename Typelist >
  void **__gnu_cxx::typelist::apply_generator** (Fn &fn, Typelist)

- template<typename Gn , typename TypelistT , typename TypelistV >
  void **__gnu_cxx::typelist::apply_generator** (Gn &, TypelistT, TypelistV)
- template<typename Gn , typename Typelist >
  void __gnu_cxx::typelist::apply_generator (Gn &, Typelist)

6.336.1 Detailed Description

Contains typelist_chain definitions. Typelists are an idea by Andrei Alexandrescu.

Definition in file typelist.h.

6.337 types.h File Reference

Basic types and typedefs. This file is a GNU parallel extension to the Standard C++ Library.

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_TYPES_H**

Typedefs

- typedef int64_t __gnu_parallel::_CASable
- typedef uint64_t __gnu_parallel::_SequenceIndex
- typedef uint16_t __gnu_parallel::_ThreadIndex

Enumerations

- enum __gnu_parallel::_AlgorithmStrategy { **heuristic**, **force_sequential**, **force_parallel** }
- enum __gnu_parallel::_FindAlgorithm { **GROWING_BLOCKS**, **CONSTANT_SIZE_BLOCKS**, **EQUAL_SPLIT** }
- enum __gnu_parallel::_MultiwayMergeAlgorithm { **LOSER_TREE** }
- enum __gnu_parallel::_Parallelism {

  __gnu_parallel::sequential, __gnu_parallel::parallel_unbalanced, __gnu_parallel::parallel_balanced, __gnu_parallel::parallel_omp_loop,

  __gnu_parallel::parallel_omp_loop_static, __gnu_parallel::parallel_taskqueue }
- enum __gnu_parallel::_PartialSumAlgorithm { **RECURSIVE**, **LINEAR** }
- enum __gnu_parallel::_SortAlgorithm { **MWMS**, **QS**, **QS_BALANCED** }
- enum __gnu_parallel::_SplittingAlgorithm { **SAMPLING**, **EXACT** }

Variables

- static const int __gnu_parallel::_CASable_bits
- static const _CASable __gnu_parallel::_CASable_mask

6.337.1 Detailed Description

Basic types and typedefs. This file is a GNU parallel extension to the Standard C++ Library.

Definition in file types.h.

6.338 types_traits.hpp File Reference

Namespaces

- namespace __gnu_pbds

6.338.1 Detailed Description

Contains a traits class of types used by containers.

Definition in file types_traits.hpp.

6.339 unique_copy.h File Reference

Parallel implementations of std::unique_copy(). This file is a GNU parallel extension to the Standard C++ Library.

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_PARALLEL_UNIQUE_COPY_H**

Functions

- template<typename _IIter , class _OutputIterator >
  _OutputIterator __gnu_parallel::__parallel_unique_copy (_IIter __first, _IIter _-
  _last, _OutputIterator __result)
- template<typename _IIter , class _OutputIterator , class _BinaryPredicate >
  _OutputIterator __gnu_parallel::__parallel_unique_copy (_IIter __first, _IIter _-
  _last, _OutputIterator __result, _BinaryPredicate __binary_pred)

6.339.1 Detailed Description

Parallel implementations of std::unique_copy(). This file is a GNU parallel extension to the Standard C++ Library.

Definition in file unique_copy.h.

6.340 unique_ptr.h File Reference

Classes

- struct std::default_delete< _Tp >

  Primary template, default_delete.

- struct std::default_delete< _Tp[ ]>

  Specialization, default_delete.

- class std::unique_ptr< _Tp, _Tp_Deleter >

  20.7.12.2 unique_ptr for single objects.

- class std::unique_ptr< _Tp[ ], _Tp_Deleter >

  20.7.12.3 unique_ptr for array objects with a runtime length

Namespaces

- namespace std

Defines

- #define **_UNIQUE_PTR_H**

Functions

- template<typename _Tp , typename _Tp_Deleter , typename _Up , typename _Up_Deleter > bool **std::operator!=** (const unique_ptr< _Tp, _Tp_Deleter > &__x, const unique_ptr< _Up, _Up_Deleter > &__y)
- template<typename _Tp , typename _Tp_Deleter , typename _Up , typename _Up_Deleter > bool **std::operator<** (const unique_ptr< _Tp, _Tp_Deleter > &__x, const unique_ptr< _Up, _Up_Deleter > &__y)
- template<typename _Tp , typename _Tp_Deleter , typename _Up , typename _Up_Deleter > bool **std::operator<=** (const unique_ptr< _Tp, _Tp_Deleter > &__x, const unique_ptr< _Up, _Up_Deleter > &__y)
- template<typename _Tp , typename _Tp_Deleter , typename _Up , typename _Up_Deleter > bool **std::operator==** (const unique_ptr< _Tp, _Tp_Deleter > &__x, const unique_ptr< _Up, _Up_Deleter > &__y)
- template<typename _Tp , typename _Tp_Deleter , typename _Up , typename _Up_Deleter > bool **std::operator>** (const unique_ptr< _Tp, _Tp_Deleter > &__x, const unique_ptr< _Up, _Up_Deleter > &__y)

- template<typename _Tp , typename _Tp_Deleter , typename _Up , typename _Up_Deleter >
  bool **std::operator>=** (const unique_ptr< _Tp, _Tp_Deleter > &__x, const unique_ptr< _Up, _Up_Deleter > &__y)
- template<typename _Tp , typename _Tp_Deleter >
  void **std::swap** (unique_ptr< _Tp, _Tp_Deleter > &__x, unique_ptr< _Tp, _Tp_Deleter > &__y)

6.340.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file unique_ptr.h.

6.341 unordered_map File Reference

Defines

- #define **_GLIBCXX_UNORDERED_MAP**

6.341.1 Detailed Description

This is a Standard C++ Library header.

Definition in file unordered_map.

6.342 unordered_map File Reference

Classes

- class std::__debug::unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc >
  Class std::unordered_map with safety/checking/debug instrumentation.
- class std::__debug::unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc >
  Class std::unordered_multimap with safety/checking/debug instrumentation.

Namespaces

- namespace std
- namespace std::__debug

Defines

- #define **_GLIBCXX_DEBUG_UNORDERED_MAP**

Functions

- template<typename _Key , typename _Tp , typename _Hash , typename _Pred , typename _Alloc >
  void **std::__debug::swap** (unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc > &__x, unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Hash , typename _Pred , typename _Alloc >
  void **std::__debug::swap** (unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc > &__x, unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc > &__y)

6.342.1 Detailed Description

This file is a GNU debug extension to the Standard C++ Library.

Definition in file debug/unordered_map.

6.343 unordered_map File Reference

Classes

- class std::__profile::unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc >
  Class std::unordered_map wrapper with performance instrumentation.
- class std::__profile::unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc >
  Class std::unordered_multimap wrapper with performance instrumentation.

Namespaces

- namespace std
- namespace std::__profile

Defines

- #define **_GLIBCXX_BASE**
- #define **_GLIBCXX_BASE**
- #define **_GLIBCXX_PROFILE_UNORDERED_MAP**
- #define **_GLIBCXX_STD_BASE**
- #define **_GLIBCXX_STD_BASE**

Functions

- template<typename _Key , typename _Tp , typename _Hash , typename _Pred , typename _Alloc >
  void **std::__profile::swap** (unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc > &__x, unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc > &__y)
- template<typename _Key , typename _Tp , typename _Hash , typename _Pred , typename _Alloc >
  void **std::__profile::swap** (unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc > &__x, unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc > &__y)

6.343.1 Detailed Description

This file is a GNU profile extension to the Standard C++ Library.

Definition in file profile/unordered_map.

6.344 unordered_map.h File Reference

Classes

- class std::unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc >

  A standard container composed of unique keys (containing at most one of each key value) that associates values of another type with the keys.

- class std::unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc >

  A standard container composed of equivalent keys (possibly containing multiple of each key value) that associates values of another type with the keys.

Namespaces

- namespace std

Functions

- template<class _Key , class _Tp , class _Hash , class _Pred , class _Alloc >
  void **std::swap** (unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc > &_-_x, unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc > &__y)
- template<class _Key , class _Tp , class _Hash , class _Pred , class _Alloc >
  void **std::swap** (unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc > &__x, unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc > &__y)
- template<class _Key , class _Tp , class _Hash , class _Pred , class _Alloc , bool __cache_hash_-code>
  void **std::swap** (__unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc, __-cache_hash_code > &__x, __unordered_multimap< _Key, _Tp, _Hash, _Pred, _Alloc, __cache_hash_code > &__y)
- template<class _Key , class _Tp , class _Hash , class _Pred , class _Alloc , bool __cache_hash_-code>
  void **std::swap** (__unordered_map< _Key, _Tp, _Hash, _Pred, _Alloc, __-cache_hash_code > &__x, __unordered_map< _Key, _Tp, _Hash, _Pred, _-Alloc, __cache_hash_code > &__y)

6.344.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file unordered_map.h.

6.345 unordered_set File Reference

Defines

- #define **_GLIBCXX_UNORDERED_SET**

6.345.1 Detailed Description

This is a Standard C++ Library header.

Definition in file unordered_set.

6.346 unordered_set File Reference

Classes

- class std::__debug::unordered_multiset< _Value, _Hash, _Pred, _Alloc >
  Class std::unordered_multiset with safety/checking/debug instrumentation.
- class std::__debug::unordered_set< _Value, _Hash, _Pred, _Alloc >
  Class std::unordered_set with safety/checking/debug instrumentation.

Namespaces

- namespace std
- namespace std::__debug

Defines

- #define **_GLIBCXX_DEBUG_UNORDERED_SET**

Functions

- template<typename _Value , typename _Hash , typename _Pred , typename _Alloc >
  void **std::__debug::swap** (unordered_multiset< _Value, _Hash, _Pred, _Alloc > &__x, unordered_multiset< _Value, _Hash, _Pred, _Alloc > &__y)
- template<typename _Value , typename _Hash , typename _Pred , typename _Alloc >
  void **std::__debug::swap** (unordered_set< _Value, _Hash, _Pred, _Alloc > &_-_x, unordered_set< _Value, _Hash, _Pred, _Alloc > &__y)

6.346.1 Detailed Description

This file is a GNU debug extension to the Standard C++ Library.

Definition in file debug/unordered_set.

6.347 unordered_set File Reference

Classes

- class std::__profile::unordered_multiset< _Value, _Hash, _Pred, _Alloc >
  Unordered_multiset wrapper with performance instrumentation.
- class std::__profile::unordered_set< _Key, _Hash, _Pred, _Alloc >
  Unordered_set wrapper with performance instrumentation.

Namespaces

- namespace std
- namespace std::__profile

Defines

- #define **_GLIBCXX_BASE**
- #define **_GLIBCXX_BASE**
- #define **_GLIBCXX_PROFILE_UNORDERED_SET**
- #define **_GLIBCXX_STD_BASE**
- #define **_GLIBCXX_STD_BASE**

Functions

- template<typename _Value , typename _Hash , typename _Pred , typename _Alloc >
  void **std::__profile::swap** (unordered_multiset< _Value, _Hash, _Pred, _Alloc > &__x, unordered_multiset< _Value, _Hash, _Pred, _Alloc > &__y)
- template<typename _Value , typename _Hash , typename _Pred , typename _Alloc >
  void **std::__profile::swap** (unordered_set< _Value, _Hash, _Pred, _Alloc > &__x, unordered_set< _Value, _Hash, _Pred, _Alloc > &__y)

6.347.1 Detailed Description

This file is a GNU profile extension to the Standard C++ Library.

Definition in file profile/unordered_set.

6.348 unordered_set.h File Reference

Classes

- class std::unordered_multiset< _Value, _Hash, _Pred, _Alloc >

  A standard container composed of equivalent keys (possibly containing multiple of each key value) in which the elements' keys are the elements themselves.

- class std::unordered_set< _Value, _Hash, _Pred, _Alloc >

  A standard container composed of unique keys (containing at most one of each key value) in which the elements' keys are the elements themselves.

Namespaces

- namespace std

Functions

- template<class _Value , class _Hash , class _Pred , class _Alloc >
  void **std::swap** (unordered_multiset< _Value, _Hash, _Pred, _Alloc > &__x, unordered_multiset< _Value, _Hash, _Pred, _Alloc > &__y)
- template<class _Value , class _Hash , class _Pred , class _Alloc >
  void **std::swap** (unordered_set< _Value, _Hash, _Pred, _Alloc > &__x, unordered_set< _Value, _Hash, _Pred, _Alloc > &__y)
- template<class _Value , class _Hash , class _Pred , class _Alloc , bool __cache_hash_code>
  void **std::swap** (__unordered_multiset< _Value, _Hash, _Pred, _Alloc, __cache_hash_code > &__x, __unordered_multiset< _Value, _Hash, _Pred, _Alloc, __cache_hash_code > &__y)
- template<class _Value , class _Hash , class _Pred , class _Alloc , bool __cache_hash_code>
  void **std::swap** (__unordered_set< _Value, _Hash, _Pred, _Alloc, __cache_hash_code > &__x, __unordered_set< _Value, _Hash, _Pred, _Alloc, __cache_hash_code > &__y)

6.348.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file unordered_set.h.

6.349 utility File Reference

Defines

- #define **_GLIBCXX_UTILITY**

6.349.1 Detailed Description

This is a Standard C++ Library header.

Definition in file utility.

6.350 utility File Reference

Namespaces

- namespace std

Functions

- template<std::size_t _Int, class _Tp1 , class _Tp2 >
  const tuple_element< _Int, std::pair< _Tp1, _Tp2 > >::type & **std::get** (const std::pair< _Tp1, _Tp2 > &__in)
- template<std::size_t _Int, class _Tp1 , class _Tp2 >
  tuple_element< _Int, std::pair< _Tp1, _Tp2 > >::type & **std::get** (std::pair< _Tp1, _Tp2 > &__in)

6.350.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file tr1_impl/utility.

6.351 valarray File Reference

Classes

- class std::valarray< _Tp >

  Smart array designed to support numeric processing.

Namespaces

- namespace std

Defines

- #define **_DEFINE_BINARY_OPERATOR**(_Op, _Name)
- #define **_DEFINE_VALARRAY_AUGMENTED_ASSIGNMENT**(_Op, _Name)
- #define **_DEFINE_VALARRAY_EXPR_AUGMENTED_ASSIGNMENT**(_Op, _Name)
- #define **_DEFINE_VALARRAY_UNARY_OPERATOR**(_Op, _Name)
- #define **_GLIBCXX_VALARRAY**

Functions

- template<typename _Tp >
  _Expr< _BinClos< __not_equal_to, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __not_equal_to, _Tp >::result_type > **std::operator!=** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __not_equal_to, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __not_equal_to, _Tp >::result_type > **std::operator!=** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __not_equal_to, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __not_equal_to, _Tp >::result_type > **std::operator!=** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<typename _Tp >
  _Expr< _BinClos< __modulus, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __modulus, _Tp >::result_type > **std::operator%** (const _Tp &__t, const valarray< _Tp > &__v)

- template<typename _Tp >
  _Expr< _BinClos< __modulus, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __modulus, _Tp >::result_type > **std::operator%** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __modulus, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __modulus, _Tp >::result_type > **std::operator%** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<typename _Tp >
  _Expr< _BinClos< __bitwise_and, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __bitwise_and, _Tp >::result_type > **std::operator&** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __bitwise_and, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __bitwise_and, _Tp >::result_type > **std::operator&** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __bitwise_and, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __bitwise_and, _Tp >::result_type > **std::operator&** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<typename _Tp >
  _Expr< _BinClos< __logical_and, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __logical_and, _Tp >::result_type > **std::operator&&** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __logical_and, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __logical_and, _Tp >::result_type > **std::operator&&** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __logical_and, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __logical_and, _Tp >::result_type > **std::operator&&** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<typename _Tp >
  _Expr< _BinClos< __multiplies, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __multiplies, _Tp >::result_type > **std::operator*** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __multiplies, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __multiplies, _Tp >::result_type > **std::operator*** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __multiplies, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __multiplies, _Tp >::result_type > **std::operator*** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)

- template<typename _Tp >
  _Expr< _BinClos< __plus, _Constant, _ValArray, _Tp, _Tp >, typename _-
  _fun< __plus, _Tp >::result_type > **std::operator+** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __plus, _ValArray, _Constant, _Tp, _Tp >, typename _-
  _fun< __plus, _Tp >::result_type > **std::operator+** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __plus, _ValArray, _ValArray, _Tp, _Tp >, typename _-
  _fun< __plus, _Tp >::result_type > **std::operator+** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<typename _Tp >
  _Expr< _BinClos< __minus, _Constant, _ValArray, _Tp, _Tp >, typename _-
  _fun< __minus, _Tp >::result_type > **std::operator-** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __minus, _ValArray, _Constant, _Tp, _Tp >, typename _-
  _fun< __minus, _Tp >::result_type > **std::operator-** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __minus, _ValArray, _ValArray, _Tp, _Tp >, typename _-
  _fun< __minus, _Tp >::result_type > **std::operator-** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<typename _Tp >
  _Expr< _BinClos< __divides, _Constant, _ValArray, _Tp, _Tp >, typename _-
  _fun< __divides, _Tp >::result_type > **std::operator/** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __divides, _ValArray, _Constant, _Tp, _Tp >, typename _-
  _fun< __divides, _Tp >::result_type > **std::operator/** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __divides, _ValArray, _ValArray, _Tp, _Tp >, typename _-
  _fun< __divides, _Tp >::result_type > **std::operator/** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<typename _Tp >
  _Expr< _BinClos< __less, _Constant, _ValArray, _Tp, _Tp >, typename _-
  _fun< __less, _Tp >::result_type > **std::operator**< (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __less, _ValArray, _Constant, _Tp, _Tp >, typename _-
  _fun< __less, _Tp >::result_type > **std::operator**< (const valarray< _Tp > &__v, const _Tp &__t)

- template<typename _Tp >
  _Expr< _BinClos< __less, _ValArray, _ValArray, _Tp, _Tp >, typename _-
  _fun< __less, _Tp >::result_type > **std::operator**< (const valarray< _Tp >
  &__v, const valarray< _Tp > &__w)
- template<typename _Tp >
  _Expr< _BinClos< __shift_left, _Constant, _ValArray, _Tp, _Tp >, typename
  __fun< __shift_left, _Tp >::result_type > **std::operator**<< (const _Tp &__t,
  const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __shift_left, _ValArray, _Constant, _Tp, _Tp >, typename
  __fun< __shift_left, _Tp >::result_type > **std::operator**<< (const valarray<
  _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __shift_left, _ValArray, _ValArray, _Tp, _Tp >, typename
  __fun< __shift_left, _Tp >::result_type > **std::operator**<< (const valarray<
  _Tp > &__v, const valarray< _Tp > &__w)
- template<typename _Tp >
  _Expr< _BinClos< __less_equal, _Constant, _ValArray, _Tp, _Tp >, typename
  __fun< __less_equal, _Tp >::result_type > **std::operator**<= (const _Tp &__t,
  const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __less_equal, _ValArray, _Constant, _Tp, _Tp >, typename
  __fun< __less_equal, _Tp >::result_type > **std::operator**<= (const valarray<
  _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __less_equal, _ValArray, _ValArray, _Tp, _Tp >, typename
  __fun< __less_equal, _Tp >::result_type > **std::operator**<= (const valarray<
  _Tp > &__v, const valarray< _Tp > &__w)
- template<typename _Tp >
  _Expr< _BinClos< __equal_to, _Constant, _ValArray, _Tp, _Tp >, typename
  __fun< __equal_to, _Tp >::result_type > **std::operator==** (const _Tp &__t,
  const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __equal_to, _ValArray, _Constant, _Tp, _Tp >, typename
  __fun< __equal_to, _Tp >::result_type > **std::operator==** (const valarray< _-
  Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __equal_to, _ValArray, _ValArray, _Tp, _Tp >, typename
  __fun< __equal_to, _Tp >::result_type > **std::operator==** (const valarray< _-
  Tp > &__v, const valarray< _Tp > &__w)
- template<typename _Tp >
  _Expr< _BinClos< __greater, _Constant, _ValArray, _Tp, _Tp >, typename _-
  _fun< __greater, _Tp >::result_type > **std::operator**> (const _Tp &__t, const
  valarray< _Tp > &__v)

- template<typename _Tp >
  _Expr< _BinClos< __greater, _ValArray, _Constant, _Tp, _Tp >, typename _-
  _fun< __greater, _Tp >::result_type > **std::operator**> (const valarray< _Tp
  > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __greater, _ValArray, _ValArray, _Tp, _Tp >, typename _-
  _fun< __greater, _Tp >::result_type > **std::operator**> (const valarray< _Tp
  > &__v, const valarray< _Tp > &__w)
- template<typename _Tp >
  _Expr< _BinClos< __greater_equal, _Constant, _ValArray, _Tp, _Tp >, type-
  name __fun< __greater_equal, _Tp >::result_type > **std::operator**>= (const
  _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __greater_equal, _ValArray, _Constant, _Tp, _Tp >, type-
  name __fun< __greater_equal, _Tp >::result_type > **std::operator**>= (const
  valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __greater_equal, _ValArray, _ValArray, _Tp, _Tp >, type-
  name __fun< __greater_equal, _Tp >::result_type > **std::operator**>= (const
  valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<typename _Tp >
  _Expr< _BinClos< __shift_right, _Constant, _ValArray, _Tp, _Tp >, typename
  __fun< __shift_right, _Tp >::result_type > **std::operator**>> (const _Tp &__t,
  const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __shift_right, _ValArray, _Constant, _Tp, _Tp >, typename
  __fun< __shift_right, _Tp >::result_type > **std::operator**>> (const valarray<
  _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __shift_right, _ValArray, _ValArray, _Tp, _Tp >, typename
  __fun< __shift_right, _Tp >::result_type > **std::operator**>> (const valarray<
  _Tp > &__v, const valarray< _Tp > &__w)
- template<typename _Tp >
  _Expr< _BinClos< __bitwise_xor, _Constant, _ValArray, _Tp, _Tp >, type-
  name __fun< __bitwise_xor, _Tp >::result_type > **std::operator**^ (const _Tp
  &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __bitwise_xor, _ValArray, _Constant, _Tp, _Tp >, type-
  name __fun< __bitwise_xor, _Tp >::result_type > **std::operator**^ (const
  valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __bitwise_xor, _ValArray, _ValArray, _Tp, _Tp >, type-
  name __fun< __bitwise_xor, _Tp >::result_type > **std::operator**^ (const
  valarray< _Tp > &__v, const valarray< _Tp > &__w)

- template<typename _Tp >
  _Expr< _BinClos< __bitwise_or, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __bitwise_or, _Tp >::result_type > **std::operator|** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __bitwise_or, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __bitwise_or, _Tp >::result_type > **std::operator|** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __bitwise_or, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __bitwise_or, _Tp >::result_type > **std::operator|** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<typename _Tp >
  _Expr< _BinClos< __logical_or, _Constant, _ValArray, _Tp, _Tp >, typename __fun< __logical_or, _Tp >::result_type > **std::operator||** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< __logical_or, _ValArray, _Constant, _Tp, _Tp >, typename __fun< __logical_or, _Tp >::result_type > **std::operator||** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< __logical_or, _ValArray, _ValArray, _Tp, _Tp >, typename __fun< __logical_or, _Tp >::result_type > **std::operator||** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)

6.351.1 Detailed Description

This is a Standard C++ Library header.

Definition in file valarray.

6.352 valarray_after.h File Reference

Namespaces

- namespace std

Defines

- #define **_DEFINE_EXPR_BINARY_FUNCTION**(_Fun, _UFun)
- #define **_DEFINE_EXPR_BINARY_OPERATOR**(_Op, _Name)
- #define **_DEFINE_EXPR_UNARY_FUNCTION**(_Name, _UName)
- #define **_DEFINE_EXPR_UNARY_OPERATOR**(_Op, _Name)
- #define **_VALARRAY_AFTER_H**

Functions

- template<typename _Tp >
  _Expr< _UnClos< _Abs, _ValArray, _Tp >, _Tp > **std::abs** (const valarray< _Tp > &__v)
- template<class _Dom >
  _Expr< _UnClos< _Abs, _Expr, _Dom >, typename _Dom::value_type > **std::abs** (const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<typename _Tp >
  _Expr< _UnClos< _Acos, _ValArray, _Tp >, _Tp > **std::acos** (const valarray< _Tp > &__v)
- template<class _Dom >
  _Expr< _UnClos< _Acos, _Expr, _Dom >, typename _Dom::value_type > **std::acos** (const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<typename _Tp >
  _Expr< _UnClos< _Asin, _ValArray, _Tp >, _Tp > **std::asin** (const valarray< _Tp > &__v)
- template<class _Dom >
  _Expr< _UnClos< _Asin, _Expr, _Dom >, typename _Dom::value_type > **std::asin** (const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<typename _Tp >
  _Expr< _UnClos< _Atan, _ValArray, _Tp >, _Tp > **std::atan** (const valarray< _Tp > &__v)
- template<class _Dom >
  _Expr< _UnClos< _Atan, _Expr, _Dom >, typename _Dom::value_type > **std::atan** (const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<typename _Tp >
  _Expr< _BinClos< _Atan2, _Constant, _ValArray, _Tp, _Tp >, _Tp > **std::atan2** (const _Tp &__t, const valarray< _Tp > &__v)

- template<typename _Tp >
  _Expr< _BinClos< _Atan2, _ValArray, _Constant, _Tp, _Tp >, _Tp > **std::atan2** (const valarray< _Tp > &__v, const _Tp &__t)
- template<typename _Tp >
  _Expr< _BinClos< _Atan2, _ValArray, _ValArray, _Tp, _Tp >, _Tp > **std::atan2** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<class _Dom >
  _Expr< _BinClos< _Atan2, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename _Dom::value_type > **std::atan2** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< _Atan2, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename _Dom::value_type > **std::atan2** (const _Expr< _Dom, typename _Dom::value_type > &__e, const typename _Dom::value_type &__t)
- template<class _Dom >
  _Expr< _BinClos< _Atan2, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename _Dom::value_type > **std::atan2** (const valarray< typename _Dom::valarray > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< _Atan2, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename _Dom::value_type > **std::atan2** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< _Atan2, _Expr, _Expr, _Dom1, _Dom2 >, typename _Dom1::value_type > **std::atan2** (const _Expr< _Dom1, typename _Dom1::value_type > &__e1, const _Expr< _Dom2, typename _Dom2::value_type > &__e2)
- template<typename _Tp >
  _Expr< _UnClos< _Cos, _ValArray, _Tp >, _Tp > **std::cos** (const valarray< _Tp > &__v)
- template<class _Dom >
  _Expr< _UnClos< _Cos, _Expr, _Dom >, typename _Dom::value_type > **std::cos** (const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<typename _Tp >
  _Expr< _UnClos< _Cosh, _ValArray, _Tp >, _Tp > **std::cosh** (const valarray< _Tp > &__v)
- template<class _Dom >
  _Expr< _UnClos< _Cosh, _Expr, _Dom >, typename _Dom::value_type > **std::cosh** (const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<typename _Tp >
  _Expr< _UnClos< _Exp, _ValArray, _Tp >, _Tp > **std::exp** (const valarray< _Tp > &__v)

- template<class _Dom >
  _Expr< _UnClos< _Exp, _Expr, _Dom >, typename _Dom::value_type > **std::exp** (const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<typename _Tp >
  _Expr< _UnClos< _Log, _ValArray, _Tp >, _Tp > **std::log** (const valarray< _Tp > &__v)
- template<class _Dom >
  _Expr< _UnClos< _Log, _Expr, _Dom >, typename _Dom::value_type > **std::log** (const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<typename _Tp >
  _Expr< _UnClos< _Log10, _ValArray, _Tp >, _Tp > **std::log10** (const valarray< _Tp > &__v)
- template<class _Dom >
  _Expr< _UnClos< _Log10, _Expr, _Dom >, typename _Dom::value_type > **std::log10** (const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __not_equal_to, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __not_equal_to, typename _Dom::value_type >::result_type > **std::operator!=** (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __not_equal_to, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __not_equal_to, typename _Dom::value_type >::result_type > **std::operator!=** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __not_equal_to, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __not_equal_to, typename _Dom::value_type >::result_type > **std::operator!=** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __not_equal_to, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __not_equal_to, typename _Dom::value_type >::result_type > **std::operator!=** (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __not_equal_to, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __not_equal_to, typename _Dom1::value_type >::result_type > **std::operator!=** (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- template<class _Dom >
  _Expr< _BinClos< __modulus, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __modulus, typename _Dom::value_type

>::result_type > **std::operator%** (const valarray< typename _Dom::value_-type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)

- template<class _Dom >
  _Expr< _BinClos< __modulus, _Expr, _ValArray, _Dom, typename _-Dom::value_type >, typename __fun< __modulus, typename _Dom::value_-type >::result_type > **std::operator%** (const _Expr< _Dom, typename _-Dom::value_type > &__e, const valarray< typename _Dom::value_type > &_-_v)
- template<class _Dom >
  _Expr< _BinClos< __modulus, _Constant, _Expr, typename _Dom::value_-type, _Dom >, typename __fun< __modulus, typename _Dom::value_type >::result_type > **std::operator%** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __modulus, _Expr, _Constant, _Dom, typename _-Dom::value_type >, typename __fun< __modulus, typename _Dom::value_-type >::result_type > **std::operator%** (const _Expr< _Dom, typename _-Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __modulus, _Expr, _Expr, _Dom1, _Dom2 >, type-name __fun< __modulus, typename _Dom1::value_type >::result_type > **std::operator%** (const _Expr< _Dom1, typename _Dom1::value_type > &__-v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- template<class _Dom >
  _Expr< _BinClos< __bitwise_and, _ValArray, _Expr, typename _Dom::value_-type, _Dom >, typename __fun< __bitwise_and, typename _Dom::value_type >::result_type > **std::operator&** (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __bitwise_and, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __bitwise_and, typename _-Dom::value_type >::result_type > **std::operator&** (const _Expr< _Dom, type-name _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __bitwise_and, _Constant, _Expr, typename _Dom::value_-type, _Dom >, typename __fun< __bitwise_and, typename _Dom::value_type >::result_type > **std::operator&** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __bitwise_and, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __bitwise_and, typename _-Dom::value_type >::result_type > **std::operator&** (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)

- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __bitwise_and, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __bitwise_and, typename _Dom1::value_type >::result_type > **std::operator&** (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- template<class _Dom >
  _Expr< _BinClos< __logical_and, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __logical_and, typename _Dom::value_type >::result_type > **std::operator&&** (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __logical_and, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __logical_and, typename _Dom::value_type >::result_type > **std::operator&&** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __logical_and, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __logical_and, typename _Dom::value_type >::result_type > **std::operator&&** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __logical_and, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __logical_and, typename _Dom::value_type >::result_type > **std::operator&&** (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __logical_and, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __logical_and, typename _Dom1::value_type >::result_type > **std::operator&&** (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- template<class _Dom >
  _Expr< _BinClos< __multiplies, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __multiplies, typename _Dom::value_type >::result_type > **std::operator*** (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __multiplies, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __multiplies, typename _Dom::value_type >::result_type > **std::operator*** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __multiplies, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __multiplies, typename _Dom::value_type

>::result_type > **std::operator*** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)

- template<class _Dom >
  _Expr< _BinClos< __multiplies, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __multiplies, typename _Dom::value_type >::result_type > **std::operator*** (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __multiplies, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __multiplies, typename _Dom1::value_type >::result_type > **std::operator*** (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- template<class _Dom >
  _Expr< _BinClos< __plus, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __plus, typename _Dom::value_type >::result_type > **std::operator+** (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __plus, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __plus, typename _Dom::value_type >::result_type > **std::operator+** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __plus, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __plus, typename _Dom::value_type >::result_type > **std::operator+** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __plus, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __plus, typename _Dom::value_type >::result_type > **std::operator+** (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __plus, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __plus, typename _Dom1::value_type >::result_type > **std::operator+** (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- template<class _Dom >
  _Expr< _BinClos< __minus, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __minus, typename _Dom::value_type >::result_type > **std::operator-** (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __minus, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __minus, typename _Dom::value_-

type >::result_type > **std::operator-** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)

- template<class _Dom >
  _Expr< _BinClos< __minus, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __minus, typename _Dom::value_type >::result_type > **std::operator-** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __minus, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __minus, typename _Dom::value_type >::result_type > **std::operator-** (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __minus, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __minus, typename _Dom1::value_type >::result_type > **std::operator-** (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- template<class _Dom >
  _Expr< _BinClos< __divides, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __divides, typename _Dom::value_type >::result_type > **std::operator/** (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __divides, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __divides, typename _Dom::value_type >::result_type > **std::operator/** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __divides, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __divides, typename _Dom::value_type >::result_type > **std::operator/** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __divides, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __divides, typename _Dom::value_type >::result_type > **std::operator/** (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __divides, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __divides, typename _Dom1::value_type >::result_type > **std::operator/** (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)

- template<class _Dom >
  _Expr< _BinClos< __less, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __less, typename _Dom::value_type >::result_type > **std::operator**< (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __less, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __less, typename _Dom::value_type >::result_type > **std::operator**< (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __less, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __less, typename _Dom::value_type >::result_type > **std::operator**< (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __less, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __less, typename _Dom::value_type >::result_type > **std::operator**< (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __less, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __less, typename _Dom1::value_type >::result_type > **std::operator**< (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- template<class _Dom >
  _Expr< _BinClos< __shift_left, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __shift_left, typename _Dom::value_type >::result_type > **std::operator**<< (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __shift_left, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __shift_left, typename _Dom::value_type >::result_type > **std::operator**<< (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __shift_left, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __shift_left, typename _Dom::value_type >::result_type > **std::operator**<< (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __shift_left, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __shift_left, typename _Dom::value_type >::result_type > **std::operator**<< (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)

- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __shift_left, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __shift_left, typename _Dom1::value_type >::result_type > **std::operator<<** (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- template<class _Dom >
  _Expr< _BinClos< __less_equal, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __less_equal, typename _Dom::value_type >::result_type > **std::operator<=** (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __less_equal, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __less_equal, typename _Dom::value_type >::result_type > **std::operator<=** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __less_equal, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __less_equal, typename _Dom::value_type >::result_type > **std::operator<=** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __less_equal, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __less_equal, typename _Dom::value_type >::result_type > **std::operator<=** (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __less_equal, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __less_equal, typename _Dom1::value_type >::result_type > **std::operator<=** (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- template<class _Dom >
  _Expr< _BinClos< __equal_to, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __equal_to, typename _Dom::value_type >::result_type > **std::operator==** (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __equal_to, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __equal_to, typename _Dom::value_type >::result_type > **std::operator==** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __equal_to, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __equal_to, typename _Dom::value_type

>::result_type > **std::operator==** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)

- template<class _Dom >
  _Expr< _BinClos< __equal_to, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __equal_to, typename _Dom::value_type >::result_type > **std::operator==** (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __equal_to, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __equal_to, typename _Dom1::value_type >::result_type > **std::operator==** (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- template<class _Dom >
  _Expr< _BinClos< __greater, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __greater, typename _Dom::value_type >::result_type > **std::operator>** (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __greater, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __greater, typename _Dom::value_type >::result_type > **std::operator>** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __greater, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __greater, typename _Dom::value_type >::result_type > **std::operator>** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __greater, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __greater, typename _Dom::value_type >::result_type > **std::operator>** (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __greater, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __greater, typename _Dom1::value_type >::result_type > **std::operator>** (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- template<class _Dom >
  _Expr< _BinClos< __greater_equal, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __greater_equal, typename _Dom::value_type >::result_type > **std::operator>=** (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)

- template<class _Dom >
  _Expr< _BinClos< __greater_equal, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __greater_equal, typename _Dom::value_type >::result_type > **std::operator>=** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __greater_equal, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __greater_equal, typename _Dom::value_type >::result_type > **std::operator>=** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __greater_equal, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __greater_equal, typename _Dom::value_type >::result_type > **std::operator>=** (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __greater_equal, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __greater_equal, typename _Dom1::value_type >::result_type > **std::operator>=** (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- template<class _Dom >
  _Expr< _BinClos< __shift_right, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __shift_right, typename _Dom::value_type >::result_type > **std::operator>>** (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __shift_right, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __shift_right, typename _Dom::value_type >::result_type > **std::operator>>** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __shift_right, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __shift_right, typename _Dom::value_type >::result_type > **std::operator>>** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __shift_right, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __shift_right, typename _Dom::value_type >::result_type > **std::operator>>** (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)

- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __shift_right, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __shift_right, typename _Dom1::value_type >::result_type > **std::operator>>** (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- template<class _Dom >
  _Expr< _BinClos< __bitwise_xor, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __bitwise_xor, typename _Dom::value_type >::result_type > **std::operator^** (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __bitwise_xor, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __bitwise_xor, typename _Dom::value_type >::result_type > **std::operator^** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __bitwise_xor, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __bitwise_xor, typename _Dom::value_type >::result_type > **std::operator^** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __bitwise_xor, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __bitwise_xor, typename _Dom::value_type >::result_type > **std::operator^** (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __bitwise_xor, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __bitwise_xor, typename _Dom1::value_type >::result_type > **std::operator^** (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- template<class _Dom >
  _Expr< _BinClos< __bitwise_or, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __bitwise_or, typename _Dom::value_type >::result_type > **std::operator|** (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __bitwise_or, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __bitwise_or, typename _Dom::value_type >::result_type > **std::operator|** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __bitwise_or, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __bitwise_or, typename _Dom::value_

type >::result_type > **std::operator|** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)

- template<class _Dom >
  _Expr< _BinClos< __bitwise_or, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __bitwise_or, typename _Dom::value_type >::result_type > **std::operator|** (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __bitwise_or, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __bitwise_or, typename _Dom1::value_type >::result_type > **std::operator|** (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- template<class _Dom >
  _Expr< _BinClos< __logical_or, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __logical_or, typename _Dom::value_type >::result_type > **std::operator||** (const valarray< typename _Dom::value_type > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< __logical_or, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename __fun< __logical_or, typename _Dom::value_type >::result_type > **std::operator||** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __logical_or, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename __fun< __logical_or, typename _Dom::value_type >::result_type > **std::operator||** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__v)
- template<class _Dom >
  _Expr< _BinClos< __logical_or, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename __fun< __logical_or, typename _Dom::value_type >::result_type > **std::operator||** (const _Expr< _Dom, typename _Dom::value_type > &__v, const typename _Dom::value_type &__t)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< __logical_or, _Expr, _Expr, _Dom1, _Dom2 >, typename __fun< __logical_or, typename _Dom1::value_type >::result_type > **std::operator||** (const _Expr< _Dom1, typename _Dom1::value_type > &__v, const _Expr< _Dom2, typename _Dom2::value_type > &__w)
- template<typename _Tp >
  _Expr< _BinClos< _Pow, _Constant, _ValArray, _Tp, _Tp >, _Tp > **std::pow** (const _Tp &__t, const valarray< _Tp > &__v)
- template<typename _Tp >
  _Expr< _BinClos< _Pow, _ValArray, _Constant, _Tp, _Tp >, _Tp > **std::pow** (const valarray< _Tp > &__v, const _Tp &__t)

- template<typename _Tp >
  _Expr< _BinClos< _Pow, _ValArray, _ValArray, _Tp, _Tp >, _Tp > **std::pow** (const valarray< _Tp > &__v, const valarray< _Tp > &__w)
- template<class _Dom >
  _Expr< _BinClos< _Pow, _Constant, _Expr, typename _Dom::value_type, _Dom >, typename _Dom::value_type > **std::pow** (const typename _Dom::value_type &__t, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< _Pow, _Expr, _Constant, _Dom, typename _Dom::value_type >, typename _Dom::value_type > **std::pow** (const _Expr< _Dom, typename _Dom::value_type > &__e, const typename _Dom::value_type &__t)
- template<class _Dom >
  _Expr< _BinClos< _Pow, _ValArray, _Expr, typename _Dom::value_type, _Dom >, typename _Dom::value_type > **std::pow** (const valarray< typename _Dom::valarray > &__v, const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<class _Dom >
  _Expr< _BinClos< _Pow, _Expr, _ValArray, _Dom, typename _Dom::value_type >, typename _Dom::value_type > **std::pow** (const _Expr< _Dom, typename _Dom::value_type > &__e, const valarray< typename _Dom::value_type > &__v)
- template<class _Dom1 , class _Dom2 >
  _Expr< _BinClos< _Pow, _Expr, _Expr, _Dom1, _Dom2 >, typename _Dom1::value_type > **std::pow** (const _Expr< _Dom1, typename _Dom1::value_type > &__e1, const _Expr< _Dom2, typename _Dom2::value_type > &__e2)
- template<typename _Tp >
  _Expr< _UnClos< _Sin, _ValArray, _Tp >, _Tp > **std::sin** (const valarray< _Tp > &__v)
- template<class _Dom >
  _Expr< _UnClos< _Sin, _Expr, _Dom >, typename _Dom::value_type > **std::sin** (const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<typename _Tp >
  _Expr< _UnClos< _Sinh, _ValArray, _Tp >, _Tp > **std::sinh** (const valarray< _Tp > &__v)
- template<class _Dom >
  _Expr< _UnClos< _Sinh, _Expr, _Dom >, typename _Dom::value_type > **std::sinh** (const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<typename _Tp >
  _Expr< _UnClos< _Sqrt, _ValArray, _Tp >, _Tp > **std::sqrt** (const valarray< _Tp > &__v)
- template<class _Dom >
  _Expr< _UnClos< _Sqrt, _Expr, _Dom >, typename _Dom::value_type > **std::sqrt** (const _Expr< _Dom, typename _Dom::value_type > &__e)

- template<typename _Tp >
  _Expr< _UnClos< _Tan, _ValArray, _Tp >, _Tp > **std::tan** (const valarray< _Tp > &__v)
- template<class _Dom >
  _Expr< _UnClos< _Tan, _Expr, _Dom >, typename _Dom::value_type > **std::tan** (const _Expr< _Dom, typename _Dom::value_type > &__e)
- template<typename _Tp >
  _Expr< _UnClos< _Tanh, _ValArray, _Tp >, _Tp > **std::tanh** (const valarray< _Tp > &__v)
- template<class _Dom >
  _Expr< _UnClos< _Tanh, _Expr, _Dom >, typename _Dom::value_type > **std::tanh** (const _Expr< _Dom, typename _Dom::value_type > &__e)

6.352.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file valarray_after.h.

6.353 valarray_array.h File Reference

Namespaces

- namespace std

Defines

- #define **_DEFINE_ARRAY_FUNCTION**(_Op, _Name)
- #define **_VALARRAY_ARRAY_H**

Functions

- template<typename _Tp >
  void **std::__valarray_copy** (_Array< _Tp > __src, size_t __n, _Array< size_t > __i, _Array< _Tp > __dst, _Array< size_t > __j)
- template<typename _Tp >
  void **std::__valarray_copy** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< size_t > __i)
- template<typename _Tp >
  void **std::__valarray_copy** (_Array< _Tp > __a, _Array< size_t > __i, _Array< _Tp > __b, size_t __n)
- template<typename _Tp >
  void **std::__valarray_copy** (_Array< _Tp > __a, size_t __n, size_t __s1, _Array< _Tp > __b, size_t __s2)
- template<typename _Tp >
  void **std::__valarray_copy** (_Array< _Tp > __a, _Array< _Tp > __b, size_t __n, size_t __s)
- template<typename _Tp >
  void **std::__valarray_copy** (_Array< _Tp > __a, size_t __n, size_t __s, _Array< _Tp > __b)
- template<typename _Tp >
  void **std::__valarray_copy** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b)
- template<typename _Tp >
  void **std::__valarray_copy** (const _Tp *__restrict__ __src, size_t __n, const size_t *__restrict__ __i, _Tp *__restrict__ __dst, const size_t *__restrict__ __j)
- template<typename _Tp >
  void **std::__valarray_copy** (const _Tp *__restrict__ __a, size_t __n, _Tp *__restrict__ __b, const size_t *__restrict__ __i)
- template<typename _Tp >
  void **std::__valarray_copy** (const _Tp *__restrict__ __a, const size_t *__restrict__ __i, _Tp *__restrict__ __b, size_t __n)

- template<typename _Tp >
  void **std::__valarray_copy** (const _Tp *__restrict__ __src, size_t __n, size_t __s1, _Tp *__restrict__ __dst, size_t __s2)
- template<typename _Tp >
  void **std::__valarray_copy** (const _Tp *__restrict__ __a, _Tp *__restrict__ __b, size_t __n, size_t __s)
- template<typename _Tp >
  void **std::__valarray_copy** (const _Tp *__restrict__ __a, size_t __n, size_t __s, _Tp *__restrict__ __b)
- template<typename _Tp >
  void **std::__valarray_copy** (const _Tp *__restrict__ __a, size_t __n, _Tp *__restrict__ __b)
- template<typename _Tp >
  void **std::__valarray_copy_construct** (_Array< _Tp > __a, size_t __n, size_t __s, _Array< _Tp > __b)
- template<typename _Tp >
  void **std::__valarray_copy_construct** (_Array< _Tp > __a, _Array< size_t > __i, _Array< _Tp > __b, size_t __n)
- template<typename _Tp >
  void **std::__valarray_copy_construct** (const _Tp *__restrict__ __a, const size_t *__restrict__ __i, _Tp *__restrict__ __o, size_t __n)
- template<typename _Tp >
  void **std::__valarray_copy_construct** (const _Tp *__restrict__ __a, size_t __n, size_t __s, _Tp *__restrict__ __o)
- template<typename _Tp >
  void **std::__valarray_copy_construct** (const _Tp *__b, const _Tp *__e, _Tp *__restrict__ __o)
- template<typename _Tp >
  void **std::__valarray_default_construct** (_Tp *__b, _Tp *__e)
- template<typename _Tp >
  void **std::__valarray_destroy_elements** (_Tp *__b, _Tp *__e)
- template<typename _Tp >
  void **std::__valarray_fill** (_Array< _Tp > __a, _Array< size_t > __i, size_t __n, const _Tp &__t)
- template<typename _Tp >
  void **std::__valarray_fill** (_Array< _Tp > __a, size_t __n, size_t __s, const _Tp &__t)
- template<typename _Tp >
  void **std::__valarray_fill** (_Array< _Tp > __a, size_t __n, const _Tp &__t)
- template<typename _Tp >
  void **std::__valarray_fill** (_Tp *__restrict__ __a, const size_t *__restrict__ __i, size_t __n, const _Tp &__t)
- template<typename _Tp >
  void **std::__valarray_fill** (_Tp *__restrict__ __a, size_t __n, size_t __s, const _Tp &__t)

- template<typename _Tp >
  void **std::__valarray_fill** (_Tp *__restrict__ __a, size_t __n, const _Tp &__t)
- template<typename _Tp >
  void **std::__valarray_fill_construct** (_Tp *__b, _Tp *__e, const _Tp __t)
- void * **std::__valarray_get_memory** (size_t __n)
- template<typename _Tp >
  _Tp *__restrict__ **std::__valarray_get_storage** (size_t __n)
- template<typename _Ta >
  _Ta::value_type **std::__valarray_max** (const _Ta &__a)
- template<typename _Ta >
  _Ta::value_type **std::__valarray_min** (const _Ta &__a)
- template<typename _Tp >
  _Tp **std::__valarray_product** (const _Tp *__f, const _Tp *__l)
- void **std::__valarray_release_memory** (void *__p)
- template<typename _Tp >
  _Tp **std::__valarray_sum** (const _Tp *__f, const _Tp *__l)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___bitwise_and** (_Array< _Tp > __a, _Array< bool > __m, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___bitwise_and** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< bool > __m)
- template<typename _Tp >
  void **std::_Array_augmented___bitwise_and** (_Array< _Tp > __a, _Array< bool > __m, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___bitwise_and** (_Array< _Tp > __a, _Array< size_t > __i, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___bitwise_and** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< size_t > __i)
- template<typename _Tp >
  void **std::_Array_augmented___bitwise_and** (_Array< _Tp > __a, _Array< size_t > __i, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___bitwise_and** (_Array< _Tp > __a, size_t __s, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___bitwise_and** (_Array< _Tp > __a, _Array< _Tp > __b, size_t __n, size_t __s)
- template<typename _Tp >
  void **std::_Array_augmented___bitwise_and** (_Array< _Tp > __a, size_t __n, size_t __s, _Array< _Tp > __b)

- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___bitwise_and** (_Array< _Tp > __a, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___bitwise_and** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b)
- template<typename _Tp >
  void **std::_Array_augmented___bitwise_and** (_Array< _Tp > __a, size_t __n, const _Tp &__t)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___bitwise_or** (_Array< _Tp > __a, _Array< bool > __m, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___bitwise_or** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< bool > __m)
- template<typename _Tp >
  void **std::_Array_augmented___bitwise_or** (_Array< _Tp > __a, _Array< bool > __m, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___bitwise_or** (_Array< _Tp > __a, _Array< size_t > __i, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___bitwise_or** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< size_t > __i)
- template<typename _Tp >
  void **std::_Array_augmented___bitwise_or** (_Array< _Tp > __a, _Array< size_t > __i, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___bitwise_or** (_Array< _Tp > __a, size_t __s, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___bitwise_or** (_Array< _Tp > __a, _Array< _Tp > __b, size_t __n, size_t __s)
- template<typename _Tp >
  void **std::_Array_augmented___bitwise_or** (_Array< _Tp > __a, size_t __n, size_t __s, _Array< _Tp > __b)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___bitwise_or** (_Array< _Tp > __a, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___bitwise_or** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b)
- template<typename _Tp >
  void **std::_Array_augmented___bitwise_or** (_Array< _Tp > __a, size_t __n, const _Tp &__t)

- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___bitwise_xor** (_Array< _Tp > __a, _Array< bool > __m, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___bitwise_xor** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< bool > __m)
- template<typename _Tp >
  void **std::_Array_augmented___bitwise_xor** (_Array< _Tp > __a, _Array< bool > __m, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___bitwise_xor** (_Array< _Tp > __a, _Array< size_t > __i, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___bitwise_xor** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< size_t > __i)
- template<typename _Tp >
  void **std::_Array_augmented___bitwise_xor** (_Array< _Tp > __a, _Array< size_t > __i, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___bitwise_xor** (_Array< _Tp > __a, size_t __s, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___bitwise_xor** (_Array< _Tp > __a, _Array< _Tp > __b, size_t __n, size_t __s)
- template<typename _Tp >
  void **std::_Array_augmented___bitwise_xor** (_Array< _Tp > __a, size_t __n, size_t __s, _Array< _Tp > __b)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___bitwise_xor** (_Array< _Tp > __a, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___bitwise_xor** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b)
- template<typename _Tp >
  void **std::_Array_augmented___bitwise_xor** (_Array< _Tp > __a, size_t __n, const _Tp &__t)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___divides** (_Array< _Tp > __a, _Array< bool > __m, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___divides** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< bool > __m)
- template<typename _Tp >
  void **std::_Array_augmented___divides** (_Array< _Tp > __a, _Array< bool > __m, _Array< _Tp > __b, size_t __n)

- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___divides** (_Array< _Tp > __a, _Array< size_t > __i, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___divides** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< size_t > __i)
- template<typename _Tp >
  void **std::_Array_augmented___divides** (_Array< _Tp > __a, _Array< size_t > __i, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___divides** (_Array< _Tp > __a, size_t __s, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___divides** (_Array< _Tp > __a, _Array< _Tp > __b, size_t __n, size_t __s)
- template<typename _Tp >
  void **std::_Array_augmented___divides** (_Array< _Tp > __a, size_t __n, size_t __s, _Array< _Tp > __b)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___divides** (_Array< _Tp > __a, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___divides** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b)
- template<typename _Tp >
  void **std::_Array_augmented___divides** (_Array< _Tp > __a, size_t __n, const _Tp &__t)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___minus** (_Array< _Tp > __a, _Array< bool > __m, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___minus** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< bool > __m)
- template<typename _Tp >
  void **std::_Array_augmented___minus** (_Array< _Tp > __a, _Array< bool > __m, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___minus** (_Array< _Tp > __a, _Array< size_t > __i, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___minus** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< size_t > __i)
- template<typename _Tp >
  void **std::_Array_augmented___minus** (_Array< _Tp > __a, _Array< size_t > __i, _Array< _Tp > __b, size_t __n)

- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___minus** (_Array< _Tp > __a, size_t __s, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___minus** (_Array< _Tp > __a, _Array< _Tp > __b, size_t __n, size_t __s)
- template<typename _Tp >
  void **std::_Array_augmented___minus** (_Array< _Tp > __a, size_t __n, size_t __s, _Array< _Tp > __b)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___minus** (_Array< _Tp > __a, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___minus** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b)
- template<typename _Tp >
  void **std::_Array_augmented___minus** (_Array< _Tp > __a, size_t __n, const _Tp &__t)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___modulus** (_Array< _Tp > __a, _Array< bool > __m, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___modulus** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< bool > __m)
- template<typename _Tp >
  void **std::_Array_augmented___modulus** (_Array< _Tp > __a, _Array< bool > __m, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___modulus** (_Array< _Tp > __a, _Array< size_t > __i, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___modulus** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< size_t > __i)
- template<typename _Tp >
  void **std::_Array_augmented___modulus** (_Array< _Tp > __a, _Array< size_t > __i, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___modulus** (_Array< _Tp > __a, size_t __s, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___modulus** (_Array< _Tp > __a, _Array< _Tp > __b, size_t __n, size_t __s)
- template<typename _Tp >
  void **std::_Array_augmented___modulus** (_Array< _Tp > __a, size_t __n, size_t __s, _Array< _Tp > __b)

- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___modulus** (_Array< _Tp > __a, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___modulus** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b)
- template<typename _Tp >
  void **std::_Array_augmented___modulus** (_Array< _Tp > __a, size_t __n, const _Tp &__t)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___multiplies** (_Array< _Tp > __a, _Array< bool > __m, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___multiplies** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< bool > __m)
- template<typename _Tp >
  void **std::_Array_augmented___multiplies** (_Array< _Tp > __a, _Array< bool > __m, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___multiplies** (_Array< _Tp > __a, _Array< size_t > __i, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___multiplies** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< size_t > __i)
- template<typename _Tp >
  void **std::_Array_augmented___multiplies** (_Array< _Tp > __a, _Array< size_t > __i, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___multiplies** (_Array< _Tp > __a, size_t __s, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___multiplies** (_Array< _Tp > __a, _Array< _Tp > __b, size_t __n, size_t __s)
- template<typename _Tp >
  void **std::_Array_augmented___multiplies** (_Array< _Tp > __a, size_t __n, size_t __s, _Array< _Tp > __b)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___multiplies** (_Array< _Tp > __a, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___multiplies** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b)
- template<typename _Tp >
  void **std::_Array_augmented___multiplies** (_Array< _Tp > __a, size_t __n, const _Tp &__t)

- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___plus** (_Array< _Tp > __a, _Array< bool > __m, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___plus** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< bool > __m)
- template<typename _Tp >
  void **std::_Array_augmented___plus** (_Array< _Tp > __a, _Array< bool > __m, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___plus** (_Array< _Tp > __a, _Array< size_t > __i, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___plus** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< size_t > __i)
- template<typename _Tp >
  void **std::_Array_augmented___plus** (_Array< _Tp > __a, _Array< size_t > __i, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___plus** (_Array< _Tp > __a, size_t __s, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___plus** (_Array< _Tp > __a, _Array< _Tp > __b, size_t __n, size_t __s)
- template<typename _Tp >
  void **std::_Array_augmented___plus** (_Array< _Tp > __a, size_t __n, size_t __s, _Array< _Tp > __b)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___plus** (_Array< _Tp > __a, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___plus** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b)
- template<typename _Tp >
  void **std::_Array_augmented___plus** (_Array< _Tp > __a, size_t __n, const _Tp &__t)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___shift_left** (_Array< _Tp > __a, _Array< bool > __m, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___shift_left** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< bool > __m)
- template<typename _Tp >
  void **std::_Array_augmented___shift_left** (_Array< _Tp > __a, _Array< bool > __m, _Array< _Tp > __b, size_t __n)

- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___shift_left** (_Array< _Tp > __a, _Array< size_t > __i, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___shift_left** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< size_t > __i)
- template<typename _Tp >
  void **std::_Array_augmented___shift_left** (_Array< _Tp > __a, _Array< size_t > __i, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___shift_left** (_Array< _Tp > __a, size_t __s, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___shift_left** (_Array< _Tp > __a, _Array< _Tp > __b, size_t __n, size_t __s)
- template<typename _Tp >
  void **std::_Array_augmented___shift_left** (_Array< _Tp > __a, size_t __n, size_t __s, _Array< _Tp > __b)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___shift_left** (_Array< _Tp > __a, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___shift_left** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b)
- template<typename _Tp >
  void **std::_Array_augmented___shift_left** (_Array< _Tp > __a, size_t __n, const _Tp &__t)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___shift_right** (_Array< _Tp > __a, _Array< bool > __m, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___shift_right** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< bool > __m)
- template<typename _Tp >
  void **std::_Array_augmented___shift_right** (_Array< _Tp > __a, _Array< bool > __m, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___shift_right** (_Array< _Tp > __a, _Array< size_t > __i, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___shift_right** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< size_t > __i)
- template<typename _Tp >
  void **std::_Array_augmented___shift_right** (_Array< _Tp > __a, _Array< size_t > __i, _Array< _Tp > __b, size_t __n)

- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___shift_right** (_Array< _Tp > __a, size_t __s, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___shift_right** (_Array< _Tp > __a, _Array< _Tp > __b, size_t __n, size_t __s)
- template<typename _Tp >
  void **std::_Array_augmented___shift_right** (_Array< _Tp > __a, size_t __n, size_t __s, _Array< _Tp > __b)
- template<typename _Tp , class _Dom >
  void **std::_Array_augmented___shift_right** (_Array< _Tp > __a, const _Expr< _Dom, _Tp > &__e, size_t __n)
- template<typename _Tp >
  void **std::_Array_augmented___shift_right** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b)
- template<typename _Tp >
  void **std::_Array_augmented___shift_right** (_Array< _Tp > __a, size_t __n, const _Tp &__t)

6.353.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file valarray_array.h.

6.354 valarray_array.tcc File Reference

Namespaces

- namespace std

Defines

- #define **_VALARRAY_ARRAY_TCC**

Functions

- template<typename _Tp , class _Dom >
  void **std::__valarray_copy** (const _Expr< _Dom, _Tp > &__e, size_t __n, _Array< _Tp > __a, _Array< bool > __m)
- template<typename _Tp >
  void **std::__valarray_copy** (_Array< _Tp > __e, _Array< size_t > __f, size_t __n, _Array< _Tp > __a, _Array< size_t > __i)
- template<typename _Tp , class _Dom >
  void **std::__valarray_copy** (const _Expr< _Dom, _Tp > &__e, size_t __n, _Array< _Tp > __a, _Array< size_t > __i)
- template<typename _Tp , class _Dom >
  void **std::__valarray_copy** (const _Expr< _Dom, _Tp > &__e, size_t __n, _Array< _Tp > __a, size_t __s)
- template<typename _Tp , class _Dom >
  void **std::__valarray_copy** (const _Expr< _Dom, _Tp > &__e, size_t __n, _Array< _Tp > __a)
- template<typename _Tp >
  void **std::__valarray_copy** (_Array< _Tp > __a, _Array< bool > __m, size_t __n, _Array< _Tp > __b, _Array< bool > __k)
- template<typename _Tp >
  void **std::__valarray_copy** (_Array< _Tp > __a, size_t __n, _Array< _Tp > __b, _Array< bool > __m)
- template<typename _Tp >
  void **std::__valarray_copy** (_Array< _Tp > __a, _Array< bool > __m, _Array< _Tp > __b, size_t __n)
- template<typename _Tp >
  void **std::__valarray_copy_construct** (_Array< _Tp > __a, _Array< bool > __m, _Array< _Tp > __b, size_t __n)
- template<typename _Tp , class _Dom >
  void **std::__valarray_copy_construct** (const _Expr< _Dom, _Tp > &__e, size_t __n, _Array< _Tp > __a)

- template<typename _Tp >
  void **std::__valarray_fill** (_Array< _Tp > __a, size_t __n, _Array< bool > __m, const _Tp &__t)

6.354.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file valarray_array.tcc.

6.355 valarray_before.h File Reference

Namespaces

- namespace std

Defines

- #define **_VALARRAY_BEFORE_H**

6.355.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file valarray_before.h.

6.356 vector File Reference

Defines

- #define **_GLIBCXX_VECTOR**

6.356.1 Detailed Description

This is a Standard C++ Library header.

Definition in file vector.

6.357 vector File Reference

Classes

- class std::__debug::vector< _Tp, _Allocator >
  Class std::vector with safety/checking/debug instrumentation.
- struct std::hash< __debug::vector< bool, _Alloc > >
  std::hash specialization for vector<bool>.

Namespaces

- namespace std
- namespace std::__debug

Defines

- #define **_GLIBCXX_DEBUG_VECTOR**

Functions

- template<typename _Tp , typename _Alloc >
  bool **std::__debug::operator!=** (const vector< _Tp, _Alloc > &__lhs, const vector< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__debug::operator<** (const vector< _Tp, _Alloc > &__lhs, const vector< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__debug::operator<=** (const vector< _Tp, _Alloc > &__lhs, const vector< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__debug::operator==** (const vector< _Tp, _Alloc > &__lhs, const vector< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__debug::operator>** (const vector< _Tp, _Alloc > &__lhs, const vector< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__debug::operator>=** (const vector< _Tp, _Alloc > &__lhs, const vector< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  void **std::__debug::swap** (vector< _Tp, _Alloc > &__lhs, vector< _Tp, _Alloc > &__rhs)

6.357.1 Detailed Description

This file is a GNU debug extension to the Standard C++ Library.

Definition in file debug/vector.

6.358 vector File Reference

Classes

- struct std::hash< __profile::vector< bool, _Alloc > >
  std::hash specialization for vector<bool>.

Namespaces

- namespace std
- namespace std::__profile

Defines

- #define **_GLIBCXX_PROFILE_VECTOR**

Functions

- template<typename _Tp , typename _Alloc >
  bool **std::__profile::operator!=** (const vector< _Tp, _Alloc > &__lhs, const vector< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__profile::operator**< (const vector< _Tp, _Alloc > &__lhs, const vector< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__profile::operator<=** (const vector< _Tp, _Alloc > &__lhs, const vector< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__profile::operator==** (const vector< _Tp, _Alloc > &__lhs, const vector< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__profile::operator**> (const vector< _Tp, _Alloc > &__lhs, const vector< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  bool **std::__profile::operator>=** (const vector< _Tp, _Alloc > &__lhs, const vector< _Tp, _Alloc > &__rhs)
- template<typename _Tp , typename _Alloc >
  void **std::__profile::swap** (vector< _Tp, _Alloc > &__lhs, vector< _Tp, _Alloc > &&__rhs)
- template<typename _Tp , typename _Alloc >
  void **std::__profile::swap** (vector< _Tp, _Alloc > &&__lhs, vector< _Tp, _Alloc > &__rhs)

- template<typename _Tp , typename _Alloc >
  void **std::__profile::swap** (vector< _Tp, _Alloc > &__lhs, vector< _Tp, _Alloc > &__rhs)

6.358.1 Detailed Description

This file is a GNU profile extension to the Standard C++ Library.

Definition in file profile/vector.

6.359 vector.tcc File Reference

Namespaces

- namespace std

Defines

- #define **_VECTOR_TCC**

6.359.1 Detailed Description

This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file vector.tcc.

6.360 vstring.h File Reference

Classes

- class __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base >

  Template class __versa_string.
  Data structure managing sequences of characters and character-like objects.

Namespaces

- namespace __gnu_cxx
- namespace std

Defines

- #define **_VSTRING_H**

Functions

- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  basic_istream< _CharT, _Traits > & std::getline (basic_istream< _CharT, _Traits > &__is, __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base > &__str)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  basic_istream< _CharT, _Traits > & std::getline (basic_istream< _CharT, _Traits > &__is, __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base > &__str, _CharT __delim)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool __gnu_cxx::operator!= (const __versa_string< _CharT, _Traits, _Alloc, _Base > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool __gnu_cxx::operator!= (const _CharT *__lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool __gnu_cxx::operator!= (const __versa_string< _CharT, _Traits, _Alloc, _Base > &__lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)

- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  __versa_string< _CharT, _Traits, _Alloc, _Base > __gnu_cxx::operator+ (const __versa_string< _CharT, _Traits, _Alloc, _Base > &__lhs, _CharT __rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  __versa_string< _CharT, _Traits, _Alloc, _Base > __gnu_cxx::operator+ (const __versa_string< _CharT, _Traits, _Alloc, _Base > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  __versa_string< _CharT, _Traits, _Alloc, _Base > __gnu_cxx::operator+ (_CharT __lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  __versa_string< _CharT, _Traits, _Alloc, _Base > __gnu_cxx::operator+ (const _CharT *__lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  __versa_string< _CharT, _Traits, _Alloc, _Base > __gnu_cxx::operator+ (const __versa_string< _CharT, _Traits, _Alloc, _Base > &__lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool __gnu_cxx::operator< (const _CharT *__lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool __gnu_cxx::operator< (const __versa_string< _CharT, _Traits, _Alloc, _Base > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool __gnu_cxx::operator< (const __versa_string< _CharT, _Traits, _Alloc, _Base > &__lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  basic_ostream< _CharT, _Traits > & std::operator<< (basic_ostream< _CharT, _Traits > &__os, const __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base > &__str)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool __gnu_cxx::operator<= (const _CharT *__lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)

- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool __gnu_cxx::operator<= (const __versa_string< _CharT, _Traits, _Alloc, _Base > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool __gnu_cxx::operator<= (const __versa_string< _CharT, _Traits, _Alloc, _Base > &__lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool __gnu_cxx::operator== (const __versa_string< _CharT, _Traits, _Alloc, _Base > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool __gnu_cxx::operator== (const _CharT *__lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _CharT , template< typename, typename, typename > class _Base>
  __enable_if< std::__is_char< _CharT >::__value, bool >::__type **__gnu_cxx::operator==** (const __versa_string< _CharT, std::char_traits< _CharT >, std::allocator< _CharT >, _Base > &__lhs, const __versa_string< _CharT, std::char_traits< _CharT >, std::allocator< _CharT >, _Base > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool __gnu_cxx::operator== (const __versa_string< _CharT, _Traits, _Alloc, _Base > &__lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool __gnu_cxx::operator> (const _CharT *__lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool __gnu_cxx::operator> (const __versa_string< _CharT, _Traits, _Alloc, _Base > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool __gnu_cxx::operator> (const __versa_string< _CharT, _Traits, _Alloc, _Base > &__lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool __gnu_cxx::operator>= (const _CharT *__lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)

- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool __gnu_cxx::operator>= (const __versa_string< _CharT, _Traits, _Alloc, _Base > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  bool __gnu_cxx::operator>= (const __versa_string< _CharT, _Traits, _Alloc, _Base > &__lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &_-_rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  basic_istream< _CharT, _Traits > & std::operator>> (basic_istream< _CharT, _Traits > &__is, __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base > &__str)
- double **__gnu_cxx::stod** (const __vstring &__str, std::size_t *__idx=0)
- float **__gnu_cxx::stof** (const __vstring &__str, std::size_t *__idx=0)
- int **__gnu_cxx::stoi** (const __vstring &__str, std::size_t *__idx=0, int __-base=10)
- long **__gnu_cxx::stol** (const __vstring &__str, std::size_t *__idx=0, int __-base=10)
- long double **__gnu_cxx::stold** (const __vstring &__str, std::size_t *__idx=0)
- long long **__gnu_cxx::stoll** (const __vstring &__str, std::size_t *__idx=0, int __base=10)
- unsigned long **__gnu_cxx::stoul** (const __vstring &__str, std::size_t *__idx=0, int __base=10)
- unsigned long long **__gnu_cxx::stoull** (const __vstring &__str, std::size_t *__-idx, int __base=10)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  void __gnu_cxx::swap (__versa_string< _CharT, _Traits, _Alloc, _Base > &_-_lhs, __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- __vstring **__gnu_cxx::to_string** (long double __val)
- __vstring **__gnu_cxx::to_string** (double __val)
- __vstring **__gnu_cxx::to_string** (float __val)
- __vstring **__gnu_cxx::to_string** (unsigned long long __val)
- __vstring **__gnu_cxx::to_string** (long long __val)
- __vstring **__gnu_cxx::to_string** (unsigned long __val)
- __vstring **__gnu_cxx::to_string** (long __val)
- __vstring **__gnu_cxx::to_string** (unsigned __val)
- __vstring **__gnu_cxx::to_string** (int __val)
- __wvstring **__gnu_cxx::to_wstring** (long double __val)
- __wvstring **__gnu_cxx::to_wstring** (double __val)
- __wvstring **__gnu_cxx::to_wstring** (float __val)
- __wvstring **__gnu_cxx::to_wstring** (unsigned long long __val)

- __wvstring **__gnu_cxx::to_wstring** (long long __val)
- __wvstring **__gnu_cxx::to_wstring** (unsigned long __val)
- __wvstring **__gnu_cxx::to_wstring** (long __val)
- __wvstring **__gnu_cxx::to_wstring** (unsigned __val)
- __wvstring **__gnu_cxx::to_wstring** (int __val)

6.360.1 Detailed Description

This file is a GNU extension to the Standard C++ Library.

Definition in file vstring.h.

6.361 vstring.tcc File Reference

Namespaces

- namespace __gnu_cxx
- namespace std

Defines

- #define **_VSTRING_TCC**

Functions

- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  basic_istream< _CharT, _Traits > & std::getline (basic_istream< _CharT, _Traits > &__is, __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base > &__str, _CharT __delim)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  __versa_string< _CharT, _Traits, _Alloc, _Base > __gnu_cxx::operator+ (const __versa_string< _CharT, _Traits, _Alloc, _Base > &__lhs, _CharT __rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  __versa_string< _CharT, _Traits, _Alloc, _Base > __gnu_cxx::operator+ (const __versa_string< _CharT, _Traits, _Alloc, _Base > &__lhs, const _CharT *__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  __versa_string< _CharT, _Traits, _Alloc, _Base > __gnu_cxx::operator+ (_CharT __lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  __versa_string< _CharT, _Traits, _Alloc, _Base > __gnu_cxx::operator+ (const _CharT *__lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>
  __versa_string< _CharT, _Traits, _Alloc, _Base > __gnu_cxx::operator+ (const __versa_string< _CharT, _Traits, _Alloc, _Base > &__lhs, const __versa_string< _CharT, _Traits, _Alloc, _Base > &__rhs)
- template<typename _CharT , typename _Traits , typename _Alloc , template< typename, typename, typename > class _Base>

basic_istream< _CharT, _Traits > & std::operator>> (basic_istream< _CharT, _Traits > &__is, __gnu_cxx::__versa_string< _CharT, _Traits, _Alloc, _Base > &__str)

6.361.1 Detailed Description

This file is a GNU extension to the Standard C++ Library. This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file vstring.tcc.

6.362 vstring_fwd.h File Reference

Namespaces

- namespace __gnu_cxx

Defines

- #define **_VSTRING_FWD_H**

Typedefs

- typedef __versa_string< char, std::char_traits< char >, std::allocator< char >, __rc_string_base > **__gnu_cxx::__rc_string**
- typedef __vstring **__gnu_cxx::__sso_string**
- typedef __versa_string< char16_t, std::char_traits< char16_t >, std::allocator< char16_t >, __rc_string_base > **__gnu_cxx::__u16rc_string**
- typedef __u16vstring **__gnu_cxx::__u16sso_string**
- typedef __versa_string< char16_t > **__gnu_cxx::__u16vstring**
- typedef __versa_string< char32_t, std::char_traits< char32_t >, std::allocator< char32_t >, __rc_string_base > **__gnu_cxx::__u32rc_string**
- typedef __u32vstring **__gnu_cxx::__u32sso_string**
- typedef __versa_string< char32_t > **__gnu_cxx::__u32vstring**
- typedef __versa_string< char > **__gnu_cxx::__vstring**
- typedef __versa_string< wchar_t, std::char_traits< wchar_t >, std::allocator< wchar_t >, __rc_string_base > **__gnu_cxx::__wrc_string**
- typedef __wvstring **__gnu_cxx::__wsso_string**
- typedef __versa_string< wchar_t > **__gnu_cxx::__wvstring**

6.362.1 Detailed Description

This file is a GNU extension to the Standard C++ Library. This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file vstring_fwd.h.

6.363 vstring_util.h File Reference

Namespaces

- namespace __gnu_cxx

Defines

- #define **_VSTRING_UTIL_H**

6.363.1 Detailed Description

This file is a GNU extension to the Standard C++ Library. This is an internal header file, included by other library headers. You should not attempt to use it directly.

Definition in file vstring_util.h.

6.364 workstealing.h File Reference

Parallelization of embarrassingly parallel execution by means of work-stealing.

Classes

- struct __gnu_parallel::_Job< _DifferenceTp >
  One __job for a certain thread.

Namespaces

- namespace __gnu_parallel

Defines

- #define **_GLIBCXX_JOB_VOLATILE**
- #define **_GLIBCXX_PARALLEL_WORKSTEALING_H**

Functions

- template<typename _RAIter , typename _Op , typename _Fu , typename _Red , typename _Result >
  _Op __gnu_parallel::__for_each_template_random_access_workstealing (_RAIter __begin, _RAIter __end, _Op __op, _Fu &__f, _Red __r, _Result __base, _Result &__output, typename std::iterator_traits< _RAIter >::difference_type __bound)

6.364.1 Detailed Description

Parallelization of embarrassingly parallel execution by means of work-stealing. Work stealing is described in

R. D. Blumofe and C. E. Leiserson. Scheduling multithreaded computations by work stealing. Journal of the ACM, 46(5):720–748, 1999.

This file is a GNU parallel extension to the Standard C++ Library.

Definition in file workstealing.h.

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