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**Linux Standard Base (LSB) —**  
Part 7-2:  
**Core specification for S390  
architecture**

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This document was prepared by the Linux Foundation as Linux Standard Base (LSB): Core specification for S390 architecture and drafted in accordance with its editorial rules. It was assigned to Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 22, *Programming languages, their environments and system software interfaces*, and adopted by National Bodies.

This first edition of ISO/IEC 23360-7-2 cancels and replaces ISO/IEC 23360-7:2006, which has been technically revised.

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Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html) and [www.iec.ch/national-committees](http://www.iec.ch/national-committees).

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## Introduction

The LSB defines a binary interface for application programs that are compiled and packaged for LSB-conforming implementations on many different hardware architectures. A binary specification must include information specific to the computer processor architecture for which it is intended. To avoid the complexity of conditional descriptions, the specification has instead been divided into generic parts which are augmented by one of several architecture-specific parts, depending on the target processor architecture; the generic part will indicate when reference must be made to the architecture part, and vice versa.

This document should be used in conjunction with the documents it references. This document enumerates the system components it includes, but descriptions of those components may be included entirely or partly in this document, partly in other documents, or entirely in other reference documents. For example, the section that describes system service routines includes a list of the system routines supported in this interface, formal declarations of the data structures they use that are visible to applications, and a pointer to the underlying referenced specification for information about the syntax and semantics of each call. Only those routines not described in standards referenced by this document, or extensions to those standards, are described in the detail. Information referenced in this way is as much a part of this document as is the information explicitly included here.

The specification carries a version number of either the form  $x.y$  or  $x.y.z$ . This version number carries the following meaning:

1. The first number ( $x$ ) is the major version number. Versions sharing the same major version number shall be compatible in a backwards direction; that is, a newer version shall be compatible with an older version. Any deletion of a library results in a new major version number. Interfaces marked as deprecated may be removed from the specification at a major version change.
2. The second number ( $y$ ) is the minor version number. Libraries and individual interfaces may be added, but not removed. Interfaces may be marked as deprecated at a minor version change. Other minor changes may be permitted at the discretion of the LSB workgroup.
3. The third number ( $z$ ), if present, is the editorial level. Only editorial changes should be included in such versions.

Since this specification is a descriptive Application Binary Interface, and not a source level API specification, it is not possible to make a guarantee of 100% backward compatibility between major releases. However, it is the intent that those parts of the binary interface that are visible in the source level API will remain backward compatible from version to version, except where a feature marked as "Deprecated" in one release may be removed from a future release. Implementors are strongly encouraged to make use of symbol versioning to permit simultaneous support of applications conforming to different releases of this specification.

LSB is a trademark of the Linux Foundation. Developers of applications or implementations interested in using the trademark should see the Linux Foundation Certification Policy for details.

# I Introductory Elements

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## 1 Scope

Standard Base (LSB) defines a system interface for compiled applications and a minimal environment for support of installation scripts. Its purpose is to enable a uniform industry standard environment for high-volume applications conforming to the LSB.

These specifications are composed of two basic parts: a common part describing those parts of the interface that remain constant across all implementations of the LSB, and an architecture-specific part describing the parts of the interface that vary by processor architecture. Together, the common part and the relevant architecture-specific part for a single hardware architecture provide a complete interface specification for compiled application programs on systems that share a common hardware architecture.

The LSB contains both a set of Application Program Interfaces (APIs) and Application Binary Interfaces (ABIs). APIs may appear in the source code of portable applications, while the compiled binary of that application may use the larger set of ABIs. A conforming implementation provides all of the ABIs listed here. The compilation system may replace (e.g. by macro definition) certain APIs with calls to one or more of the underlying binary interfaces, and may insert calls to binary interfaces as needed.

The LSB is primarily a binary interface definition. Not all of the source level APIs available to applications may be contained in this specification.

This is the S390 architecture specific part of the Core module of the Linux Standard Base (LSB). This part supplements the common part of the LSB Core module with those interfaces that differ between architectures.

This part should be used in conjunction with LSB Core - Generic, the common part. Whenever a section of the common part is supplemented by architecture-specific information, the common part includes a reference to the architecture-specific part. This part may also contain additional information that is not referenced in the common part.

Interfaces described in this part of the LSB Core Specification are mandatory except where explicitly listed otherwise. Interfaces described in the LSB Core module are supplemented by other LSB modules. All other modules depend on the presence of LSB Core.

## 2 References

### 2.1 Normative References

The following specifications are incorporated by reference into this specification. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced specification (including any amendments) applies.

**Note:** Where copies of a referenced specification are available on the World Wide Web, a Uniform Resource Locator (URL) is given, for informative purposes only. Such URL might at any given time resolve to a more recent copy of the specification, or be out of date (not resolve). Reference copies of specifications at the revision level indicated may be found at the Linux Foundation's Reference Specifications (<http://refspecs.linuxbase.org>) site.

**Table 2-1 Normative References**

Name	Title	URL
LSB Core - Generic	Linux Standard Base - Core Specification - Generic	<a href="http://www.linuxbase.org/spec/">http://www.linuxbase.org/spec/</a>
Enterprise Systems Architecture/390 Principles of Operation	Enterprise Systems Architecture/390 Principles of Operation	<a href="http://oss.software.ibm.com/linux390/documentation-2.2.shtml">http://oss.software.ibm.com/linux390/documentation-2.2.shtml</a>
Filesystem Hierarchy Standard	Filesystem Hierarchy Standard (FHS) 3.0	<a href="http://refspecs.linuxbase.org/fhs">http://refspecs.linuxbase.org/fhs</a>
ISO C (1999)	ISO/IEC 9899:1999 - Programming Languages -- C	
ISO/IEC 14882: 2003 C++ Language	ISO/IEC 14882: 2003 Programming languages --C++	
Itanium™ C++ ABI	Itanium™ C++ ABI (Revision 1.86)	<a href="http://refspecs.linuxfoundation.org/cxxabi-1.86.html">http://refspecs.linuxfoundation.org/cxxabi-1.86.html</a>
Large File Support	Large File Support	<a href="http://www.UNIX-systems.org/version2/whatsnew/lfs20mar.html">http://www.UNIX-systems.org/version2/whatsnew/lfs20mar.html</a>
Libncursesw API	Libncursesw API	<a href="http://invisible-island.net/ncurses/man/ncurses.3x.html">http://invisible-island.net/ncurses/man/ncurses.3x.html</a>
Libncursesw Placeholder	Libncursesw Specification Placeholder	<a href="http://refspecs.linuxfoundation.org/libncursesw/libncurses.html">http://refspecs.linuxfoundation.org/libncursesw/libncurses.html</a>
LINUX for S/390 ELF Application Binary Interface Supplement	LINUX for S/390 ELF Application Binary Interface Supplement	<a href="http://www.linuxfoundation.org/spec/ELF/zSeries/lzsabi0_s390.html">http://www.linuxfoundation.org/spec/ELF/zSeries/lzsabi0_s390.html</a>

Name	Title	URL
POSIX 1003.1-2001 (ISO/IEC 9945-2003)	ISO/IEC 9945-1:2003 Information technology -- Portable Operating System Interface (POSIX) -- Part 1: Base Definitions  ISO/IEC 9945-2:2003 Information technology -- Portable Operating System Interface (POSIX) -- Part 2: System Interfaces  ISO/IEC 9945-3:2003 Information technology -- Portable Operating System Interface (POSIX) -- Part 3: Shell and Utilities  ISO/IEC 9945-4:2003 Information technology -- Portable Operating System Interface (POSIX) -- Part 4: Rationale  Including Technical Cor. 1: 2004	<a href="http://www.unix.org/version3/">http://www.unix.org/ version3/</a>
POSIX 1003.1-2008 (ISO/IEC 9945-2009)	Portable Operating System Interface (POSIX®) 2008 Edition / The Open Group Technical Standard Base Specifications, Issue 7	<a href="http://www.unix.org/version4/">http://www.unix.org/ version4/</a>
SUSv2	CAE Specification, January 1997, System Interfaces and Headers (XSH), Issue 5 (ISBN: 1- 85912-181-0, C606)	<a href="http://www.opengroup.org/publications/catalog/un.htm">http://www.opengrou p.org/publications/cat alog/un.htm</a>
SVID Issue 3	American Telephone and Telegraph Company, System V Interface Definition, Issue 3; Morristown, NJ, UNIX Press, 1989. (ISBN 0201566524)	
SVID Issue 4	System V Interface Definition, Fourth Edition	<a href="http://refspecs.linuxfoundation.org/svid4/">http://refspecs.linuxfo undation.org/svid4/</a>

Name	Title	URL
System V ABI	System V Application Binary Interface, Edition 4.1	<a href="http://www.sco.com/developers/devspecs/gabi41.pdf">http://www.sco.com/developers/devspecs/gabi41.pdf</a>
System V ABI Update	System V Application Binary Interface - DRAFT - 17 December 2003	<a href="http://www.sco.com/developers/gabi/2003-12-17/contents.html">http://www.sco.com/developers/gabi/2003-12-17/contents.html</a>
X/Open Curses, Issue 7	X/Open Curses, Issue 7 (ISBN: 1-931624-83-6, The Open Group, November 2009)	<a href="https://www2.opengroup.org/ogsys/catalog/C094">https://www2.opengroup.org/ogsys/catalog/C094</a>

## 2.2 Informative References/Bibliography

The documents listed below provide essential background information to implementors of this specification. These references are included for information only, and do not represent normative parts of this specification.

Table 2-2 Other References

Name	Title	URL
DWARF Debugging Information Format, Version 4	DWARF Debugging Information Format, Version 4 (June 10, 2010)	<a href="http://www.dwarfstd.org/doc/DWARF4.pdf">http://www.dwarfstd.org/doc/DWARF4.pdf</a>
IEC 60559/IEEE 754 Floating Point	IEC 60559:1989 Binary floating-point arithmetic for microprocessor systems	<a href="http://www.ieee.org/">http://www.ieee.org/</a>
ISO/IEC TR14652	ISO/IEC Technical Report 14652:2002 Specification method for cultural conventions	
ITU-T V.42	International Telecommunication Union Recommendation V.42 (2002): Error-correcting procedures for DCEs using asynchronous-to-synchronous conversion ITUV	<a href="http://www.itu.int/rec/recommendation.asp?type=folders&amp;lang=e&amp;parent=T-REC-V.42">http://www.itu.int/rec/recommendation.asp?type=folders&amp;lang=e&amp;parent=T-REC-V.42</a>
Li18nux Globalization Specification	LI18NWX 2000 Globalization Specification, Version 1.0 with Amendment 4	<a href="http://www.openi18n.org/docs/html/LI18NWX-2000-amd4.htm">http://www.openi18n.org/docs/html/LI18NWX-2000-amd4.htm</a>

Name	Title	URL
Linux Allocated Device Registry	LINUX ALLOCATED DEVICES	<a href="http://www.lanana.org/docs/device-list/devices-2.6+.txt">http://www.lanana.org/docs/device-list/devices-2.6+.txt</a>
Linux Assigned Names And Numbers Authority	Linux Assigned Names And Numbers Authority	<a href="http://www.lanana.org/">http://www.lanana.org/</a>
Mozilla's NSS SSL Reference	Mozilla's NSS SSL Reference	<a href="http://www.mozilla.org/projects/security/pki/nss/ref/ssl/">http://www.mozilla.org/projects/security/pki/nss/ref/ssl/</a>
NSPR Reference	Mozilla's NSPR Reference	<a href="http://refspecs.linuxfoundation.org/NSPR_API_Reference/NSPR_API.html">http://refspecs.linuxfoundation.org/NSPR_API_Reference/NSPR_API.html</a>
PAM	Open Software Foundation, Request For Comments: 86.0 , October 1995, V. Samar & R.Schemers (SunSoft)	<a href="http://www.opengroup.org/tech/rfc/mirror/rfc/rfc86.0.txt">http://www.opengroup.org/tech/rfc/mirror/rfc/rfc86.0.txt</a>
RFC 1321: The MD5 Message-Digest Algorithm	IETF RFC 1321: The MD5 Message-Digest Algorithm	<a href="http://www.ietf.org/rfc/rfc1321.txt">http://www.ietf.org/rfc/rfc1321.txt</a>
RFC 1833: Binding Protocols for ONC RPC Version 2	IETF RFC 1833: Binding Protocols for ONC RPC Version 2	<a href="http://www.ietf.org/rfc/rfc1833.txt">http://www.ietf.org/rfc/rfc1833.txt</a>
RFC 1950: ZLIB Compressed Data Format Specication	IETF RFC 1950: ZLIB Compressed Data Format Specification	<a href="http://www.ietf.org/rfc/rfc1950.txt">http://www.ietf.org/rfc/rfc1950.txt</a>
RFC 1951: DEFLATE Compressed Data Format Specification	IETF RFC 1951: DEFLATE Compressed Data Format Specification version 1.3	<a href="http://www.ietf.org/rfc/rfc1951.txt">http://www.ietf.org/rfc/rfc1951.txt</a>
RFC 1952: GZIP File Format Specification	IETF RFC 1952: GZIP file format specification version 4.3	<a href="http://www.ietf.org/rfc/rfc1952.txt">http://www.ietf.org/rfc/rfc1952.txt</a>
RFC 2440: OpenPGP Message Format	IETF RFC 2440: OpenPGP Message Format	<a href="http://www.ietf.org/rfc/rfc2440.txt">http://www.ietf.org/rfc/rfc2440.txt</a>
RFC 2821: Simple Mail Transfer Protocol	IETF RFC 2821: Simple Mail Transfer Protocol	<a href="http://www.ietf.org/rfc/rfc2821.txt">http://www.ietf.org/rfc/rfc2821.txt</a>
RFC 2822: Internet Message Format	IETF RFC 2822: Internet Message Format	<a href="http://www.ietf.org/rfc/rfc2822.txt">http://www.ietf.org/rfc/rfc2822.txt</a>
RFC 5531/4506 RPC & XDR	IETF RFC 5531 & 4506	<a href="http://www.ietf.org/">http://www.ietf.org/</a>

Name	Title	URL
RFC 791:Internet Protocol	IETF RFC 791: Internet Protocol Specification	<a href="http://www.ietf.org/rfc/rfc791.txt">http://www.ietf.org/rfc/rfc791.txt</a>
RPM Package Format	RPM Package Format V3.0	<a href="http://www.rpm.org/max-rpm/s1-rpm-file-format-rpm-file-format.html">http://www.rpm.org/max-rpm/s1-rpm-file-format-rpm-file-format.html</a>
zlib Manual	zlib 1.2 Manual	<a href="http://www.gzip.org/zlib/">http://www.gzip.org/zlib/</a>

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## 3 Requirements

### 3.1 Relevant Libraries

The libraries listed in Table 3-1 shall be available on S390 Linux Standard Base systems, with the specified runtime names. These names override or supplement the names specified in the generic LSB (LSB Core - Generic) specification. The specified program interpreter, referred to as `proginterp` in this table, shall be used to load the shared libraries specified by `DT_NEEDED` entries at run time.

Table 3-1 Standard Library Names

Library	Runtime Name
libc	libc.so.6
libcrypt	libcrypt.so.1
libdl	libdl.so.2
libgcc_s	libgcc_s.so.1
libm	libm.so.6
libncurses	libncurses.so.5
libncursesw	libncursesw.so.5
libpthread	libpthread.so.0
libstdcxx	libstdc++.so.6
libutil	libutil.so.1
libz	libz.so.1
proginterp	/lib/ld-lsb-s390.so.3

These libraries will be in an implementation-defined directory which the dynamic linker shall search by default.

### 3.2 LSB Implementation Conformance

A conforming implementation is necessarily architecture specific, and must provide the interfaces specified by both the generic LSB Core specification (LSB Core - Generic) and the relevant architecture specific part of the LSB Core Specification.

**Rationale:** An implementation must provide *at least* the interfaces specified in these specifications. It may also provide additional interfaces.

A conforming implementation shall satisfy the following requirements:

- A processor architecture represents a family of related processors which may not have identical feature sets. The architecture specific parts of the LSB Core Specification that supplement this specification for a given target processor architecture describe a minimum acceptable processor. The implementation shall provide all features of this processor, whether in hardware or through emulation transparent to the application.

- The implementation shall be capable of executing compiled applications having the format and using the system interfaces described in this specification.
- The implementation shall provide libraries containing the interfaces specified by this specification, and shall provide a dynamic linking mechanism that allows these interfaces to be attached to applications at runtime. All the interfaces shall behave as specified in this specification.
- The map of virtual memory provided by the implementation shall conform to the requirements of this specification.
- The implementation's low-level behavior with respect to function call linkage, system traps, signals, and other such activities shall conform to the formats described in this specification.
- The implementation shall provide all of the mandatory interfaces in their entirety.
- The implementation may provide one or more of the optional interfaces. Each optional interface that is provided shall be provided in its entirety. The product documentation shall state which optional interfaces are provided.
- The implementation shall provide all files and utilities specified as part of this specification in the format defined here and in other documents normatively included by reference. All commands and utilities shall behave as required by this specification. The implementation shall also provide all mandatory components of an application's runtime environment that are included or referenced in this specification.
- The implementation, when provided with standard data formats and values at a named interface, shall provide the behavior defined for those values and data formats at that interface. However, a conforming implementation may consist of components which are separately packaged and/or sold. For example, a vendor of a conforming implementation might sell the hardware, operating system, and windowing system as separately packaged items.
- The implementation may provide additional interfaces with different names. It may also provide additional behavior corresponding to data values outside the standard ranges, for standard named interfaces.

### 3.3 LSB Application Conformance

A conforming application containing object files is necessarily architecture specific, and must conform to both the generic LSB Core specification (LSB Core - Generic) and the relevant architecture specific part of the LSB Core Specification. A conforming application which contains no object files may be architecture neutral. Architecture neutral applications shall conform only to the requirements of the generic LSB Core specification (LSB Core - Generic).

A conforming application shall satisfy the following requirements:

- Executable files shall be either object files in the format defined in the Object Format section of this specification, or script files in a scripting language where the interpreter is required by this specification.
- Object files shall participate in dynamic linking as defined in the Program Loading and Linking section of this specification.
- Object files shall employ only the instructions, traps, and other low-level facilities defined as being for use by applications in the Low-Level System Information section of this specification

- If the application requires any optional interface defined in this specification in order to be installed or to execute successfully, the requirement for that optional interface shall be stated in the application's documentation.
- The application shall not use any interface or data format that is not required to be provided by a conforming implementation, unless such an interface or data format is supplied by another application through direct invocation of that application during execution. The other application must also be a conforming application, and the use of such interface or data format, as well as its source (in other words, the other conforming application), shall be identified in the documentation of the application.
- The application shall not use any values for a named interface that are reserved for vendor extensions.

A strictly conforming application shall not require or use any interface, facility, or implementation-defined extension not defined in this specification in order to be installed or to execute successfully.

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## 4 Terms and Definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 2382, ISO 80000-2, and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

### 4.1

#### archLSB

Some LSB specification documents have both a generic, architecture-neutral part and an architecture-specific part. The latter describes elements whose definitions may be unique to a particular processor architecture. The term archLSB may be used in the generic part to refer to the corresponding section of the architecture-specific part.

### 4.2

#### Binary Standard, ABI

The total set of interfaces that are available to be used in the compiled binary code of a conforming application, including the run-time details such as calling conventions, binary format, C++ name mangling, etc.

### 4.3

#### Implementation-defined

Describes a value or behavior that is not defined by this document but is selected by an implementor. The value or behavior may vary among implementations that conform to this document. An application should not rely on the existence of the value or behavior. An application that relies on such a value or behavior cannot be assured to be portable across conforming implementations. The implementor shall document such a value or behavior so that it can be used correctly by an application.

### 4.4

#### Shell Script

A file that is read by an interpreter (e.g., awk). The first line of the shell script includes a reference to its interpreter binary.

## 4.5

### Source Standard, API

The total set of interfaces that are available to be used in the source code of a conforming application. Due to translations, the Binary Standard and the Source Standard may contain some different interfaces.

## 4.6

### Undefined

Describes the nature of a value or behavior not defined by this document which results from use of an invalid program construct or invalid data input. The value or behavior may vary among implementations that conform to this document. An application should not rely on the existence or validity of the value or behavior. An application that relies on any particular value or behavior cannot be assured to be portable across conforming implementations.

## 4.7

### Unspecified

Describes the nature of a value or behavior not specified by this document which results from use of a valid program construct or valid data input. The value or behavior may vary among implementations that conform to this document. An application should not rely on the existence or validity of the value or behavior. An application that relies on any particular value or behavior cannot be assured to be portable across conforming implementations.

In addition, for the portions of this specification which build on IEEE Std 1003.1-2001, the definitions given in *IEEE Std 1003.1-2001, Base Definitions, Chapter 3* apply.

## 5 Documentation Conventions

Throughout this document, the following typographic conventions are used:

`function()`

the name of a function

**command**

the name of a command or utility

CONSTANT

a constant value

*parameter*

a parameter

variable

a variable

Throughout this specification, several tables of interfaces are presented. Each entry in these tables has the following format:

name

the name of the interface

(symver)

An optional symbol version identifier, if required.

[*refno*]

A reference number indexing the table of referenced specifications that follows this table.

For example,

forkpty(GLIBC_2.0) [SUSv4]
----------------------------

refers to the interface named `forkpty()` with symbol version `GLIBC_2.0` that is defined in the reference indicated by the tag `SUSv4`.

**Note:** For symbols with versions which differ between architectures, the symbol versions are defined in the architecture specific parts of of this module specification only. In the generic part, they will appear without symbol versions.

## II Executable and Linking Format (ELF)

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## 6 Introduction

Executable and Linking Format (ELF) defines the object format for compiled applications. This specification supplements the information found in System V ABI Update and LINUX for S/390 ELF Application Binary Interface Supplement, and is intended to document additions made since the publication of that document.

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## 7 Low Level System Information

### 7.1 Machine Interface

#### 7.1.1 Processor Architecture

The ESA/390 Architecture is specified by the following documents

- LINUX for S/390 ELF Application Binary Interface Supplement
- Enterprise Systems Architecture/390 Principles of Operation

Only the features of ESA/390 processor instruction set and the following optional instructions may be assumed to be present:

- additional floating point facility
- compare and move extended facility
- immediate and relative instruction facility
- string instruction facility
- square-root facility

An application should determine if any additional instruction set features are available before using those additional features. If a feature is not present, then a conforming application shall not use it.

Conforming applications shall not invoke the implementations underlying system call interface directly. The interfaces in the implementation base libraries shall be used instead.

**Rationale:** Implementation-supplied base libraries may use the system call interface but applications must not assume any particular operating system or kernel version is present.

Applications conforming to this specification must provide feedback to the user if a feature that is required for correct execution of the application is not present. Applications conforming to this specification should attempt to execute in a diminished capacity if a required instruction set feature is not present.

This specification does not provide any performance guarantees of a conforming system. A system conforming to this specification may be implemented in either hardware or software.

#### 7.1.2 Data Representation

LSB-conforming applications shall use the data representation as defined in Chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

See chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

##### 7.1.2.1 Byte Ordering

See chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

##### 7.1.2.2 Fundamental Types

See chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

### 7.1.2.3 Aggregates and Unions

See chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

### 7.1.2.4 Bit Fields

See chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

## 7.2 Function Calling Sequence

LSB-conforming applications shall use the function calling sequence as defined in Chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

### 7.2.1 Registers

See chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

### 7.2.2 Stack Frame

See chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

### 7.2.3 Parameter Passing

See chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

### 7.2.4 Variable Argument Lists

See chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

### 7.2.5 Return Values

See chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

## 7.3 Operating System Interface

LSB-conforming applications shall use the Operating System Interfaces as defined in Chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

### 7.3.1 Virtual Address Space

See chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

#### 7.3.1.1 Page Size

See chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

### **7.3.1.2 Virtual Address Assignments**

See chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

### **7.3.1.3 Managing the Process Stack**

See chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

### **7.3.1.4 Coding Guidelines**

See chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

### **7.3.2 Processor Execution Mode**

See chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

### **7.3.3 Exception Interface**

See chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

## **7.4 Process Initialization**

LSB-conforming applications shall use the Process Initialization as defined in Chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

### **7.4.1 Registers**

See chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

### **7.4.2 Process Stack**

See chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

## **7.5 Coding Examples**

LSB-conforming applications may implement fundamental operations using the Coding Examples as defined in Chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

### **7.5.1 Code Model Overview**

See chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

### **7.5.2 Function Prolog and Epilog**

See chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

### **7.5.3 Data Objects**

See chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

#### **7.5.4 Function Calls**

See chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

#### **7.5.5 Branching**

See chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

#### **7.5.6 Dynamic Stack Space Allocation**

See chapter 1 of the LINUX for S/390 ELF Application Binary Interface Supplement.

### **7.6 Debug Information**

The LSB does not currently specify the format of Debug information.

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## 8 Object Format

### 8.1 Introduction

LSB-conforming implementations shall support the Executable and Linking Format (ELF) object file format, as defined by the following documents:

- System V ABI
- System V ABI Update
- LINUX for S/390 ELF Application Binary Interface Supplement
- LSB Core - Generic
- this document

### 8.2 ELF Header

#### 8.2.1 Machine Information

LSB-conforming applications shall use the Machine Information as defined in Chapter 2 of the LINUX for S/390 ELF Application Binary Interface Supplement.

### 8.3 Sections

See chapter 2 of the LINUX for S/390 ELF Application Binary Interface Supplement.

#### 8.3.1 Special Sections

The following sections are defined in the LINUX for S/390 ELF Application Binary Interface Supplement.

Table 8-1 ELF Special Sections

Name	Type	Attributes
.got	SHT_PROGBITS	SHF_AL- LOC+SHF_WRITE
.plt	SHT_PROGBITS	SHF_ALLOC+SHF_EX- ECINSTR

.got

This section holds the global offset table.

.plt

This section holds the procedure linkage table.

#### 8.3.2 Additional Special Sections

The following additional sections are defined here.

Table 8-2 Additional Special Sections

Name	Type	Attributes
.rela.dyn	SHT_RELA	SHF_ALLOC
.rela.plt	SHT_RELA	SHF_ALLOC

.rela.dyn

This section holds RELA type relocation information for all sections of a shared library except the PLT.

.rela.plt

This section holds RELA type relocation information for the PLT section of a shared library or dynamically linked application.

## 8.4 Symbol Table

LSB-conforming applications shall use the Symbol Table as defined in Chapter 2 of the LINUX for S/390 ELF Application Binary Interface Supplement.

## 8.5 Relocation

LSB-conforming applications shall use Relocations as defined in Chapter 2 of the LINUX for S/390 ELF Application Binary Interface Supplement.

### 8.5.1 Relocation Types

See chapter 2 of the LINUX for S/390 ELF Application Binary Interface Supplement.

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## 9 Program Loading and Dynamic Linking

### 9.1 Introduction

LSB-conforming implementations shall support the object file information and system actions that create running programs as specified in the LINUX for S/390 ELF Application Binary Interface Supplement and as supplemented by the the generic LSB and this document. LSB-conforming implementations need not support tags related functionality. LSB-conforming applications must not rely on tags related funtionatliy.

### 9.2 Program Loading

See chapter 3 of the LINUX for S/390 ELF Application Binary Interface Supplement.

### 9.3 Dynamic Linking

See chapter 3 of the LINUX for S/390 ELF Application Binary Interface Supplement.

#### 9.3.1 Dynamic Section

The following dynamic entries are defined in the LINUX for S/390 ELF Application Binary Interface Supplement.

DT\_JMPREL

This entry is associated with a table of relocation entries for the procedure linkage table. This entry is mandatory both for executable and shared object files

DT\_PLTGOT

This entry's d\_ptr member gives the address of the first byte in the procedure linkage table

#### 9.3.2 Global Offset Table

See chapter 3 of the LINUX for S/390 ELF Application Binary Interface Supplement.

#### 9.3.3 Shared Object Dependencies

See chapter 3 of the LINUX for S/390 ELF Application Binary Interface Supplement.

#### 9.3.4 Function Addresses

See chapter 3 of the LINUX for S/390 ELF Application Binary Interface Supplement.

#### 9.3.5 Procedure Linkage Table

See chapter 3 of the LINUX for S/390 ELF Application Binary Interface Supplement.

### III Base Libraries

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## 10 Libraries

An LSB-conforming implementation shall support base libraries which provide interfaces for accessing the operating system, processor and other hardware in the system.

Only interfaces and interface details which are unique to the S390 platform are defined here. This section should be used in conjunction with the corresponding section of LSB Core - Generic.

### 10.1 Program Interpreter/Dynamic Linker

The Program Interpreter shall be `/lib/ld-lsb-s390.so.3`.

### 10.2 Interfaces for libc

Table 10-1 defines the library name and shared object name for the libc library

**Table 10-1 libc Definition**

Library:	libc
SONAME:	libc.so.6

The behavior of the interfaces in this library is specified by the following specifications:

- [LFS] Large File Support
- [LSB] LSB Core - Generic
- [RPC + XDR] RFC 5531/4506 RPC & XDR
- [SUSv2] SUSv2
- [SUSv3] POSIX 1003.1-2001 (ISO/IEC 9945-2003)
- [SUSv4] POSIX 1003.1-2008 (ISO/IEC 9945-2009)
- [SVID.4] SVID Issue 4

#### 10.2.1 RPC

##### 10.2.1.1 Interfaces for RPC

An LSB conforming implementation shall provide the architecture specific functions for RPC specified in Table 10-2, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-2 libc - RPC Function Interfaces**

authnone_create(GLIBC_2.0) [SVID.4]	callrpc(GLIBC_2.0) [RPC + XDR]	clnt_create(GLIBC_2.0) [SVID.4]	clnt_pcreateerror(GLIBC_2.0) [SVID.4]
clnt_perrno(GLIBC_2.0) [SVID.4]	clnt_perror(GLIBC_2.0) [SVID.4]	clnt_screateerror(GLIBC_2.0) [SVID.4]	clnt_sperrno(GLIBC_2.0) [SVID.4]
clnt_sperror(GLIBC_2.0) [SVID.4]	clntraw_create(GLIBC_2.0) [RPC + XDR]	clnttcp_create(GLIBC_2.0) [RPC + XDR]	clntudp_bufcreate(GLIBC_2.0) [RPC + XDR]

clntudp_create(GLIBC_2.0) [RPC + XDR]	key_decryptsession(GLIBC_2.1) [SVID.4]	pmap_getport(GLIBC_2.0) [LSB]	pmap_set(GLIBC_2.0) [LSB]
pmap_unset(GLIBC_2.0) [LSB]	svc_getreqset(GLIBC_2.0) [SVID.4]	svc_register(GLIBC_2.0) [LSB]	svc_run(GLIBC_2.0) [LSB]
svc_sendreply(GLIBC_2.0) [LSB]	svcerr_auth(GLIBC_2.0) [SVID.4]	svcerr_decode(GLIBC_2.0) [SVID.4]	svcerr_noproc(GLIBC_2.0) [SVID.4]
svcerr_noprog(GLIBC_2.0) [SVID.4]	svcerr_progvers(GLIBC_2.0) [SVID.4]	svcerr_systemerr(GLIBC_2.0) [SVID.4]	svcerr_weakauth(GLIBC_2.0) [SVID.4]
svcfld_create(GLIBC_2.0) [RPC + XDR]	svcrawl_create(GLIBC_2.0) [RPC + XDR]	svctcp_create(GLIBC_2.0) [LSB]	svcudp_create(GLIBC_2.0) [LSB]
xdr_accepted_reply(GLIBC_2.0) [SVID.4]	xdr_array(GLIBC_2.0) [SVID.4]	xdr_bool(GLIBC_2.0) [SVID.4]	xdr_bytes(GLIBC_2.0) [SVID.4]
xdr_callhdr(GLIBC_2.0) [SVID.4]	xdr_callmsg(GLIBC_2.0) [SVID.4]	xdr_char(GLIBC_2.0) [SVID.4]	xdr_double(GLIBC_2.0) [SVID.4]
xdr_enum(GLIBC_2.0) [SVID.4]	xdr_float(GLIBC_2.0) [SVID.4]	xdr_free(GLIBC_2.0) [SVID.4]	xdr_int(GLIBC_2.0) [SVID.4]
xdr_long(GLIBC_2.0) [SVID.4]	xdr_opaque(GLIBC_2.0) [SVID.4]	xdr_opaque_auth(GLIBC_2.0) [SVID.4]	xdr_pointer(GLIBC_2.0) [SVID.4]
xdr_reference(GLIBC_2.0) [SVID.4]	xdr_rejected_reply(GLIBC_2.0) [SVID.4]	xdr_replymsg(GLIBC_2.0) [SVID.4]	xdr_short(GLIBC_2.0) [SVID.4]
xdr_string(GLIBC_2.0) [SVID.4]	xdr_u_char(GLIBC_2.0) [SVID.4]	xdr_u_int(GLIBC_2.0) [LSB]	xdr_u_long(GLIBC_2.0) [SVID.4]
xdr_u_short(GLIBC_2.0) [SVID.4]	xdr_union(GLIBC_2.0) [SVID.4]	xdr_vector(GLIBC_2.0) [SVID.4]	xdr_void(GLIBC_2.0) [SVID.4]
xdr_wrapstring(GLIBC_2.0) [SVID.4]	xdrmem_create(GLIBC_2.0) [SVID.4]	xdrrec_create(GLIBC_2.0) [SVID.4]	xdrrec_endofrecord(GLIBC_2.0) [RPC + XDR]
xdrrec_eof(GLIBC_2.0) [SVID.4]	xdrrec_skiprecord(GLIBC_2.0) [RPC + XDR]	xdrstdio_create(GLIBC_2.0) [LSB]	

An LSB conforming implementation shall provide the architecture specific deprecated functions for RPC specified in Table 10-3, with the full mandatory functionality as described in the referenced underlying specification.

**Note:** These interfaces are deprecated, and applications should avoid using them. These interfaces may be withdrawn in future releases of this specification.

Table 10-3 libc - RPC Deprecated Function Interfaces

key_decryptsessi on(GLIBC_2.1) [SVID.4]			
---	--	--	--

## 10.2.2 Epoll

### 10.2.2.1 Interfaces for Epoll

No external functions are defined for libc - Epoll in this part of the specification. See also the generic specification.

## 10.2.3 System Calls

### 10.2.3.1 Interfaces for System Calls

An LSB conforming implementation shall provide the architecture specific functions for System Calls specified in Table 10-4, with the full mandatory functionality as described in the referenced underlying specification.

Table 10-4 libc - System Calls Function Interfaces

__fxstat(GLIBC_2.0) [LSB]	__getpgid(GLIBC_2.0) [LSB]	__lxstat(GLIBC_2.0) [LSB]	__xmknod(GLIBC_2.0) [LSB]
__xstat(GLIBC_2.0) [LSB]	access(GLIBC_2.0) [SUSv4]	acct(GLIBC_2.0) [LSB]	alarm(GLIBC_2.0) [SUSv4]
backtrace(GLIBC_2.1) [LSB]	backtrace_symbols(GLIBC_2.1) [LSB]	backtrace_symbols_fd(GLIBC_2.1) [LSB]	brk(GLIBC_2.0) [SUSv2]
chdir(GLIBC_2.0) [SUSv4]	chmod(GLIBC_2.0) [SUSv4]	chown(GLIBC_2.1) [SUSv4]	chroot(GLIBC_2.0) [SUSv2]
clock(GLIBC_2.0) [SUSv4]	close(GLIBC_2.0) [SUSv4]	closedir(GLIBC_2.0) [SUSv4]	creat(GLIBC_2.0) [SUSv4]
dup(GLIBC_2.0) [SUSv4]	dup2(GLIBC_2.0) [SUSv4]	execl(GLIBC_2.0) [SUSv4]	execle(GLIBC_2.0) [SUSv4]
execp(GLIBC_2.0) [SUSv4]	execv(GLIBC_2.0) [SUSv4]	execve(GLIBC_2.0) [SUSv4]	execvp(GLIBC_2.0) [SUSv4]
exit(GLIBC_2.0) [SUSv4]	fchdir(GLIBC_2.0) [SUSv4]	fchmod(GLIBC_2.0) [SUSv4]	fchown(GLIBC_2.0) [SUSv4]
fcntl(GLIBC_2.0) [LSB]	fdatasync(GLIBC_2.0) [SUSv4]	fexecve(GLIBC_2.0) [SUSv4]	flock(GLIBC_2.0) [LSB]
fork(GLIBC_2.0) [SUSv4]	fstatfs(GLIBC_2.0) [LSB]	fstatvfs(GLIBC_2.1) [SUSv4]	fsync(GLIBC_2.0) [SUSv4]
ftime(GLIBC_2.0) [SUSv3]	ftruncate(GLIBC_2.0) [SUSv4]	getcontext(GLIBC_2.1) [SUSv3]	getdtablesize(GLIBC_2.0) [LSB]
getegid(GLIBC_2.0) [SUSv4]	geteuid(GLIBC_2.0) [SUSv4]	getgid(GLIBC_2.0) [SUSv4]	getgroups(GLIBC_2.0) [SUSv4]

getitimer(GLIBC_2.0) [SUSv4]	getloadavg(GLIBC_2.2) [LSB]	getpagesize(GLIBC_2.0) [LSB]	getpgid(GLIBC_2.0) [SUSv4]
getpgrp(GLIBC_2.0) [SUSv4]	getpid(GLIBC_2.0) [SUSv4]	getppid(GLIBC_2.0) [SUSv4]	getpriority(GLIBC_2.0) [SUSv4]
getrlimit(GLIBC_2.2) [LSB]	getrusage(GLIBC_2.0) [SUSv4]	getsid(GLIBC_2.0) [SUSv4]	getuid(GLIBC_2.0) [SUSv4]
getwd(GLIBC_2.0) [SUSv3]	initgroups(GLIBC_2.0) [LSB]	ioctl(GLIBC_2.0) [LSB]	kill(GLIBC_2.0) [LSB]
killpg(GLIBC_2.0) [SUSv4]	lchown(GLIBC_2.0) [SUSv4]	link(GLIBC_2.0) [LSB]	lockf(GLIBC_2.0) [SUSv4]
lseek(GLIBC_2.0) [SUSv4]	mkdir(GLIBC_2.0) [SUSv4]	mkfifo(GLIBC_2.0) [SUSv4]	mlock(GLIBC_2.0) [SUSv4]
mlockall(GLIBC_2.0) [SUSv4]	mmap(GLIBC_2.0) [SUSv4]	mprotect(GLIBC_2.0) [SUSv4]	mremap(GLIBC_2.0) [LSB]
msync(GLIBC_2.0) [SUSv4]	munlock(GLIBC_2.0) [SUSv4]	munlockall(GLIBC_2.0) [SUSv4]	munmap(GLIBC_2.0) [SUSv4]
nanosleep(GLIBC_2.0) [SUSv4]	nice(GLIBC_2.0) [SUSv4]	open(GLIBC_2.0) [SUSv4]	opendir(GLIBC_2.0) [SUSv4]
pathconf(GLIBC_2.0) [SUSv4]	pause(GLIBC_2.0) [SUSv4]	pipe(GLIBC_2.0) [SUSv4]	poll(GLIBC_2.0) [SUSv4]
pread(GLIBC_2.1) [SUSv4]	pselect(GLIBC_2.0) [SUSv4]	ptrace(GLIBC_2.0) [LSB]	pwrite(GLIBC_2.1) [SUSv4]
read(GLIBC_2.0) [SUSv4]	readdir(GLIBC_2.0) [SUSv4]	readdir_r(GLIBC_2.0) [SUSv4]	readlink(GLIBC_2.0) [SUSv4]
readv(GLIBC_2.0) [SUSv4]	rename(GLIBC_2.0) [SUSv4]	rmdir(GLIBC_2.0) [SUSv4]	sbrk(GLIBC_2.0) [SUSv2]
sched_get_priority_max(GLIBC_2.0) [SUSv4]	sched_get_priority_min(GLIBC_2.0) [SUSv4]	sched_getparam(GLIBC_2.0) [SUSv4]	sched_getscheduler(GLIBC_2.0) [SUSv4]
sched_rr_get_interval(GLIBC_2.0) [SUSv4]	sched_setparam(GLIBC_2.0) [SUSv4]	sched_setscheduler(GLIBC_2.0) [LSB]	sched_yield(GLIBC_2.0) [SUSv4]
select(GLIBC_2.0) [SUSv4]	setcontext(GLIBC_2.0) [SUSv3]	setegid(GLIBC_2.0) [SUSv4]	seteuid(GLIBC_2.0) [SUSv4]
setgid(GLIBC_2.0) [SUSv4]	setitimer(GLIBC_2.0) [SUSv4]	setpgid(GLIBC_2.0) [SUSv4]	setpgrp(GLIBC_2.0) [SUSv4]
setpriority(GLIBC_2.0) [SUSv4]	setregid(GLIBC_2.0) [SUSv4]	setreuid(GLIBC_2.0) [SUSv4]	setrlimit(GLIBC_2.2) [LSB]
setrlimit64(GLIBC_2.1) [LFS]	setsid(GLIBC_2.0) [SUSv4]	setuid(GLIBC_2.0) [SUSv4]	sleep(GLIBC_2.0) [SUSv4]
statfs(GLIBC_2.0) [LSB]	statvfs(GLIBC_2.1) [SUSv4]	stime(GLIBC_2.0) [LSB]	symlink(GLIBC_2.0) [SUSv4]

sync(GLIBC_2.0) [SUSv4]	sysconf(GLIBC_2.0) [LSB]	sysinfo(GLIBC_2.0) [LSB]	time(GLIBC_2.0) [SUSv4]
times(GLIBC_2.0) [SUSv4]	truncate(GLIBC_2.0) [SUSv4]	ulimit(GLIBC_2.0) [SUSv4]	umask(GLIBC_2.0) [SUSv4]
uname(GLIBC_2.0) [SUSv4]	unlink(GLIBC_2.0) [LSB]	utime(GLIBC_2.0) [SUSv4]	utimes(GLIBC_2.0) [SUSv4]
vfork(GLIBC_2.0) [SUSv3]	wait(GLIBC_2.0) [SUSv4]	wait4(GLIBC_2.0) [LSB]	waitid(GLIBC_2.1) [SUSv4]
waitpid(GLIBC_2.0) [SUSv4]	write(GLIBC_2.0) [SUSv4]	writew(GLIBC_2.0) [SUSv4]	

An LSB conforming implementation shall provide the architecture specific deprecated functions for System Calls specified in Table 10-5, with the full mandatory functionality as described in the referenced underlying specification.

**Note:** These interfaces are deprecated, and applications should avoid using them. These interfaces may be withdrawn in future releases of this specification.

**Table 10-5 libc - System Calls Deprecated Function Interfaces**

fstatfs(GLIBC_2.0) [LSB]	getdtablesize(GLIBC_2.0) [LSB]	getpagesize(GLIBC_2.0) [LSB]	getwd(GLIBC_2.0) [SUSv3]
statfs(GLIBC_2.0) [LSB]			

## 10.2.4 Standard I/O

### 10.2.4.1 Interfaces for Standard I/O

An LSB conforming implementation shall provide the architecture specific functions for Standard I/O specified in Table 10-6, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-6 libc - Standard I/O Function Interfaces**

_IO_feof(GLIBC_2.0) [LSB]	_IO_getc(GLIBC_2.0) [LSB]	_IO_putc(GLIBC_2.0) [LSB]	_IO_puts(GLIBC_2.0) [LSB]
fprintf_chk(GLIBC_2.4) [LSB]	__printf_chk(GLIBC_2.4) [LSB]	__snprintf_chk(GLIBC_2.4) [LSB]	__sprintf_chk(GLIBC_2.4) [LSB]
__vfprintf_chk(GLIBC_2.4) [LSB]	__vprintf_chk(GLIBC_2.4) [LSB]	__vsnprintf_chk(GLIBC_2.4) [LSB]	__vsprintf_chk(GLIBC_2.4) [LSB]
asprintf(GLIBC_2.0) [LSB]	asprintf(GLIBC_2.4) [LSB]	clearerr(GLIBC_2.0) [SUSv4]	clearerr_unlocked(GLIBC_2.0) [LSB]
ctermid(GLIBC_2.0) [SUSv4]	dprintf(GLIBC_2.4) [SUSv4]	fclose(GLIBC_2.1) [SUSv4]	fdopen(GLIBC_2.1) [SUSv4]
feof(GLIBC_2.0) [SUSv4]	feof_unlocked(GLIBC_2.0) [LSB]	ferror(GLIBC_2.0) [SUSv4]	ferror_unlocked(GLIBC_2.0) [LSB]

fflush(GLIBC_2.0) [SUSv4]	fflush_unlocked(GLIBC_2.0) [LSB]	fgetc(GLIBC_2.0) [SUSv4]	fgetc_unlocked(GLIBC_2.1) [LSB]
fgetpos(GLIBC_2.2) [SUSv4]	fgets(GLIBC_2.0) [SUSv4]	fgets_unlocked(GLIBC_2.1) [LSB]	fgetwc_unlocked(GLIBC_2.2) [LSB]
fgetws_unlocked(GLIBC_2.2) [LSB]	fileno(GLIBC_2.0) [SUSv4]	fileno_unlocked(GLIBC_2.0) [LSB]	flockfile(GLIBC_2.0) [SUSv4]
fopen(GLIBC_2.1) [SUSv4]	fprintf(GLIBC_2.0) [SUSv4]	fprintf(GLIBC_2.4) [SUSv4]	fputc(GLIBC_2.0) [SUSv4]
fputc_unlocked(GLIBC_2.0) [LSB]	fputs(GLIBC_2.0) [SUSv4]	fputs_unlocked(GLIBC_2.1) [LSB]	fputwc_unlocked(GLIBC_2.2) [LSB]
fputws_unlocked(GLIBC_2.2) [LSB]	fread(GLIBC_2.0) [SUSv4]	fread_unlocked(GLIBC_2.1) [LSB]	freopen(GLIBC_2.0) [SUSv4]
fscanf(GLIBC_2.0) [LSB]	fscanf(GLIBC_2.4) [LSB]	fseek(GLIBC_2.0) [SUSv4]	fseeko(GLIBC_2.1) [SUSv4]
fsetpos(GLIBC_2.2) [SUSv4]	ftell(GLIBC_2.0) [SUSv4]	ftello(GLIBC_2.1) [SUSv4]	fwrite(GLIBC_2.0) [SUSv4]
fwrite_unlocked(GLIBC_2.1) [LSB]	getc(GLIBC_2.0) [SUSv4]	getc_unlocked(GLIBC_2.0) [SUSv4]	getchar(GLIBC_2.0) [SUSv4]
getchar_unlocked(GLIBC_2.0) [SUSv4]	getdelim(GLIBC_2.0) [SUSv4]	getline(GLIBC_2.0) [SUSv4]	getw(GLIBC_2.0) [SUSv2]
getwc_unlocked(GLIBC_2.2) [LSB]	getwchar_unlocked(GLIBC_2.2) [LSB]	pclose(GLIBC_2.1) [SUSv4]	popen(GLIBC_2.1) [SUSv4]
printf(GLIBC_2.0) [SUSv4]	printf(GLIBC_2.4) [SUSv4]	putc(GLIBC_2.0) [SUSv4]	putc_unlocked(GLIBC_2.0) [SUSv4]
putchar(GLIBC_2.0) [SUSv4]	putchar_unlocked(GLIBC_2.0) [SUSv4]	puts(GLIBC_2.0) [SUSv4]	putw(GLIBC_2.0) [SUSv2]
putwc_unlocked(GLIBC_2.2) [LSB]	putwchar_unlocked(GLIBC_2.2) [LSB]	remove(GLIBC_2.0) [SUSv4]	rewind(GLIBC_2.0) [SUSv4]
rewinddir(GLIBC_2.0) [SUSv4]	scanf(GLIBC_2.0) [LSB]	scanf(GLIBC_2.4) [LSB]	seekdir(GLIBC_2.0) [SUSv4]
setbuf(GLIBC_2.0) [SUSv4]	setbuffer(GLIBC_2.0) [LSB]	setvbuf(GLIBC_2.0) [SUSv4]	snprintf(GLIBC_2.0) [SUSv4]
snprintf(GLIBC_2.4) [SUSv4]	sprintf(GLIBC_2.0) [SUSv4]	sprintf(GLIBC_2.4) [SUSv4]	sscanf(GLIBC_2.0) [LSB]

sscanf(GLIBC_2.4) [LSB]	tellmdir(GLIBC_2.0) [SUSv4]	tempnam(GLIBC_2.0) [SUSv4]	ungetc(GLIBC_2.0) [SUSv4]
vasprintf(GLIBC_2.0) [LSB]	vasprintf(GLIBC_2.4) [LSB]	vdprintf(GLIBC_2.0) [SUSv4]	vdprintf(GLIBC_2.4) [SUSv4]
vfprintf(GLIBC_2.0) [SUSv4]	vfprintf(GLIBC_2.4) [SUSv4]	vprintf(GLIBC_2.0) [SUSv4]	vprintf(GLIBC_2.4) [SUSv4]
vsnprintf(GLIBC_2.0) [SUSv4]	vsnprintf(GLIBC_2.4) [SUSv4]	vsprintf(GLIBC_2.0) [SUSv4]	vsprintf(GLIBC_2.4) [SUSv4]

An LSB conforming implementation shall provide the architecture specific deprecated functions for Standard I/O specified in Table 10-7, with the full mandatory functionality as described in the referenced underlying specification.

**Note:** These interfaces are deprecated, and applications should avoid using them. These interfaces may be withdrawn in future releases of this specification.

**Table 10-7 libc - Standard I/O Deprecated Function Interfaces**

asprintf(GLIBC_2.0) [LSB]	fprintf(GLIBC_2.0) [SUSv4]	fscanf(GLIBC_2.0) [LSB]	printf(GLIBC_2.0) [SUSv4]
scanf(GLIBC_2.0) [LSB]	snprintf(GLIBC_2.0) [SUSv4]	sprintf(GLIBC_2.0) [SUSv4]	sscanf(GLIBC_2.0) [LSB]
tempnam(GLIBC_2.0) [SUSv4]	vasprintf(GLIBC_2.0) [LSB]	vdprintf(GLIBC_2.0) [SUSv4]	vfprintf(GLIBC_2.0) [SUSv4]
vprintf(GLIBC_2.0) [SUSv4]	vsnprintf(GLIBC_2.0) [SUSv4]	vsprintf(GLIBC_2.0) [SUSv4]	

An LSB conforming implementation shall provide the architecture specific data interfaces for Standard I/O specified in Table 10-8, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-8 libc - Standard I/O Data Interfaces**

stderr(GLIBC_2.0) [SUSv4]	stdin(GLIBC_2.0) [SUSv4]	stdout(GLIBC_2.0) [SUSv4]	
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## 10.2.5 Signal Handling

### 10.2.5.1 Interfaces for Signal Handling

An LSB conforming implementation shall provide the architecture specific functions for Signal Handling specified in Table 10-9, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-9 libc - Signal Handling Function Interfaces**

__libc_current_sigrtmax(GLIBC_2.1) [LSB]	__libc_current_sigrtmin(GLIBC_2.1) [LSB]	__sigsetjmp(GLIBC_2.0) [LSB]	__sysv_signal(GLIBC_2.0) [LSB]
__xpg_sigpause(GLIBC_2.2) [LSB]	bsd_signal(GLIBC_2.0) [SUSv3]	psignal(GLIBC_2.0) [SUSv4]	raise(GLIBC_2.0) [SUSv4]

sigaction(GLIBC_2.0) [SUSv4]	sigaddset(GLIBC_2.0) [SUSv4]	sigaltstack(GLIBC_2.0) [SUSv4]	sigandset(GLIBC_2.0) [LSB]
sigdelset(GLIBC_2.0) [SUSv4]	sigemptyset(GLIBC_2.0) [SUSv4]	sigfillset(GLIBC_2.0) [SUSv4]	sighold(GLIBC_2.1) [SUSv4]
sigignore(GLIBC_2.1) [SUSv4]	siginterrupt(GLIBC_2.0) [SUSv4]	sigisemptyset(GLIBC_2.0) [LSB]	sigismember(GLIBC_2.0) [SUSv4]
siglongjmp(GLIBC_2.0) [SUSv4]	signal(GLIBC_2.0) [SUSv4]	sigorset(GLIBC_2.0) [LSB]	sigpause(GLIBC_2.0) [LSB]
sigpending(GLIBC_2.0) [SUSv4]	sigprocmask(GLIBC_2.0) [SUSv4]	sigqueue(GLIBC_2.1) [SUSv4]	sigrelse(GLIBC_2.1) [SUSv4]
sigreturn(GLIBC_2.0) [LSB]	sigset(GLIBC_2.1) [SUSv4]	sigsuspend(GLIBC_2.0) [SUSv4]	sigtimedwait(GLIBC_2.1) [SUSv4]
sigwait(GLIBC_2.0) [SUSv4]	sigwaitinfo(GLIBC_2.1) [SUSv4]		

An LSB conforming implementation shall provide the architecture specific deprecated functions for Signal Handling specified in Table 10-10, with the full mandatory functionality as described in the referenced underlying specification.

**Note:** These interfaces are deprecated, and applications should avoid using them. These interfaces may be withdrawn in future releases of this specification.

**Table 10-10 libc - Signal Handling Deprecated Function Interfaces**

sigpause(GLIBC_2.0) [LSB]			
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An LSB conforming implementation shall provide the architecture specific data interfaces for Signal Handling specified in Table 10-11, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-11 libc - Signal Handling Data Interfaces**

_sys_siglist(GLIBC_2.3.3) [LSB]			
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## 10.2.6 Localization Functions

### 10.2.6.1 Interfaces for Localization Functions

An LSB conforming implementation shall provide the architecture specific functions for Localization Functions specified in Table 10-12, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-12 libc - Localization Functions Function Interfaces**

bind_textdomain_codeset(GLIBC_2.2) [LSB]	bindtextdomain(GLIBC_2.0) [LSB]	catclose(GLIBC_2.0) [SUSv4]	catgets(GLIBC_2.0) [SUSv4]
catopen(GLIBC_2.0) [SUSv4]	dcgettext(GLIBC_2.0) [LSB]	dcngettext(GLIBC_2.2) [LSB]	dgettext(GLIBC_2.0) [LSB]

dngettext(GLIBC_2.2) [LSB]	gettext(GLIBC_2.0) [LSB]	iconv(GLIBC_2.1) [SUSv4]	iconv_close(GLIBC_2.1) [SUSv4]
iconv_open(GLIBC_2.1) [SUSv4]	localeconv(GLIBC_2.2) [SUSv4]	ngettext(GLIBC_2.2) [LSB]	nl_langinfo(GLIBC_2.0) [SUSv4]
setlocale(GLIBC_2.0) [SUSv4]	textdomain(GLIBC_2.0) [LSB]		

An LSB conforming implementation shall provide the architecture specific data interfaces for Localization Functions specified in Table 10-13, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-13 libc - Localization Functions Data Interfaces**

_nl_msg_cat_cntr (GLIBC_2.0) [LSB]			
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## 10.2.7 Posix Spawn Option

### 10.2.7.1 Interfaces for Posix Spawn Option

An LSB conforming implementation shall provide the architecture specific functions for Posix Spawn Option specified in Table 10-14, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-14 libc - Posix Spawn Option Function Interfaces**

posix_spawn(GLIBC_2.15) [SUSv4]	posix_spawn_file_actions_addclose(GLIBC_2.2) [SUSv4]	posix_spawn_file_actions_adddup2(GLIBC_2.2) [SUSv4]	posix_spawn_file_actions_addopen(GLIBC_2.2) [SUSv4]
posix_spawn_file_actions_destroy(GLIBC_2.2) [SUSv4]	posix_spawn_file_actions_init(GLIBC_2.2) [SUSv4]	posix_spawnattr_destroy(GLIBC_2.2) [SUSv4]	posix_spawnattr_getflags(GLIBC_2.2) [SUSv4]
posix_spawnattr_getpgroup(GLIBC_2.2) [SUSv4]	posix_spawnattr_getschedparam(GLIBC_2.2) [SUSv4]	posix_spawnattr_getschedpolicy(GLIBC_2.2) [SUSv4]	posix_spawnattr_getsigdefault(GLIBC_2.2) [SUSv4]
posix_spawnattr_getsigmask(GLIBC_2.2) [SUSv4]	posix_spawnattr_init(GLIBC_2.2) [SUSv4]	posix_spawnattr_setflags(GLIBC_2.2) [SUSv4]	posix_spawnattr_setpgroup(GLIBC_2.2) [SUSv4]
posix_spawnattr_setschedparam(GLIBC_2.2) [SUSv4]	posix_spawnattr_setschedpolicy(GLIBC_2.2) [SUSv4]	posix_spawnattr_setsigdefault(GLIBC_2.2) [SUSv4]	posix_spawnattr_setsigmask(GLIBC_2.2) [SUSv4]
posix_spawn(GLIBC_2.15) [SUSv4]			

## 10.2.8 Posix Advisory Option

### 10.2.8.1 Interfaces for Posix Advisory Option

An LSB conforming implementation shall provide the architecture specific functions for Posix Advisory Option specified in Table 10-15, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-15 libc - Posix Advisory Option Function Interfaces**

posix_fadvise(GLIBC_2.2) [SUSv4]	posix_fallocate(GLIBC_2.2) [SUSv4]	posix_madvise(GLIBC_2.2) [SUSv4]	posix_memalign(GLIBC_2.2) [SUSv4]
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## 10.2.9 Socket Interface

### 10.2.9.1 Interfaces for Socket Interface

An LSB conforming implementation shall provide the architecture specific functions for Socket Interface specified in Table 10-16, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-16 libc - Socket Interface Function Interfaces**

__h_errno_location(GLIBC_2.0) [LSB]	accept(GLIBC_2.0) [SUSv4]	bind(GLIBC_2.0) [SUSv4]	bindresvport(GLIBC_2.0) [LSB]
connect(GLIBC_2.0) [SUSv4]	gethostid(GLIBC_2.0) [SUSv4]	gethostname(GLIBC_2.0) [SUSv4]	getpeername(GLIBC_2.0) [SUSv4]
getsockname(GLIBC_2.0) [SUSv4]	getsockopt(GLIBC_2.0) [LSB]	if_freenameindex(GLIBC_2.1) [SUSv4]	if_indextoname(GLIBC_2.1) [SUSv4]
if_nameindex(GLIBC_2.1) [SUSv4]	if_nametoindex(GLIBC_2.1) [SUSv4]	listen(GLIBC_2.0) [SUSv4]	recv(GLIBC_2.0) [SUSv4]
recvfrom(GLIBC_2.0) [SUSv4]	recvmsg(GLIBC_2.0) [SUSv4]	send(GLIBC_2.0) [SUSv4]	sendmsg(GLIBC_2.0) [SUSv4]
sendto(GLIBC_2.0) [SUSv4]	setsockopt(GLIBC_2.0) [LSB]	shutdown(GLIBC_2.0) [SUSv4]	socketatmark(GLIBC_2.2.4) [SUSv4]
socket(GLIBC_2.0) [SUSv4]	socketpair(GLIBC_2.0) [SUSv4]		

An LSB conforming implementation shall provide the architecture specific data interfaces for Socket Interface specified in Table 10-17, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-17 libc - Socket Interface Data Interfaces**

in6addr_any(GLIBC_2.1) [SUSv3]	in6addr_loopback(GLIBC_2.1) [SUSv3]		
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## 10.2.10 Wide Characters

### 10.2.10.1 Interfaces for Wide Characters

An LSB conforming implementation shall provide the architecture specific functions for Wide Characters specified in Table 10-18, with the full mandatory functionality as described in the referenced underlying specification.

Table 10-18 libc - Wide Characters Function Interfaces

__wctod_internal(GLIBC_2.0) [LSB]	__wctof_internal(GLIBC_2.0) [LSB]	__wcstol_internal(GLIBC_2.0) [LSB]	__wctold_internal(GLIBC_2.0) [LSB]
__wctold_internal(GLIBC_2.4) [LSB]	__wctoul_internal(GLIBC_2.0) [LSB]	btowc(GLIBC_2.0) [SUSv4]	fgetwc(GLIBC_2.2) [SUSv4]
fgetws(GLIBC_2.2) [SUSv4]	fputwc(GLIBC_2.2) [SUSv4]	fputws(GLIBC_2.2) [SUSv4]	fwide(GLIBC_2.2) [SUSv4]
fwprintf(GLIBC_2.2) [SUSv4]	fwprintf(GLIBC_2.4) [SUSv4]	fwscanf(GLIBC_2.2) [LSB]	fwscanf(GLIBC_2.4) [LSB]
getwc(GLIBC_2.2) [SUSv4]	getwchar(GLIBC_2.2) [SUSv4]	mblen(GLIBC_2.0) [SUSv4]	mbrlen(GLIBC_2.0) [SUSv4]
mbrtowc(GLIBC_2.0) [SUSv4]	mbsinit(GLIBC_2.0) [SUSv4]	mbsnrtowcs(GLIBC_2.0) [SUSv4]	mbsrtowcs(GLIBC_2.0) [SUSv4]
mbstowcs(GLIBC_2.0) [SUSv4]	mbtowc(GLIBC_2.0) [SUSv4]	putwc(GLIBC_2.2) [SUSv4]	putwchar(GLIBC_2.2) [SUSv4]
swprintf(GLIBC_2.2) [SUSv4]	swprintf(GLIBC_2.4) [SUSv4]	swscanf(GLIBC_2.2) [LSB]	swscanf(GLIBC_2.4) [LSB]
towctrans(GLIBC_2.0) [SUSv4]	tolower(GLIBC_2.0) [SUSv4]	toupper(GLIBC_2.0) [SUSv4]	ungetwc(GLIBC_2.2) [SUSv4]
vfwprintf(GLIBC_2.2) [SUSv4]	vfwprintf(GLIBC_2.4) [SUSv4]	vfwscanf(GLIBC_2.2) [LSB]	vfwscanf(GLIBC_2.4) [LSB]
vswprintf(GLIBC_2.2) [SUSv4]	vswprintf(GLIBC_2.4) [SUSv4]	vswscanf(GLIBC_2.2) [LSB]	vswscanf(GLIBC_2.4) [LSB]
vwprintf(GLIBC_2.2) [SUSv4]	vwprintf(GLIBC_2.4) [SUSv4]	vwscanf(GLIBC_2.2) [LSB]	vwscanf(GLIBC_2.4) [LSB]
wcpcpy(GLIBC_2.0) [SUSv4]	wcpcpy(GLIBC_2.0) [SUSv4]	wcrtomb(GLIBC_2.0) [SUSv4]	wcscasecmp(GLIBC_2.1) [SUSv4]
wcscat(GLIBC_2.0) [SUSv4]	wcschr(GLIBC_2.0) [SUSv4]	wcscmp(GLIBC_2.0) [SUSv4]	wcscoll(GLIBC_2.0) [SUSv4]
wcscpy(GLIBC_2.0) [SUSv4]	wcscspn(GLIBC_2.0) [SUSv4]	wcsdup(GLIBC_2.0) [SUSv4]	wcsftime(GLIBC_2.2) [SUSv4]
wcslen(GLIBC_2.0) [SUSv4]	wcsncasecmp(GLIBC_2.1) [SUSv4]	wcsncat(GLIBC_2.0) [SUSv4]	wcsncmp(GLIBC_2.0) [SUSv4]
wcsncpy(GLIBC_2.0) [SUSv4]	wcsnlen(GLIBC_2.1) [SUSv4]	wcsnrtombs(GLIBC_2.0) [SUSv4]	wcspbrk(GLIBC_2.0) [SUSv4]

wcsrchr(GLIBC_2.0) [SUSv4]	wcsrtombs(GLIBC_2.0) [SUSv4]	wcsspnr(GLIBC_2.0) [SUSv4]	wcsstr(GLIBC_2.0) [SUSv4]
wcstod(GLIBC_2.0) [SUSv4]	wcstof(GLIBC_2.0) [SUSv4]	wcstoimax(GLIBC_2.1) [SUSv4]	wcstok(GLIBC_2.0) [SUSv4]
wcstol(GLIBC_2.0) [SUSv4]	wcstold(GLIBC_2.0) [SUSv4]	wcstold(GLIBC_2.4) [SUSv4]	wcstoll(GLIBC_2.1) [SUSv4]
wcstombs(GLIBC_2.0) [SUSv4]	wcstoq(GLIBC_2.0) [LSB]	wcstoul(GLIBC_2.0) [SUSv4]	wcstoull(GLIBC_2.1) [SUSv4]
wcstoumax(GLIBC_2.1) [SUSv4]	wcstouq(GLIBC_2.0) [LSB]	wcswcs(GLIBC_2.1) [SUSv3]	wcswidth(GLIBC_2.0) [SUSv4]
wcsxfrm(GLIBC_2.0) [SUSv4]	wctob(GLIBC_2.0) [SUSv4]	wctomb(GLIBC_2.0) [SUSv4]	wctrans(GLIBC_2.0) [SUSv4]
wctype(GLIBC_2.0) [SUSv4]	wcwidth(GLIBC_2.0) [SUSv4]	wmemchr(GLIBC_2.0) [SUSv4]	wmemcmp(GLIBC_2.0) [SUSv4]
wmemcpy(GLIBC_2.0) [SUSv4]	wmemmove(GLIBC_2.0) [SUSv4]	wmemset(GLIBC_2.0) [SUSv4]	wprintf(GLIBC_2.2) [SUSv4]
wprintf(GLIBC_2.4) [SUSv4]	wscanf(GLIBC_2.2) [LSB]	wscanf(GLIBC_2.4) [LSB]	

An LSB conforming implementation shall provide the architecture specific deprecated functions for Wide Characters specified in Table 10-19, with the full mandatory functionality as described in the referenced underlying specification.

**Note:** These interfaces are deprecated, and applications should avoid using them. These interfaces may be withdrawn in future releases of this specification.

**Table 10-19 libc - Wide Characters Deprecated Function Interfaces**

__wcstold_intern al(GLIBC_2.0) [LSB]	fwprintf(GLIBC_2.2) [SUSv4]	fwscanf(GLIBC_2.2) [LSB]	swprintf(GLIBC_2.2) [SUSv4]
swscanf(GLIBC_2.2) [LSB]	vfwprintf(GLIBC_2.2) [SUSv4]	vfwscanf(GLIBC_2.2) [LSB]	vswprintf(GLIBC_2.2) [SUSv4]
vswscanf(GLIBC_2.2) [LSB]	vwprintf(GLIBC_2.2) [SUSv4]	vwscanf(GLIBC_2.2) [LSB]	wcstold(GLIBC_2.0) [SUSv4]
wprintf(GLIBC_2.2) [SUSv4]	wscanf(GLIBC_2.2) [LSB]		

### 10.2.11 String Functions

#### 10.2.11.1 Interfaces for String Functions

An LSB conforming implementation shall provide the architecture specific functions for String Functions specified in Table 10-20, with the full mandatory functionality as described in the referenced underlying specification.

Table 10-20 libc - String Functions Function Interfaces

__mempcpy(GLIBC_2.0) [LSB]	__rawmemchr(GLIBC_2.1) [LSB]	__stpcpy(GLIBC_2.0) [LSB]	__strdup(GLIBC_2.0) [LSB]
__strtod_internal(GLIBC_2.0) [LSB]	__strtof_internal(GLIBC_2.0) [LSB]	__strtok_r(GLIBC_2.0) [LSB]	__strtol_internal(GLIBC_2.0) [LSB]
__strtold_internal(GLIBC_2.0) [LSB]	__strtold_internal(GLIBC_2.4) [LSB]	__strtoll_internal(GLIBC_2.0) [LSB]	__strtoul_internal(GLIBC_2.0) [LSB]
__strtoull_internal(GLIBC_2.0) [LSB]	__xpg_strerror_r(GLIBC_2.3.4) [LSB]	bcmp(GLIBC_2.0) [SUSv3]	bcopy(GLIBC_2.0) [SUSv3]
bzero(GLIBC_2.0) [SUSv3]	ffs(GLIBC_2.0) [SUSv4]	index(GLIBC_2.0) [SUSv3]	memcpy(GLIBC_2.0) [SUSv4]
memchr(GLIBC_2.0) [SUSv4]	memcmp(GLIBC_2.0) [SUSv4]	memcpy(GLIBC_2.0) [SUSv4]	memmove(GLIBC_2.0) [SUSv4]
memrchr(GLIBC_2.2) [LSB]	memset(GLIBC_2.0) [SUSv4]	rindex(GLIBC_2.0) [SUSv3]	stpcpy(GLIBC_2.0) [SUSv4]
stpncpy(GLIBC_2.0) [SUSv4]	strcasecmp(GLIBC_2.0) [SUSv4]	strcasestr(GLIBC_2.1) [LSB]	strcat(GLIBC_2.0) [SUSv4]
strchr(GLIBC_2.0) [SUSv4]	strcmp(GLIBC_2.0) [SUSv4]	strcoll(GLIBC_2.0) [SUSv4]	strcpy(GLIBC_2.0) [SUSv4]
strcspn(GLIBC_2.0) [SUSv4]	strdup(GLIBC_2.0) [SUSv4]	strerror(GLIBC_2.0) [SUSv4]	strerror_r(GLIBC_2.0) [LSB]
strfmon(GLIBC_2.0) [SUSv4]	strfmon(GLIBC_2.4) [SUSv4]	strftime(GLIBC_2.0) [SUSv4]	strlen(GLIBC_2.0) [SUSv4]
strncasecmp(GLIBC_2.0) [SUSv4]	strncat(GLIBC_2.0) [SUSv4]	strncmp(GLIBC_2.0) [SUSv4]	strncpy(GLIBC_2.0) [SUSv4]
strndup(GLIBC_2.0) [SUSv4]	strnlen(GLIBC_2.0) [SUSv4]	strpbrk(GLIBC_2.0) [SUSv4]	strptime(GLIBC_2.0) [LSB]
strrchr(GLIBC_2.0) [SUSv4]	strsep(GLIBC_2.0) [LSB]	strsignal(GLIBC_2.0) [SUSv4]	strspn(GLIBC_2.0) [SUSv4]
strstr(GLIBC_2.0) [SUSv4]	strtof(GLIBC_2.0) [SUSv4]	strtoimax(GLIBC_2.1) [SUSv4]	strtok(GLIBC_2.0) [SUSv4]
strtok_r(GLIBC_2.0) [SUSv4]	strtold(GLIBC_2.0) [SUSv4]	strtold(GLIBC_2.4) [SUSv4]	strtoll(GLIBC_2.0) [SUSv4]
strtoq(GLIBC_2.0) [LSB]	strtoull(GLIBC_2.0) [SUSv4]	strtoumax(GLIBC_2.1) [SUSv4]	strtouq(GLIBC_2.0) [LSB]
strxfrm(GLIBC_2.0) [SUSv4]	swab(GLIBC_2.0) [SUSv4]		

An LSB conforming implementation shall provide the architecture specific deprecated functions for String Functions specified in Table 10-21, with the full mandatory functionality as described in the referenced underlying specification.

**Note:** These interfaces are deprecated, and applications should avoid using them. These interfaces may be withdrawn in future releases of this specification.

**Table 10-21 libc - String Functions Deprecated Function Interfaces**

__strtold_interna l(GLIBC_2.0) [LSB]	strerror_r(GLIBC_2.0) [LSB]	strfmon(GLIBC_2.0) [SUSv4]	strtold(GLIBC_2.0) [SUSv4]
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## 10.2.12 IPC Functions

### 10.2.12.1 Interfaces for IPC Functions

An LSB conforming implementation shall provide the architecture specific functions for IPC Functions specified in Table 10-22, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-22 libc - IPC Functions Function Interfaces**

ftok(GLIBC_2.0) [SUSv4]	msgctl(GLIBC_2.2) [SUSv4]	msgget(GLIBC_2.0) [SUSv4]	msgrcv(GLIBC_2.0) [SUSv4]
msgsnd(GLIBC_2.0) [SUSv4]	semctl(GLIBC_2.2) [SUSv4]	semget(GLIBC_2.0) [SUSv4]	semop(GLIBC_2.0) [SUSv4]
shmat(GLIBC_2.0) [SUSv4]	shmctl(GLIBC_2.2) [SUSv4]	shmdt(GLIBC_2.0) [SUSv4]	shmget(GLIBC_2.0) [SUSv4]

## 10.2.13 Regular Expressions

### 10.2.13.1 Interfaces for Regular Expressions

An LSB conforming implementation shall provide the architecture specific functions for Regular Expressions specified in Table 10-23, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-23 libc - Regular Expressions Function Interfaces**

regcomp(GLIBC_2.0) [SUSv4]	regerror(GLIBC_2.0) [SUSv4]	regexec(GLIBC_2.3.4) [LSB]	regfree(GLIBC_2.0) [SUSv4]
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## 10.2.14 Character Type Functions

### 10.2.14.1 Interfaces for Character Type Functions

An LSB conforming implementation shall provide the architecture specific functions for Character Type Functions specified in Table 10-24, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-24 libc - Character Type Functions Function Interfaces**

__ctype_get_mb cur_max(GLIBC_2.0) [LSB]	_tolower(GLIBC_2.0) [SUSv4]	_toupper(GLIBC_2.0) [SUSv4]	isalnum(GLIBC_2.0) [SUSv4]
isalpha(GLIBC_2.0) [SUSv4]	isascii(GLIBC_2.0) [SUSv4]	iscntrl(GLIBC_2.0) [SUSv4]	isdigit(GLIBC_2.0) [SUSv4]

isgraph(GLIBC_2.0) [SUSv4]	islower(GLIBC_2.0) [SUSv4]	isprint(GLIBC_2.0) [SUSv4]	ispunct(GLIBC_2.0) [SUSv4]
isspace(GLIBC_2.0) [SUSv4]	isupper(GLIBC_2.0) [SUSv4]	iswalnum(GLIBC_2.0) [SUSv4]	iswalph(GLIBC_2.0) [SUSv4]
iswblank(GLIBC_2.1) [SUSv4]	iswcntrl(GLIBC_2.0) [SUSv4]	iswctype(GLIBC_2.0) [SUSv4]	iswdigit(GLIBC_2.0) [SUSv4]
iswgraph(GLIBC_2.0) [SUSv4]	iswlower(GLIBC_2.0) [SUSv4]	iswprint(GLIBC_2.0) [SUSv4]	iswpunct(GLIBC_2.0) [SUSv4]
iswspace(GLIBC_2.0) [SUSv4]	iswupper(GLIBC_2.0) [SUSv4]	iswxdigit(GLIBC_2.0) [SUSv4]	isxdigit(GLIBC_2.0) [SUSv4]
toascii(GLIBC_2.0) [SUSv4]	tolower(GLIBC_2.0) [SUSv4]	toupper(GLIBC_2.0) [SUSv4]	

## 10.2.15 Time Manipulation

### 10.2.15.1 Interfaces for Time Manipulation

An LSB conforming implementation shall provide the architecture specific functions for Time Manipulation specified in Table 10-25, with the full mandatory functionality as described in the referenced underlying specification.

Table 10-25 libc - Time Manipulation Function Interfaces

adjtime(GLIBC_2.0) [LSB]	asctime(GLIBC_2.0) [SUSv4]	asctime_r(GLIBC_2.0) [SUSv4]	ctime(GLIBC_2.0) [SUSv4]
ctime_r(GLIBC_2.0) [SUSv4]	difftime(GLIBC_2.0) [SUSv4]	gmtime(GLIBC_2.0) [SUSv4]	gmtime_r(GLIBC_2.0) [SUSv4]
localtime(GLIBC_2.0) [SUSv4]	localtime_r(GLIBC_2.0) [SUSv4]	mktime(GLIBC_2.0) [SUSv4]	tzset(GLIBC_2.0) [SUSv4]
ualarm(GLIBC_2.0) [SUSv3]			

An LSB conforming implementation shall provide the architecture specific data interfaces for Time Manipulation specified in Table 10-26, with the full mandatory functionality as described in the referenced underlying specification.

Table 10-26 libc - Time Manipulation Data Interfaces

__daylight(GLIBC_2.0) [LSB]	__timezone(GLIBC_2.0) [LSB]	__tzname(GLIBC_2.0) [LSB]	daylight(GLIBC_2.0) [SUSv4]
timezone(GLIBC_2.0) [SUSv4]	tzname(GLIBC_2.0) [SUSv4]		

## 10.2.16 Terminal Interface Functions

### 10.2.16.1 Interfaces for Terminal Interface Functions

An LSB conforming implementation shall provide the architecture specific functions for Terminal Interface Functions specified in Table 10-27, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-27 libc - Terminal Interface Functions Function Interfaces**

cfgetospeed(GLIBC_2.0) [SUSv4]	cfgetospeed(GLIBC_2.0) [SUSv4]	cfmakeraw(GLIBC_2.0) [LSB]	cfsetospeed(GLIBC_2.0) [SUSv4]
cfsetospeed(GLIBC_2.0) [SUSv4]	cfsetspeed(GLIBC_2.0) [LSB]	tcdrain(GLIBC_2.0) [SUSv4]	tcflow(GLIBC_2.0) [SUSv4]
tcflush(GLIBC_2.0) [SUSv4]	tcgetattr(GLIBC_2.0) [SUSv4]	tcgetpgrp(GLIBC_2.0) [SUSv4]	tcgetsid(GLIBC_2.1) [SUSv4]
tcsendbreak(GLIBC_2.0) [SUSv4]	tcsetattr(GLIBC_2.0) [SUSv4]	tcsetpgrp(GLIBC_2.0) [SUSv4]	

## 10.2.17 System Database Interface

### 10.2.17.1 Interfaces for System Database Interface

An LSB conforming implementation shall provide the architecture specific functions for System Database Interface specified in Table 10-28, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-28 libc - System Database Interface Function Interfaces**

endgrent(GLIBC_2.0) [SUSv4]	endprotoent(GLIBC_2.0) [SUSv4]	endpwent(GLIBC_2.0) [SUSv4]	endservent(GLIBC_2.0) [SUSv4]
endutent(GLIBC_2.0) [LSB]	endutxent(GLIBC_2.1) [SUSv4]	getgrent(GLIBC_2.0) [SUSv4]	getgrent_r(GLIBC_2.1.2) [LSB]
getgrgid(GLIBC_2.0) [SUSv4]	getgrgid_r(GLIBC_2.1.2) [SUSv4]	getgrnam(GLIBC_2.0) [SUSv4]	getgrnam_r(GLIBC_2.1.2) [SUSv4]
getgrouplist(GLIBC_2.2.4) [LSB]	gethostbyaddr(GLIBC_2.0) [SUSv3]	gethostbyaddr_r(GLIBC_2.1.2) [LSB]	gethostbyname(GLIBC_2.0) [SUSv3]
gethostbyname2(GLIBC_2.0) [LSB]	gethostbyname2_r(GLIBC_2.1.2) [LSB]	gethostbyname_r(GLIBC_2.1.2) [LSB]	getprotobyname(GLIBC_2.0) [SUSv4]
getprotobyname_r(GLIBC_2.1.2) [LSB]	getprotobynumber(GLIBC_2.0) [SUSv4]	getprotobynumber_r(GLIBC_2.1.2) [LSB]	getprotoent(GLIBC_2.0) [SUSv4]
getprotoent_r(GLIBC_2.1.2) [LSB]	getpwent(GLIBC_2.0) [SUSv4]	getpwent_r(GLIBC_2.1.2) [LSB]	getpwnam(GLIBC_2.0) [SUSv4]
getpwnam_r(GLIBC_2.1.2) [SUSv4]	getpwuid(GLIBC_2.0) [SUSv4]	getpwuid_r(GLIBC_2.1.2) [SUSv4]	getservbyname(GLIBC_2.0) [SUSv4]
getservbyname_r(GLIBC_2.1.2) [LSB]	getservbyport(GLIBC_2.0) [SUSv4]	getservbyport_r(GLIBC_2.1.2) [LSB]	getservent(GLIBC_2.0) [SUSv4]
getservent_r(GLIBC_2.1.2) [LSB]	getutent(GLIBC_2.0) [LSB]	getutent_r(GLIBC_2.0) [LSB]	getutxent(GLIBC_2.1) [SUSv4]

getutxid(GLIBC_2.1) [SUSv4]	getutxline(GLIBC_2.1) [SUSv4]	pututxline(GLIBC_2.1) [SUSv4]	setgrent(GLIBC_2.0) [SUSv4]
setgroups(GLIBC_2.0) [LSB]	setprotoent(GLIBC_2.0) [SUSv4]	setpwent(GLIBC_2.0) [SUSv4]	setservent(GLIBC_2.0) [SUSv4]
setutent(GLIBC_2.0) [LSB]	setutxent(GLIBC_2.1) [SUSv4]	utmpname(GLIBC_2.0) [LSB]	

An LSB conforming implementation shall provide the architecture specific deprecated functions for System Database Interface specified in Table 10-29, with the full mandatory functionality as described in the referenced underlying specification.

**Note:** These interfaces are deprecated, and applications should avoid using them. These interfaces may be withdrawn in future releases of this specification.

**Table 10-29 libc - System Database Interface Deprecated Function Interfaces**

gethostbyaddr(GLIBC_2.0) [SUSv3]	gethostbyaddr_r(GLIBC_2.1.2) [LSB]	gethostbyname(GLIBC_2.0) [SUSv3]	gethostbyname2(GLIBC_2.0) [LSB]
gethostbyname2_r(GLIBC_2.1.2) [LSB]	gethostbyname_r(GLIBC_2.1.2) [LSB]		

## 10.2.18 Language Support

### 10.2.18.1 Interfaces for Language Support

An LSB conforming implementation shall provide the architecture specific functions for Language Support specified in Table 10-30, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-30 libc - Language Support Function Interfaces**

__libc_start_main(GLIBC_2.0) [LSB]			
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## 10.2.19 Large File Support

### 10.2.19.1 Interfaces for Large File Support

An LSB conforming implementation shall provide the architecture specific functions for Large File Support specified in Table 10-31, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-31 libc - Large File Support Function Interfaces**

__fxstat64(GLIBC_2.2) [LSB]	__lxstat64(GLIBC_2.2) [LSB]	__xstat64(GLIBC_2.2) [LSB]	creat64(GLIBC_2.1) [LFS]
fgetpos64(GLIBC_2.2) [LFS]	fopen64(GLIBC_2.1) [LFS]	freopen64(GLIBC_2.1) [LFS]	fseeko64(GLIBC_2.1) [LFS]

fsetpos64(GLIBC_2.2) [LFS]	fstatfs64(GLIBC_2.1) [LSB]	fstatvfs64(GLIBC_2.1) [LFS]	ftello64(GLIBC_2.1) [LFS]
ftruncate64(GLIBC_2.1) [LFS]	ftw64(GLIBC_2.1) [LFS]	getrlimit64(GLIBC_2.2) [LFS]	lockf64(GLIBC_2.1) [LFS]
lseek64(GLIBC_2.1) [LFS]	mkstemp64(GLIBC_2.2) [LSB]	mmap64(GLIBC_2.1) [LFS]	nftw64(GLIBC_2.3.3) [LFS]
open64(GLIBC_2.1) [LFS]	posix_fadvise64(GLIBC_2.3.3) [LSB]	posix_fallocate64(GLIBC_2.3.3) [LSB]	pread64(GLIBC_2.1) [LSB]
pwrite64(GLIBC_2.1) [LSB]	readdir64(GLIBC_2.2) [LFS]	readdir64_r(GLIBC_2.2) [LSB]	statfs64(GLIBC_2.1) [LSB]
statvfs64(GLIBC_2.1) [LFS]	tmpfile64(GLIBC_2.1) [LFS]	truncate64(GLIBC_2.1) [LFS]	

An LSB conforming implementation shall provide the architecture specific deprecated functions for Large File Support specified in Table 10-32, with the full mandatory functionality as described in the referenced underlying specification.

**Note:** These interfaces are deprecated, and applications should avoid using them. These interfaces may be withdrawn in future releases of this specification.

**Table 10-32 libc - Large File Support Deprecated Function Interfaces**

fstatfs64(GLIBC_2.1) [LSB]	statfs64(GLIBC_2.1) [LSB]		
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## 10.2.20 Inotify

### 10.2.20.1 Interfaces for Inotify

No external functions are defined for libc - Inotify in this part of the specification. See also the generic specification.

## 10.2.21 Standard Library

### 10.2.21.1 Interfaces for Standard Library

An LSB conforming implementation shall provide the architecture specific functions for Standard Library specified in Table 10-33, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-33 libc - Standard Library Function Interfaces**

_Exit(GLIBC_2.1) [SUSv4]	__assert_fail(GLIBC_2.0) [LSB]	__cxa_atexit(GLIBC_2.1.3) [LSB]	__cxa_finalize(GLIBC_2.1.3) [LSB]
__errno_location(GLIBC_2.0) [LSB]	__fpending(GLIBC_2.2) [LSB]	__getpagesize(GLIBC_2.0) [LSB]	__isinf(GLIBC_2.0) [LSB]
__isnff(GLIBC_2.0) [LSB]	__isnfl(GLIBC_2.0) [LSB]	__isnfl(GLIBC_2.4) [LSB]	__isnan(GLIBC_2.0) [LSB]
__isnanf(GLIBC_2.0) [LSB]	__isnanl(GLIBC_2.0) [LSB]	__isnanl(GLIBC_2.4) [LSB]	__sysconf(GLIBC_2.2) [LSB]

__xpg_basename(GLIBC_2.0) [LSB]	_exit(GLIBC_2.0) [SUSv4]	_longjmp(GLIBC_2.0) [SUSv4]	_setjmp(GLIBC_2.0) [SUSv4]
a64l(GLIBC_2.0) [SUSv4]	abort(GLIBC_2.0) [SUSv4]	abs(GLIBC_2.0) [SUSv4]	alphasort(GLIBC_2.0) [SUSv4]
alphasort64(GLIBC_2.2) [LSB]	argz_add(GLIBC_2.0) [LSB]	argz_add_sep(GLIBC_2.0) [LSB]	argz_append(GLIBC_2.0) [LSB]
argz_count(GLIBC_2.0) [LSB]	argz_create(GLIBC_2.0) [LSB]	argz_create_sep(GLIBC_2.0) [LSB]	argz_delete(GLIBC_2.0) [LSB]
argz_extract(GLIBC_2.0) [LSB]	argz_insert(GLIBC_2.0) [LSB]	argz_next(GLIBC_2.0) [LSB]	argz_replace(GLIBC_2.0) [LSB]
argz_stringify(GLIBC_2.0) [LSB]	atof(GLIBC_2.0) [SUSv4]	atoi(GLIBC_2.0) [SUSv4]	atol(GLIBC_2.0) [SUSv4]
atoll(GLIBC_2.0) [SUSv4]	basename(GLIBC_2.0) [LSB]	bsearch(GLIBC_2.0) [SUSv4]	calloc(GLIBC_2.0) [SUSv4]
closelog(GLIBC_2.0) [SUSv4]	confstr(GLIBC_2.0) [SUSv4]	cuserid(GLIBC_2.0) [SUSv2]	daemon(GLIBC_2.0) [LSB]
dirfd(GLIBC_2.0) [SUSv4]	dirname(GLIBC_2.0) [SUSv4]	div(GLIBC_2.0) [SUSv4]	dl_iterate_phdr(GLIBC_2.2.4) [LSB]
drand48(GLIBC_2.0) [SUSv4]	drand48_r(GLIBC_2.0) [LSB]	ecvt(GLIBC_2.0) [SUSv3]	envz_add(GLIBC_2.0) [LSB]
envz_entry(GLIBC_2.0) [LSB]	envz_get(GLIBC_2.0) [LSB]	envz_merge(GLIBC_2.0) [LSB]	envz_remove(GLIBC_2.0) [LSB]
envz_strip(GLIBC_2.0) [LSB]	erand48(GLIBC_2.0) [SUSv4]	erand48_r(GLIBC_2.0) [LSB]	err(GLIBC_2.0) [LSB]
error(GLIBC_2.0) [LSB]	errx(GLIBC_2.0) [LSB]	fcvt(GLIBC_2.0) [SUSv3]	fmemopen(GLIBC_2.2) [SUSv4]
fmtmsg(GLIBC_2.1) [SUSv4]	fnmatch(GLIBC_2.2.3) [LSB]	fpathconf(GLIBC_2.0) [SUSv4]	free(GLIBC_2.0) [SUSv4]
freeaddrinfo(GLIBC_2.0) [SUSv4]	ftwlockfile(GLIBC_2.0) [SUSv4]	ftw(GLIBC_2.0) [SUSv4]	funlockfile(GLIBC_2.0) [SUSv4]
gai_strerror(GLIBC_2.1) [SUSv4]	gcvt(GLIBC_2.0) [SUSv3]	getaddrinfo(GLIBC_2.0) [SUSv4]	getcwd(GLIBC_2.0) [LSB]
getdate(GLIBC_2.1) [SUSv4]	getdomainname(GLIBC_2.0) [LSB]	getenv(GLIBC_2.0) [SUSv4]	getlogin(GLIBC_2.0) [SUSv4]
getlogin_r(GLIBC_2.0) [SUSv4]	getnameinfo(GLIBC_2.1) [SUSv4]	getopt(GLIBC_2.0) [LSB]	getopt_long(GLIBC_2.0) [LSB]
getopt_long_only(GLIBC_2.0) [LSB]	getsubopt(GLIBC_2.0) [SUSv4]	gettimeofday(GLIBC_2.0) [SUSv4]	glob(GLIBC_2.0) [SUSv4]
glob64(GLIBC_2.1) [LSB]	globfree(GLIBC_2.0) [SUSv4]	globfree64(GLIBC_2.1) [LSB]	grantpt(GLIBC_2.1) [SUSv4]

hcreate(GLIBC_2.0) [SUSv4]	hcreate_r(GLIBC_2.0) [LSB]	hdestroy(GLIBC_2.0) [SUSv4]	hdestroy_r(GLIBC_2.0) [LSB]
hsearch(GLIBC_2.0) [SUSv4]	hsearch_r(GLIBC_2.0) [LSB]	htonl(GLIBC_2.0) [SUSv4]	htons(GLIBC_2.0) [SUSv4]
imaxabs(GLIBC_2.1.1) [SUSv4]	imaxdiv(GLIBC_2.1.1) [SUSv4]	inet_addr(GLIBC_2.0) [SUSv4]	inet_aton(GLIBC_2.0) [LSB]
inet_ntoa(GLIBC_2.0) [SUSv4]	inet_ntop(GLIBC_2.0) [SUSv4]	inet_pton(GLIBC_2.0) [SUSv4]	initstate(GLIBC_2.0) [SUSv4]
initstate_r(GLIBC_2.0) [LSB]	insque(GLIBC_2.0) [SUSv4]	isatty(GLIBC_2.0) [SUSv4]	isblank(GLIBC_2.0) [SUSv4]
jrand48(GLIBC_2.0) [SUSv4]	jrand48_r(GLIBC_2.0) [LSB]	l64a(GLIBC_2.0) [SUSv4]	labs(GLIBC_2.0) [SUSv4]
lcong48(GLIBC_2.0) [SUSv4]	lcong48_r(GLIBC_2.0) [LSB]	ldiv(GLIBC_2.0) [SUSv4]	lfind(GLIBC_2.0) [SUSv4]
llabs(GLIBC_2.0) [SUSv4]	lldiv(GLIBC_2.0) [SUSv4]	longjmp(GLIBC_2.0) [SUSv4]	lrand48(GLIBC_2.0) [SUSv4]
lrand48_r(GLIBC_2.0) [LSB]	lsearch(GLIBC_2.0) [SUSv4]	makecontext(GLIBC_2.1) [SUSv3]	malloc(GLIBC_2.0) [SUSv4]
memmem(GLIBC_2.0) [LSB]	mkdtemp(GLIBC_2.2) [SUSv4]	mkstemp(GLIBC_2.0) [SUSv4]	mktemp(GLIBC_2.0) [SUSv3]
mrnd48(GLIBC_2.0) [SUSv4]	mrnd48_r(GLIBC_2.0) [LSB]	nftw(GLIBC_2.3) [SUSv4]	nrnd48(GLIBC_2.0) [SUSv4]
nrnd48_r(GLIBC_2.0) [LSB]	ntohl(GLIBC_2.0) [SUSv4]	ntohs(GLIBC_2.0) [SUSv4]	open_memstream(GLIBC_2.0) [SUSv4]
openlog(GLIBC_2.0) [SUSv4]	perror(GLIBC_2.0) [SUSv4]	posix_openpt(GLIBC_2.2.1) [SUSv4]	ptsname(GLIBC_2.1) [SUSv4]
putenv(GLIBC_2.0) [SUSv4]	qsort(GLIBC_2.0) [SUSv4]	rand(GLIBC_2.0) [SUSv4]	rand_r(GLIBC_2.0) [SUSv4]
random(GLIBC_2.0) [SUSv4]	random_r(GLIBC_2.0) [LSB]	realloc(GLIBC_2.0) [SUSv4]	realpath(GLIBC_2.3) [SUSv4]
remque(GLIBC_2.0) [SUSv4]	scandir(GLIBC_2.0) [SUSv4]	scandir64(GLIBC_2.2) [LSB]	seed48(GLIBC_2.0) [SUSv4]
seed48_r(GLIBC_2.0) [LSB]	sendfile(GLIBC_2.1) [LSB]	setenv(GLIBC_2.0) [SUSv4]	sethostname(GLIBC_2.0) [LSB]
setlogmask(GLIBC_2.0) [SUSv4]	setstate(GLIBC_2.0) [SUSv4]	setstate_r(GLIBC_2.0) [LSB]	srnd(GLIBC_2.0) [SUSv4]
srnd48(GLIBC_2.0) [SUSv4]	srnd48_r(GLIBC_2.0) [LSB]	srandom(GLIBC_2.0) [SUSv4]	srandom_r(GLIBC_2.0) [LSB]
strtod(GLIBC_2.0) [SUSv4]	strtol(GLIBC_2.0) [SUSv4]	strtoul(GLIBC_2.0) [SUSv4]	swapcontext(GLIBC_2.1) [SUSv3]

syslog(GLIBC_2.0) [SUSv4]	syslog(GLIBC_2.4) [SUSv4]	system(GLIBC_2.0) [LSB]	tdelete(GLIBC_2.0) [SUSv4]
tfind(GLIBC_2.0) [SUSv4]	tmpfile(GLIBC_2.1) [SUSv4]	tmpnam(GLIBC_2.0) [SUSv4]	tsearch(GLIBC_2.0) [SUSv4]
ttyname(GLIBC_2.0) [SUSv4]	ttyname_r(GLIBC_2.0) [SUSv4]	twalk(GLIBC_2.0) [SUSv4]	unlockpt(GLIBC_2.1) [SUSv4]
unsetenv(GLIBC_2.0) [SUSv4]	usleep(GLIBC_2.0) [SUSv3]	verrx(GLIBC_2.0) [LSB]	vfscanf(GLIBC_2.0) [LSB]
vfscanf(GLIBC_2.4) [LSB]	vscanf(GLIBC_2.0) [LSB]	vscanf(GLIBC_2.4) [LSB]	vsscanf(GLIBC_2.0) [LSB]
vsscanf(GLIBC_2.4) [LSB]	vsyslog(GLIBC_2.0) [LSB]	vsyslog(GLIBC_2.4) [LSB]	warn(GLIBC_2.0) [LSB]
warnx(GLIBC_2.0) [LSB]	wordexp(GLIBC_2.1) [SUSv4]	wordfree(GLIBC_2.1) [SUSv4]	

An LSB conforming implementation shall provide the architecture specific deprecated functions for Standard Library specified in Table 10-34, with the full mandatory functionality as described in the referenced underlying specification.

**Note:** These interfaces are deprecated, and applications should avoid using them. These interfaces may be withdrawn in future releases of this specification.

**Table 10-34 libc - Standard Library Deprecated Function Interfaces**

__isinfl(GLIBC_2.0) [LSB]	__isnani(GLIBC_2.0) [LSB]	basename(GLIBC_2.0) [LSB]	getdomainname(GLIBC_2.0) [LSB]
inet_aton(GLIBC_2.0) [LSB]	syslog(GLIBC_2.0) [SUSv4]	tmpnam(GLIBC_2.0) [SUSv4]	vfscanf(GLIBC_2.0) [LSB]
vscanf(GLIBC_2.0) [LSB]	vsscanf(GLIBC_2.0) [LSB]	vsyslog(GLIBC_2.0) [LSB]	

An LSB conforming implementation shall provide the architecture specific data interfaces for Standard Library specified in Table 10-35, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-35 libc - Standard Library Data Interfaces**

__environ(GLIBC_2.0) [LSB]	_environ(GLIBC_2.0) [LSB]	_sys_errlist(GLIBC_2.12) [LSB]	environ(GLIBC_2.0) [SUSv4]
getdate_err(GLIBC_2.1) [SUSv4]	optarg(GLIBC_2.0) [SUSv4]	opterr(GLIBC_2.0) [SUSv4]	optind(GLIBC_2.0) [SUSv4]
optopt(GLIBC_2.0) [SUSv4]			

## 10.2.22 GNU Extensions for libc

### 10.2.22.1 Interfaces for GNU Extensions for libc

An LSB conforming implementation shall provide the architecture specific functions for GNU Extensions for libc specified in Table 10-36, with the full mandatory functionality as described in the referenced underlying specification.

Table 10-36 libc - GNU Extensions for libc Function Interfaces

gnu_get_libc_rele(GLIBC_2.1) [LSB]	gnu_get_libc_version(GLIBC_2.1) [LSB]		
---------------------------------------	--	--	--

## 10.3 Data Definitions for libc

This section defines global identifiers and their values that are associated with interfaces contained in libc. These definitions are organized into groups that correspond to system headers. This convention is used as a convenience for the reader, and does not imply the existence of these headers, or their content. Where an interface is defined as requiring a particular system header file all of the data definitions for that system header file presented here shall be in effect.

This section gives data definitions to promote binary application portability, not to repeat source interface definitions available elsewhere. System providers and application developers should use this ABI to supplement - not to replace - source interface definition specifications.

This specification uses the ISO C (1999) C Language as the reference programming language, and data definitions are specified in ISO C format. The C language is used here as a convenient notation. Using a C language description of these data objects does not preclude their use by other programming languages.

### 10.3.1 argz.h

```
/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */
```

### 10.3.2 assert.h

```
/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */
```

### 10.3.3 cpio.h

```
/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */
```

### 10.3.4 ctype.h

```

enum {
    _ISupper = 1,
    _ISlower = 2,
    _ISalpha = 4,
    _ISdigit = 8,
    _ISxdigit = 16,
    _ISspace = 32,
    _ISprint = 64,
    _ISgraph = 128,
    _ISblank = 256,
    _IScntrl = 512,
    _ISPunct = 1024,
    _ISalnum = 2048
};

```

### 10.3.5 dirent.h

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

### 10.3.6 elf.h

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

### 10.3.7 endian.h

```

#define __BYTE_ORDER    __BIG_ENDIAN

```

### 10.3.8 errno.h

```

#define EDEADLOCK      EDEADLK

```

### 10.3.9 fcntl.h

```

#define O_LARGEFILE    0100000
#define O_DIRECTORY    0200000
#define O_NOFOLLOW     0400000
#define POSIX_FADV_DONTNEED    4
#define POSIX_FADV_NOREUSE     5

#define F_GETLK64      12
#define F_SETLK64      13
#define F_SETLKW64     14

```

### 10.3.10 fmtmsg.h

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

**10.3.11 fnmatch.h**

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

**10.3.12 ftw.h**

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

**10.3.13 getopt.h**

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

**10.3.14 glob.h**

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

**10.3.15 iconv.h**

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

**10.3.16 ifaddrs.h**

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

**10.3.17 inttypes.h**

```

#define __PRIPTR_PREFIX
#define __PRI64_PREFIX "ll"

typedef lldiv_t imaxdiv_t;

```

**10.3.18 langinfo.h**

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

**10.3.19 limits.h**

```
#define ULONG_MAX      0xFFFFFFFFUL
#define LONG_MAX       2147483647
#define LONG_BIT       32

#define CHAR_MIN       0
#define CHAR_MAX       255

#define PTHREAD_STACK_MIN 16384
```

**10.3.20 link.h**

```
struct dl_phdr_info {
    Elf32_Addr dlpi_addr;
    const char *dlpi_name;
    const Elf32_Phdr *dlpi_phdr;
    Elf32_Half dlpi_phnum;
    unsigned long long int dlpi_adds;
    unsigned long long int dlpi_subs;
    size_t dlpi_tls_modid;
    void *dlpi_tls_data;
};
```

**10.3.21 locale.h**

```
/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */
```

**10.3.22 lsb/time.h**

```
/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */
```

**10.3.23 lsb/types.h**

```
typedef int32_t ssize_t;
```

**10.3.24 lsb/wchar.h**

```
/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */
```

**10.3.25 net/if.h**

```
/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */
```

**10.3.26 netdb.h**

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

**10.3.27 netinet/icmp6.h**

```

#define ICMP6_RR_RESULT_FLAGS_FORBIDDEN 0x1000
#define ICMP6_RR_RESULT_FLAGS_OOB      0x2000
#define ND_NA_FLAG_OVERRIDE            0x20000000
#define ND_NA_FLAG_SOLICITED           0x40000000
#define ND_NA_FLAG_ROUTER              0x80000000

```

**10.3.28 netinet/igmp.h**

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

**10.3.29 netinet/in.h**

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

**10.3.30 netinet/in\_system.h**

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

**10.3.31 netinet/ip.h**

```

struct timestamp {
    u_int8_t len;
    u_int8_t ptr;
    unsigned int overflow:4;
    unsigned int flags:4;
    u_int32_t data[9];
};
struct iphdr {
    unsigned int version:4;
    unsigned int ihl:4;
    u_int8_t tos;
    u_int16_t tot_len;
    u_int16_t id;
    u_int16_t frag_off;
    u_int8_t ttl;
    u_int8_t protocol;
    u_int16_t check;
    u_int32_t saddr;
    u_int32_t daddr;
};

```

```

struct ip {
    unsigned int ip_v:4;
    unsigned int ip_hl:4;
    u_int8_t ip_tos;
    u_short ip_len;
    u_short ip_id;
    u_short ip_off;
    u_int8_t ip_ttl;
    u_int8_t ip_p;
    u_short ip_sum;
    struct in_addr ip_src;
    struct in_addr ip_dst;
};
struct ip_timestamp {
    u_int8_t ipt_len;
    u_int8_t ipt_code;
    u_int8_t ipt_ptr;
    unsigned int ipt_flg:4;
    unsigned int ipt_oflw:4;
    u_int32_t data[9];
};

```

### 10.3.32 netinet/ip6.h

```

#define IP6_ALERT_MLD 0x0000
#define IP6F_MORE_FRAG 0x0001
#define IP6_ALERT_RSVP 0x0001
#define IP6_ALERT_AN 0x0002
#define IP6F_RESERVED_MASK 0x0006
#define IP6F_OFF_MASK 0xffff8

```

### 10.3.33 netinet/ip\_icmp.h

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

### 10.3.34 netinet/tcp.h

```

struct tcphdr {
    uint16_t source;
    uint16_t dest;
    uint32_t seq;
    uint32_t ack_seq;
    uint16_t doff:4;
    uint16_t res1:4;
    uint16_t res2:2;
    uint16_t urg:1;
    uint16_t ack:1;
    uint16_t psh:1;
    uint16_t rst:1;
    uint16_t syn:1;
    uint16_t fin:1;
    uint16_t window;
    uint16_t check;
    uint16_t urg_ptr;
};

```

**10.3.35 netinet/udp.h**

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

**10.3.36 nl\_types.h**

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

**10.3.37 pwd.h**

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

**10.3.38 regex.h**

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

**10.3.39 rpc/auth.h**

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

**10.3.40 rpc/clnt.h**

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

**10.3.41 rpc/rpc\_msg.h**

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

**10.3.42 rpc/svc.h**

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

**10.3.43 rpc/types.h**

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

**10.3.44 rpc/xdr.h**

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

**10.3.45 sched.h**

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

**10.3.46 search.h**

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

**10.3.47 setjmp.h**

```
typedef int __jmp_buf[14];
```

**10.3.48 signal.h**

```

#define __NUM_ACRS      16
#define __NUM_FPRS     16
#define __NUM_GPRS     16

typedef struct {
    unsigned long int mask;
    unsigned long int addr;
} __attribute__((aligned(8))) _psw_t;
typedef struct {
    _psw_t psw;
    unsigned long int gprs[__NUM_GPRS];
    unsigned int acrs[__NUM_ACRS];
} _s390_regs_common;

#define SIGEV_PAD_SIZE ((SIGEV_MAX_SIZE/sizeof(int))-3)
#define SI_PAD_SIZE    ((SI_MAX_SIZE/sizeof(int))-3)

struct sigaction {
    union {
        sighandler_t _sa_handler;
        void (*_sa_sigaction) (int, siginfo_t *, void *);
    } __sigaction_handler;
    sigset_t sa_mask;

```

```

    unsigned long int sa_flags;
    void (*sa_restorer) (void);
};

#define MINSIGSTKSZ    2048    /* Minimum stack size for a signal
handler. */
#define SIGSTKSZ      8192    /* System default stack size. */

typedef struct {
    unsigned int fpc;
    double fprs[__NUM_FPRS];
} _s390_fp_regs;
typedef struct {
    _s390_regs_common regs;
    _s390_fp_regs fpregs;
} _sigregs;

struct sigcontext {
    unsigned long int oldmask[2];
    _sigregs *sregs;
};

```

### 10.3.49 spawn.h

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

### 10.3.50 stddef.h

```

typedef int wchar_t;
typedef unsigned long int size_t;
typedef int ptrdiff_t;

```

### 10.3.51 stdint.h

```

#define INT64_C(c)      c ## LL
#define INTMAX_C(c)    c ## LL
#define __INT64_C(c)   c ## LL
#define UINT64_C(c)    c ## ULL
#define UINTMAX_C(c)   c ## ULL
#define __UINT64_C(c) c ## ULL

#define INTPTR_MIN      (-2147483647-1)
#define INT_FAST16_MIN  (-2147483647-1)
#define INT_FAST32_MIN  (-2147483647-1)
#define PTRDIFF_MIN     (-2147483647-1)
#define INTPTR_MAX      (2147483647)
#define INT_FAST16_MAX  (2147483647)
#define INT_FAST32_MAX  (2147483647)
#define PTRDIFF_MAX     (2147483647)
#define SIZE_MAX        (4294967295U)
#define UINTPTR_MAX     (4294967295U)
#define UINT_FAST16_MAX (4294967295U)
#define UINT_FAST32_MAX (4294967295U)

```

```

typedef long long int int64_t;
typedef long long int intmax_t;
typedef unsigned long long int uintmax_t;
typedef int intptr_t;
typedef unsigned int uintptr_t;

```

```

typedef unsigned long long int uint64_t;
typedef long long int int_least64_t;
typedef unsigned long long int uint_least64_t;
typedef int int_fast16_t;
typedef int int_fast32_t;
typedef long long int int_fast64_t;
typedef unsigned int uint_fast16_t;
typedef unsigned int uint_fast32_t;
typedef unsigned long long int uint_fast64_t;

```

### 10.3.52 stdio.h

```
#define __IO_FILE_SIZE 152
```

### 10.3.53 stdlib.h

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

### 10.3.54 string.h

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

### 10.3.55 sys/epoll.h

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

### 10.3.56 sys/file.h

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

### 10.3.57 sys/inotify.h

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

### 10.3.58 sys/ioctl.h

```

#define TIOCGWINSZ      0x5413
#define TIOCSWINSZ      0x5414
#define FIONREAD        0x541B
#define TIOCNOTTY      21538

```

### 10.3.59 sys/ipc.h

```

struct ipc_perm {
    key_t __key;
    uid_t uid;
    gid_t gid;
    uid_t cuid;
    uid_t cgid;
    unsigned short mode;
    unsigned short __pad1;
    unsigned short __seq;
    unsigned short __pad2;
    unsigned long int __unused1;
    unsigned long int __unused2;
};

```

### 10.3.60 sys/mman.h

```

#define MCL_CURRENT 1
#define MCL_FUTURE 2

```

### 10.3.61 sys/msg.h

```

typedef unsigned long int msgqnum_t;
typedef unsigned long int msglen_t;

struct msqid_ds {
    struct ipc_perm msg_perm; /* structure describing operation
    permission */
    time_t msg_stime; /* time of last msgsnd command */
    unsigned long int __unused1;
    time_t msg_rtime; /* time of last msgrcv command */
    unsigned long int __unused2;
    time_t msg_ctime; /* time of last change */
    unsigned long int __unused3;
    unsigned long int __msg_cbytes; /* current number of bytes
    on queue */
    msgqnum_t msg_qnum; /* number of messages currently on
    queue */
    msglen_t msg_qbytes; /* max number of bytes allowed on
    queue */
    pid_t msg_lspid; /* pid of last msgsnd() */
    pid_t msg_lrpid; /* pid of last msgrcv() */
    unsigned long int __unused4;
    unsigned long int __unused5;
};

```

### 10.3.62 sys/param.h

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

### 10.3.63 sys/poll.h

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

\*/

**10.3.64 sys/ptrace.h**

```
enum __ptrace_request {
    PTRACE_TRACEME = 0,
    PTRACE_PEEKTEXT = 1,
    PTRACE_PEEKDATA = 2,
    PTRACE_PEEKUSER = 3,
    PTRACE_POKETEXT = 4,
    PTRACE_POKEUSER = 6,
    PTRACE_CONT = 7,
    PTRACE_KILL = 8,
    PTRACE_SINGLESTEP = 9,
    PTRACE_ATTACH = 16,
    PTRACE_DETACH = 17,
    PTRACE_SYSCALL = 24,
    PTRACE_SETOPTIONS = 0x4200,
    PTRACE_GETEVENTMSG = 0x4201,
    PTRACE_GETSIGINFO = 0x4202,
    PTRACE_SETSIGINFO = 0x4203
};
```

**10.3.65 sys/resource.h**

```
/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */
```

**10.3.66 sys/select.h**

```
/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */
```

**10.3.67 sys/sem.h**

```
struct semid_ds {
    struct ipc_perm sem_perm; /* operation permission struct */
    time_t sem_otime; /* last semop() time */
    unsigned long int __unused1;
    time_t sem_ctime; /* last time changed by semctl() */
    unsigned long int __unused2;
    unsigned long int sem_nsems; /* number of semaphores in
set */
    unsigned long int __unused3;
    unsigned long int __unused4;
};
```

**10.3.68 sys/shm.h**

```
#define SHMLBA (__getpagesize())

typedef unsigned long int shmatt_t;

struct shmid_ds {
```

```

struct ipc_perm shm_perm;
size_t shm_segsz;
time_t shm_atime;
unsigned long int __unused1;
time_t shm_dtime;
unsigned long int __unused2;
time_t shm_ctime;
unsigned long int __unused3;
pid_t shm_cpid;
pid_t shm_lpid;
shmatt_t shm_nattch;
unsigned long int __unused4;
unsigned long int __unused5;
};

```

### 10.3.69 sys/socket.h

```

typedef uint32_t __ss_aligntype;

#define SO_RCVLOWAT 18
#define SO_SNDLOWAT 19
#define SO_RCVTIMEO 20
#define SO_SNDTIMEO 21

```

### 10.3.70 sys/stat.h

```

#define _MKNOD_VER 1
#define _STAT_VER 3

struct stat {
    dev_t st_dev;
    unsigned int __pad1;
    ino_t st_ino;
    mode_t st_mode;
    nlink_t st_nlink;
    uid_t st_uid;
    gid_t st_gid;
    dev_t st_rdev;
    unsigned int __pad2;
    off_t st_size;
    blksize_t st_blksize;
    blkcnt_t st_blocks;
    struct timespec st_atim; /* Time of last access. */
    struct timespec st_mtim; /* Time of last modification. */
    struct timespec st_ctim; /* Time of last status change. */
    unsigned long int __unused4;
    unsigned long int __unused5;
};

struct stat64 {
    dev_t st_dev;
    int __pad1;
    ino_t __st_ino;
    mode_t st_mode;
    nlink_t st_nlink;
    uid_t st_uid;
    gid_t st_gid;
    dev_t st_rdev;
    int __pad2;
    off64_t st_size;
    blksize_t st_blksize;
    blkcnt64_t st_blocks;
    struct timespec st_atim; /* Time of last access. */
    struct timespec st_mtim; /* Time of last modification. */
};

```

```

    struct timespec st_ctim;    /* Time of last status change. */
    ino64_t st_ino;
};

```

### 10.3.71 sys/statfs.h

```

struct statfs {
    int f_type;                /* type of filesystem */
    int f_bsize;              /* optimal transfer block size */
    fsblkcnt_t f_blocks;      /* total data blocks in file system */
    /*
    fsblkcnt_t f_bfree;        /* free blocks in fs */
    fsblkcnt_t f_bavail;      /* free blocks avail to non-superuser */
    /*
    fsfilcnt_t f_files;        /* total file nodes in file system */
    /*
    fsfilcnt_t f_ffree;        /* free file nodes in file system */
    fsid_t f_fsid;            /* file system id */
    int f_namelen;            /* maximum length of filenames */
    int f_frsize;             /* fragment size */
    int f_spare[5];           /* spare for later */
};
struct statfs64 {
    int f_type;                /* type of filesystem */
    int f_bsize;              /* optimal transfer block size */
    fsblkcnt64_t f_blocks;    /* total data blocks in file system */
    /*
    fsblkcnt64_t f_bfree;      /* free blocks in fs */
    fsblkcnt64_t f_bavail;     /* free blocks avail to non-superuser */
    /*
    fsfilcnt64_t f_files;      /* total file nodes in file system */
    /*
    fsfilcnt64_t f_ffree;      /* free file nodes in file system */
    fsid_t f_fsid;            /* file system id */
    int f_namelen;            /* maximum length of filenames */
    int f_frsize;             /* fragment size */
    int f_spare[5];           /* spare for later */
};

```

### 10.3.72 sys/statvfs.h

```

struct statvfs {
    unsigned long int f_bsize;
    unsigned long int f_frsize;
    fsblkcnt_t f_blocks;
    fsblkcnt_t f_bfree;
    fsblkcnt_t f_bavail;
    fsfilcnt_t f_files;
    fsfilcnt_t f_ffree;
    fsfilcnt_t f_favail;
    unsigned long int f_fsid;
    int __f_unused;
    unsigned long int f_flag;
    unsigned long int f_namemax;
    int __f_spare[6];
};
struct statvfs64 {
    unsigned long int f_bsize;
    unsigned long int f_frsize;
    fsblkcnt64_t f_blocks;
    fsblkcnt64_t f_bfree;
    fsblkcnt64_t f_bavail;
    fsfilcnt64_t f_files;

```

```

fsfilcnt64_t f_ffree;
fsfilcnt64_t f_favail;
unsigned long int f_fsid;
int __f_unused;
unsigned long int f_flag;
unsigned long int f_namemax;
int __f_spare[6];
};

```

### 10.3.73 sys/sysinfo.h

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

### 10.3.74 sys/time.h

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

### 10.3.75 sys/timeb.h

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

### 10.3.76 sys/times.h

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

### 10.3.77 sys/un.h

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

### 10.3.78 sys/utsname.h

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

### 10.3.79 sys/wait.h

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

\*/

**10.3.80 sysexits.h**

/\*

\* This header is architecture neutral  
 \* Please refer to the generic specification for details  
 \*/

**10.3.81 syslog.h**

/\*

\* This header is architecture neutral  
 \* Please refer to the generic specification for details  
 \*/

**10.3.82 tar.h**

/\*

\* This header is architecture neutral  
 \* Please refer to the generic specification for details  
 \*/

**10.3.83 termios.h**

```
#define OLCUC      0000002
#define ONLCR     0000004
#define XCASE     0000004
#define NLDLY     0000400
#define CR1       0001000
#define IUCLC     0001000
#define CR2       0002000
#define CR3       0003000
#define CRDLY     0003000
#define TAB1      0004000
#define TAB2      0010000
#define TAB3      0014000
#define TABDLY    0014000
#define BS1       0020000
#define BSDLY     0020000
#define VT1       0040000
#define VTDLY     0040000
#define FF1       0100000
#define FFDLY     0100000

#define VSUSP     10
#define VEOL      11
#define VREPRINT  12
#define VDISCARD  13
#define VWERASE   14
#define VEOL2     16
#define VMIN      6
#define VSWTC     7
#define VSTART    8
#define VSTOP     9

#define IXON      0002000
#define IXOFF     0010000

#define CS6       0000020
```

```

#define CS7      0000040
#define CS8      0000060
#define CSIZE    0000060
#define CSTOPB  0000100
#define CREAD    0000200
#define PARENB  0000400
#define PARODD  0001000
#define HUPCL    0002000
#define CLOCAL  0004000
#define VTIME    5

#define ISIG     0000001
#define ICANON   0000002
#define ECHOE    0000020
#define ECHOK    0000040
#define ECHONL   0000100
#define NOFLSH  0000200
#define TOSTOP  0000400
#define ECHOCTL  0001000
#define ECHOPRT 0002000
#define ECHOKE   0004000
#define FLUSHO   0010000
#define PENDIN   0040000
#define IEXTEN   0100000

```

### 10.3.84 time.h

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

### 10.3.85 ucontext.h

```

#define NGREG    36

typedef union {
    double d;
    float f;
} fpreg_t;

typedef struct {
    unsigned int fpc;
    fpreg_t fprs[16];
} fpregset_t;

typedef struct {
    _psw_t psw;
    unsigned long int gregs[16];
    unsigned int aregs[16];
    fpregset_t fpregs;
} mcontext_t;

typedef struct ucontext {
    unsigned long int uc_flags;
    struct ucontext *uc_link;
    stack_t uc_stack;
    mcontext_t uc_mcontext;
    sigset_t uc_sigmask;
} ucontext_t;

```

**10.3.86 ulimit.h**

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

**10.3.87 unistd.h**

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

**10.3.88 utime.h**

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

**10.3.89 utmp.h**

```

struct lastlog {
    time_t ll_time;
    char ll_line[UT_LINESIZE];
    char ll_host[UT_HOSTSIZE];
};

struct utmp {
    short ut_type; /* Type of login. */
    pid_t ut_pid; /* Process ID of login process. */
    char ut_line[UT_LINESIZE]; /* Devicename. */
    char ut_id[4]; /* Inittab ID. */
    char ut_user[UT_NAMESIZE]; /* Username. */
    char ut_host[UT_HOSTSIZE]; /* Hostname for remote login. */
    struct exit_status ut_exit; /* Exit status of a process marked
as DEAD_PROCESS. */
    long int ut_session; /* Session ID, used for windowing.
*/
    struct timeval ut_tv; /* Time entry was made. */
    int32_t ut_addr_v6[4]; /* Internet address of remote host.
*/
    char __unused[20]; /* Reserved for future use. */
};

```

**10.3.90 utmpx.h**

```

struct utmpx {
    short ut_type; /* Type of login. */
    pid_t ut_pid; /* Process ID of login process. */
    char ut_line[UT_LINESIZE]; /* Devicename. */
    char ut_id[4]; /* Inittab ID. */
    char ut_user[UT_NAMESIZE]; /* Username. */
    char ut_host[UT_HOSTSIZE]; /* Hostname for remote login. */
    struct exit_status ut_exit; /* Exit status of a process marked
as DEAD_PROCESS. */
    long int ut_session; /* Session ID, used for windowing.
*/

```

```

    struct timeval ut_tv;          /* Time entry was made. */
    int32_t ut_addr_v6[4];       /* Internet address of remote host.
*/
    char __unused[20];          /* Reserved for future use. */
};

```

### 10.3.91 wordexp.h

```

/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */

```

## 10.4 Interfaces for libm

Table 10-37 defines the library name and shared object name for the libm library

**Table 10-37 libm Definition**

Library:	libm
SONAME:	libm.so.6

The behavior of the interfaces in this library is specified by the following specifications:

- [LSB] LSB Core - Generic
- [SUSv3] POSIX 1003.1-2001 (ISO/IEC 9945-2003)
- [SUSv4] POSIX 1003.1-2008 (ISO/IEC 9945-2009)

### 10.4.1 Math

#### 10.4.1.1 Interfaces for Math

An LSB conforming implementation shall provide the architecture specific functions for Math specified in Table 10-38, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-38 libm - Math Function Interfaces**

__finite(GLIBC_2.1) [LSB]	__finitef(GLIBC_2.1) [LSB]	__finitel(GLIBC_2.1) [LSB]	__finitel(GLIBC_2.4) [LSB]
__fpclassify(GLIBC_2.1) [LSB]	__fpclassifyf(GLIBC_2.1) [LSB]	__fpclassifyl(GLIBC_2.4) [LSB]	__signbit(GLIBC_2.1) [LSB]
__signbitf(GLIBC_2.1) [LSB]	__signbitl(GLIBC_2.4) [LSB]	acos(GLIBC_2.0) [SUSv4]	acosf(GLIBC_2.0) [SUSv4]
acosh(GLIBC_2.0) [SUSv4]	acoshf(GLIBC_2.0) [SUSv4]	acoshl(GLIBC_2.0) [SUSv4]	acoshl(GLIBC_2.4) [SUSv4]
acosl(GLIBC_2.0) [SUSv4]	acosl(GLIBC_2.4) [SUSv4]	asin(GLIBC_2.0) [SUSv4]	asinf(GLIBC_2.0) [SUSv4]
asinh(GLIBC_2.0) [SUSv4]	asinhf(GLIBC_2.0) [SUSv4]	asinh1(GLIBC_2.0) [SUSv4]	asinh1(GLIBC_2.4) [SUSv4]
asinl(GLIBC_2.0) [SUSv4]	asinl(GLIBC_2.4) [SUSv4]	atan(GLIBC_2.0) [SUSv4]	atan2(GLIBC_2.0) [SUSv4]

atan2f(GLIBC_2.0) [SUSv4]	atan2l(GLIBC_2.0) [SUSv4]	atan2l(GLIBC_2.4) [SUSv4]	atanf(GLIBC_2.0) [SUSv4]
atanh(GLIBC_2.0) [SUSv4]	atanhf(GLIBC_2.0) [SUSv4]	atanhl(GLIBC_2.0) [SUSv4]	atanhl(GLIBC_2.4) [SUSv4]
atanl(GLIBC_2.0) [SUSv4]	atanl(GLIBC_2.4) [SUSv4]	cabs(GLIBC_2.1) [SUSv4]	cabsf(GLIBC_2.1) [SUSv4]
cabsl(GLIBC_2.1) [SUSv4]	cabsl(GLIBC_2.4) [SUSv4]	acos(GLIBC_2.1) [SUSv4]	acosf(GLIBC_2.1) [SUSv4]
cacosh(GLIBC_2.1) [SUSv4]	cacoshf(GLIBC_2.1) [SUSv4]	cacoshl(GLIBC_2.1) [SUSv4]	cacoshl(GLIBC_2.4) [SUSv4]
cacosl(GLIBC_2.1) [SUSv4]	cacosl(GLIBC_2.4) [SUSv4]	carg(GLIBC_2.1) [SUSv4]	cargf(GLIBC_2.1) [SUSv4]
cargl(GLIBC_2.1) [SUSv4]	cargl(GLIBC_2.4) [SUSv4]	casin(GLIBC_2.1) [SUSv4]	casinf(GLIBC_2.1) [SUSv4]
casinh(GLIBC_2.1) [SUSv4]	casinhf(GLIBC_2.1) [SUSv4]	casinhl(GLIBC_2.1) [SUSv4]	casinhl(GLIBC_2.4) [SUSv4]
casinl(GLIBC_2.1) [SUSv4]	casinl(GLIBC_2.4) [SUSv4]	catan(GLIBC_2.1) [SUSv4]	catanf(GLIBC_2.1) [SUSv4]
catanh(GLIBC_2.1) [SUSv4]	catanhf(GLIBC_2.1) [SUSv4]	catanhl(GLIBC_2.1) [SUSv4]	catanhl(GLIBC_2.4) [SUSv4]
catanl(GLIBC_2.1) [SUSv4]	catanl(GLIBC_2.4) [SUSv4]	cbrt(GLIBC_2.0) [SUSv4]	cbrtf(GLIBC_2.0) [SUSv4]
cbrtl(GLIBC_2.0) [SUSv4]	cbrtl(GLIBC_2.4) [SUSv4]	ccos(GLIBC_2.1) [SUSv4]	ccosf(GLIBC_2.1) [SUSv4]
ccosh(GLIBC_2.1) [SUSv4]	ccoshf(GLIBC_2.1) [SUSv4]	ccoshl(GLIBC_2.1) [SUSv4]	ccoshl(GLIBC_2.4) [SUSv4]
ccosl(GLIBC_2.1) [SUSv4]	ccosl(GLIBC_2.4) [SUSv4]	ceil(GLIBC_2.0) [SUSv4]	ceilf(GLIBC_2.0) [SUSv4]
ceill(GLIBC_2.0) [SUSv4]	ceill(GLIBC_2.4) [SUSv4]	cexp(GLIBC_2.1) [SUSv4]	cexpf(GLIBC_2.1) [SUSv4]
cexpl(GLIBC_2.1) [SUSv4]	cexpl(GLIBC_2.4) [SUSv4]	cimag(GLIBC_2.1) [SUSv4]	cimagf(GLIBC_2.1) [SUSv4]
cimagl(GLIBC_2.1) [SUSv4]	cimagl(GLIBC_2.4) [SUSv4]	clog(GLIBC_2.1) [SUSv4]	clog10(GLIBC_2.1) [LSB]
clog10f(GLIBC_2.1) [LSB]	clog10l(GLIBC_2.1) [LSB]	clog10l(GLIBC_2.4) [LSB]	clogf(GLIBC_2.1) [SUSv4]
clogl(GLIBC_2.1) [SUSv4]	clogl(GLIBC_2.4) [SUSv4]	conj(GLIBC_2.1) [SUSv4]	conjf(GLIBC_2.1) [SUSv4]
conjl(GLIBC_2.1) [SUSv4]	conjl(GLIBC_2.4) [SUSv4]	copysign(GLIBC_2.0) [SUSv4]	copysignf(GLIBC_2.0) [SUSv4]
copysignl(GLIBC_2.0) [SUSv4]	copysignl(GLIBC_2.4) [SUSv4]	cos(GLIBC_2.0) [SUSv4]	cosf(GLIBC_2.0) [SUSv4]

cosh(GLIBC_2.0) [SUSv4]	coshf(GLIBC_2.0) [SUSv4]	coshl(GLIBC_2.0) [SUSv4]	coshl(GLIBC_2.4) [SUSv4]
cosl(GLIBC_2.0) [SUSv4]	cosl(GLIBC_2.4) [SUSv4]	cpow(GLIBC_2.1) [SUSv4]	cpowf(GLIBC_2.1) [SUSv4]
cpowl(GLIBC_2.1) [SUSv4]	cpowl(GLIBC_2.4) [SUSv4]	cproj(GLIBC_2.1) [SUSv4]	cprojf(GLIBC_2.1) [SUSv4]
cprojl(GLIBC_2.1) [SUSv4]	cprojl(GLIBC_2.4) [SUSv4]	creal(GLIBC_2.1) [SUSv4]	crealf(GLIBC_2.1) [SUSv4]
creall(GLIBC_2.1) [SUSv4]	creall(GLIBC_2.4) [SUSv4]	csin(GLIBC_2.1) [SUSv4]	csinf(GLIBC_2.1) [SUSv4]
csinh(GLIBC_2.1) [SUSv4]	csinhf(GLIBC_2.1) [SUSv4]	csinhl(GLIBC_2.1) [SUSv4]	csinhl(GLIBC_2.4) [SUSv4]
csinl(GLIBC_2.1) [SUSv4]	csinl(GLIBC_2.4) [SUSv4]	csqrt(GLIBC_2.1) [SUSv4]	csqrtf(GLIBC_2.1) [SUSv4]
csqrtl(GLIBC_2.1) [SUSv4]	csqrtl(GLIBC_2.4) [SUSv4]	ctan(GLIBC_2.1) [SUSv4]	ctanf(GLIBC_2.1) [SUSv4]
ctanh(GLIBC_2.1) [SUSv4]	ctanhf(GLIBC_2.1) [SUSv4]	ctanhl(GLIBC_2.1) [SUSv4]	ctanhl(GLIBC_2.4) [SUSv4]
ctanl(GLIBC_2.1) [SUSv4]	ctanl(GLIBC_2.4) [SUSv4]	drem(GLIBC_2.0) [LSB]	dremf(GLIBC_2.0) [LSB]
dreml(GLIBC_2.0) [LSB]	dreml(GLIBC_2.4) [LSB]	erf(GLIBC_2.0) [SUSv4]	erfc(GLIBC_2.0) [SUSv4]
erfcf(GLIBC_2.0) [SUSv4]	erfcl(GLIBC_2.0) [SUSv4]	erfcl(GLIBC_2.4) [SUSv4]	erfff(GLIBC_2.0) [SUSv4]
erfl(GLIBC_2.0) [SUSv4]	erfl(GLIBC_2.4) [SUSv4]	exp(GLIBC_2.0) [SUSv4]	exp10(GLIBC_2.1) [LSB]
exp10f(GLIBC_2.1) [LSB]	exp10l(GLIBC_2.1) [LSB]	exp10l(GLIBC_2.4) [LSB]	exp2(GLIBC_2.1) [SUSv4]
exp2f(GLIBC_2.1) [SUSv4]	exp2l(GLIBC_2.4) [SUSv4]	expf(GLIBC_2.0) [SUSv4]	expl(GLIBC_2.0) [SUSv4]
expl(GLIBC_2.4) [SUSv4]	expm1(GLIBC_2.0) [SUSv4]	expm1f(GLIBC_2.0) [SUSv4]	expm1l(GLIBC_2.0) [SUSv4]
expm1l(GLIBC_2.4) [SUSv4]	fabs(GLIBC_2.0) [SUSv4]	fabsf(GLIBC_2.0) [SUSv4]	fabsl(GLIBC_2.0) [SUSv4]
fabsl(GLIBC_2.4) [SUSv4]	fdim(GLIBC_2.1) [SUSv4]	fdimf(GLIBC_2.1) [SUSv4]	fdiml(GLIBC_2.1) [SUSv4]
fdiml(GLIBC_2.4) [SUSv4]	feclearexcept(GLIBC_2.1) [SUSv4]	fedisableexcept(GLIBC_2.2) [LSB]	feenableexcept(GLIBC_2.2) [LSB]
fegetenv(GLIBC_2.1) [SUSv4]	fegetexcept(GLIBC_2.2) [LSB]	fegetexceptflag(GLIBC_2.1) [SUSv4]	fegetround(GLIBC_2.1) [SUSv4]

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feholdexcept(GLIBC_2.1) [SUSv4]	feraiseexcept(GLIBC_2.1) [SUSv4]	fesetenv(GLIBC_2.1) [SUSv4]	fesetexceptflag(GLIBC_2.1) [SUSv4]
fesetround(GLIBC_2.1) [SUSv4]	fetestexcept(GLIBC_2.1) [SUSv4]	feupdateenv(GLIBC_2.1) [SUSv4]	finite(GLIBC_2.0) [LSB]
finitf(GLIBC_2.0) [LSB]	finitel(GLIBC_2.0) [LSB]	finitel(GLIBC_2.4) [LSB]	floor(GLIBC_2.0) [SUSv4]
floorf(GLIBC_2.0) [SUSv4]	floorl(GLIBC_2.0) [SUSv4]	floorl(GLIBC_2.4) [SUSv4]	fma(GLIBC_2.1) [SUSv4]
fmaf(GLIBC_2.1) [SUSv4]	fmal(GLIBC_2.1) [SUSv4]	fmal(GLIBC_2.4) [SUSv4]	fmax(GLIBC_2.1) [SUSv4]
fmaxf(GLIBC_2.1) [SUSv4]	fmaxl(GLIBC_2.1) [SUSv4]	fmaxl(GLIBC_2.4) [SUSv4]	fmin(GLIBC_2.1) [SUSv4]
fminf(GLIBC_2.1) [SUSv4]	fminl(GLIBC_2.1) [SUSv4]	fminl(GLIBC_2.4) [SUSv4]	fmod(GLIBC_2.0) [SUSv4]
fmodf(GLIBC_2.0) [SUSv4]	fmodl(GLIBC_2.0) [SUSv4]	fmodl(GLIBC_2.4) [SUSv4]	frexp(GLIBC_2.0) [SUSv4]
frexpf(GLIBC_2.0) [SUSv4]	frexpl(GLIBC_2.0) [SUSv4]	frexpl(GLIBC_2.4) [SUSv4]	gamma(GLIBC_2.0) [LSB]
gammaf(GLIBC_2.0) [LSB]	gammal(GLIBC_2.0) [LSB]	gammal(GLIBC_2.4) [LSB]	hypot(GLIBC_2.0) [SUSv4]
hypotf(GLIBC_2.0) [SUSv4]	hypotl(GLIBC_2.0) [SUSv4]	hypotl(GLIBC_2.4) [SUSv4]	ilogb(GLIBC_2.0) [SUSv4]
ilogbf(GLIBC_2.0) [SUSv4]	ilogbl(GLIBC_2.0) [SUSv4]	ilogbl(GLIBC_2.4) [SUSv4]	j0(GLIBC_2.0) [SUSv4]
j0f(GLIBC_2.0) [LSB]	j0l(GLIBC_2.0) [LSB]	j0l(GLIBC_2.4) [LSB]	j1(GLIBC_2.0) [SUSv4]
j1f(GLIBC_2.0) [LSB]	j1l(GLIBC_2.0) [LSB]	j1l(GLIBC_2.4) [LSB]	jn(GLIBC_2.0) [SUSv4]
jnf(GLIBC_2.0) [LSB]	jnl(GLIBC_2.0) [LSB]	jnl(GLIBC_2.4) [LSB]	ldexp(GLIBC_2.0) [SUSv4]
ldexpf(GLIBC_2.0) [SUSv4]	ldexpl(GLIBC_2.0) [SUSv4]	ldexpl(GLIBC_2.4) [SUSv4]	lgamma(GLIBC_2.0) [SUSv4]
lgamma_r(GLIBC_2.0) [LSB]	lgammaf(GLIBC_2.0) [SUSv4]	lgammaf_r(GLIBC_2.0) [LSB]	lgammal(GLIBC_2.0) [SUSv4]
lgammal(GLIBC_2.4) [SUSv4]	lgammal_r(GLIBC_2.0) [LSB]	lgammal_r(GLIBC_2.4) [LSB]	llrint(GLIBC_2.1) [SUSv4]
llrintf(GLIBC_2.1) [SUSv4]	llrintl(GLIBC_2.1) [SUSv4]	llrintl(GLIBC_2.4) [SUSv4]	llround(GLIBC_2.1) [SUSv4]
llroundf(GLIBC_2.1) [SUSv4]	llroundl(GLIBC_2.1) [SUSv4]	llroundl(GLIBC_2.4) [SUSv4]	log(GLIBC_2.0) [SUSv4]

log10(GLIBC_2.0) [SUSv4]	log10f(GLIBC_2.0) [SUSv4]	log10l(GLIBC_2.0) [SUSv4]	log10l(GLIBC_2.4) [SUSv4]
log1p(GLIBC_2.0) [SUSv4]	log1pf(GLIBC_2.0) [SUSv4]	log1pl(GLIBC_2.0) [SUSv4]	log1pl(GLIBC_2.4) [SUSv4]
log2(GLIBC_2.1) [SUSv4]	log2f(GLIBC_2.1) [SUSv4]	log2l(GLIBC_2.1) [SUSv4]	log2l(GLIBC_2.4) [SUSv4]
logb(GLIBC_2.0) [SUSv4]	logbf(GLIBC_2.0) [SUSv4]	logbl(GLIBC_2.0) [SUSv4]	logbl(GLIBC_2.4) [SUSv4]
logf(GLIBC_2.0) [SUSv4]	logl(GLIBC_2.0) [SUSv4]	logl(GLIBC_2.4) [SUSv4]	lrint(GLIBC_2.1) [SUSv4]
lrintf(GLIBC_2.1) [SUSv4]	lrintl(GLIBC_2.1) [SUSv4]	lrintl(GLIBC_2.4) [SUSv4]	lround(GLIBC_2.1) [SUSv4]
lroundf(GLIBC_2.1) [SUSv4]	lroundl(GLIBC_2.1) [SUSv4]	lroundl(GLIBC_2.4) [SUSv4]	matherr(GLIBC_2.0) [LSB]
modf(GLIBC_2.0) [SUSv4]	modff(GLIBC_2.0) [SUSv4]	modfl(GLIBC_2.0) [SUSv4]	modfl(GLIBC_2.4) [SUSv4]
nan(GLIBC_2.1) [SUSv4]	nanf(GLIBC_2.1) [SUSv4]	nanl(GLIBC_2.1) [SUSv4]	nanl(GLIBC_2.4) [SUSv4]
nearbyint(GLIBC_2.1) [SUSv4]	nearbyintf(GLIBC_2.1) [SUSv4]	nearbyintl(GLIBC_2.1) [SUSv4]	nearbyintl(GLIBC_2.4) [SUSv4]
nextafter(GLIBC_2.0) [SUSv4]	nextafterf(GLIBC_2.0) [SUSv4]	nextafterl(GLIBC_2.0) [SUSv4]	nextafterl(GLIBC_2.4) [SUSv4]
nexttoward(GLIBC_2.1) [SUSv4]	nexttoward(GLIBC_2.4) [SUSv4]	nexttowardf(GLIBC_2.1) [SUSv4]	nexttowardf(GLIBC_2.4) [SUSv4]
nexttowardl(GLIBC_2.1) [SUSv4]	nexttowardl(GLIBC_2.4) [SUSv4]	pow(GLIBC_2.0) [SUSv4]	pow10(GLIBC_2.1) [LSB]
pow10f(GLIBC_2.1) [LSB]	pow10l(GLIBC_2.1) [LSB]	pow10l(GLIBC_2.4) [LSB]	powf(GLIBC_2.0) [SUSv4]
powl(GLIBC_2.0) [SUSv4]	powl(GLIBC_2.4) [SUSv4]	remainder(GLIBC_2.0) [SUSv4]	remainderf(GLIBC_2.0) [SUSv4]
remainderl(GLIBC_2.0) [SUSv4]	remainderl(GLIBC_2.4) [SUSv4]	remquo(GLIBC_2.1) [SUSv4]	remquof(GLIBC_2.1) [SUSv4]
remquo(GLIBC_2.1) [SUSv4]	remquo(GLIBC_2.4) [SUSv4]	rint(GLIBC_2.0) [SUSv4]	rintf(GLIBC_2.0) [SUSv4]
rintl(GLIBC_2.0) [SUSv4]	rintl(GLIBC_2.4) [SUSv4]	round(GLIBC_2.1) [SUSv4]	roundf(GLIBC_2.1) [SUSv4]
roundl(GLIBC_2.1) [SUSv4]	roundl(GLIBC_2.4) [SUSv4]	scalb(GLIBC_2.0) [SUSv3]	scalbf(GLIBC_2.0) [LSB]
scalbl(GLIBC_2.0) [LSB]	scalbl(GLIBC_2.4) [LSB]	scalbln(GLIBC_2.1) [SUSv4]	scalblnf(GLIBC_2.1) [SUSv4]
scalblnl(GLIBC_2.1) [SUSv4]	scalblnl(GLIBC_2.4) [SUSv4]	scalbn(GLIBC_2.0) [SUSv4]	scalbnf(GLIBC_2.0) [SUSv4]

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scalbnl(GLIBC_2.0) [SUSv4]	scalbnl(GLIBC_2.4) [SUSv4]	significand(GLIBC_2.0) [LSB]	significandf(GLIBC_2.0) [LSB]
significandl(GLIBC_2.0) [LSB]	significandl(GLIBC_2.4) [LSB]	sin(GLIBC_2.0) [SUSv4]	sincos(GLIBC_2.1) [LSB]
sincosf(GLIBC_2.1) [LSB]	sincosl(GLIBC_2.1) [LSB]	sincosl(GLIBC_2.4) [LSB]	sinf(GLIBC_2.0) [SUSv4]
sinh(GLIBC_2.0) [SUSv4]	sinhf(GLIBC_2.0) [SUSv4]	sinhl(GLIBC_2.0) [SUSv4]	sinhl(GLIBC_2.4) [SUSv4]
sinl(GLIBC_2.0) [SUSv4]	sinl(GLIBC_2.4) [SUSv4]	sqrt(GLIBC_2.0) [SUSv4]	sqrtf(GLIBC_2.0) [SUSv4]
sqrtl(GLIBC_2.0) [SUSv4]	sqrtl(GLIBC_2.4) [SUSv4]	tan(GLIBC_2.0) [SUSv4]	tanf(GLIBC_2.0) [SUSv4]
tanh(GLIBC_2.0) [SUSv4]	tanhf(GLIBC_2.0) [SUSv4]	tanh(GLIBC_2.0) [SUSv4]	tanh(GLIBC_2.4) [SUSv4]
tanl(GLIBC_2.0) [SUSv4]	tanl(GLIBC_2.4) [SUSv4]	tgamma(GLIBC_2.1) [SUSv4]	tgammaf(GLIBC_2.1) [SUSv4]
tgammal(GLIBC_2.1) [SUSv4]	tgammal(GLIBC_2.4) [SUSv4]	trunc(GLIBC_2.1) [SUSv4]	truncf(GLIBC_2.1) [SUSv4]
truncl(GLIBC_2.1) [SUSv4]	truncl(GLIBC_2.4) [SUSv4]	y0(GLIBC_2.0) [SUSv4]	y0f(GLIBC_2.0) [LSB]
y0l(GLIBC_2.0) [LSB]	y0l(GLIBC_2.4) [LSB]	y1(GLIBC_2.0) [SUSv4]	y1f(GLIBC_2.0) [LSB]
y1l(GLIBC_2.0) [LSB]	y1l(GLIBC_2.4) [LSB]	yn(GLIBC_2.0) [SUSv4]	ynf(GLIBC_2.0) [LSB]
ynl(GLIBC_2.0) [LSB]	ynl(GLIBC_2.4) [LSB]		

An LSB conforming implementation shall provide the architecture specific deprecated functions for Math specified in Table 10-39, with the full mandatory functionality as described in the referenced underlying specification.

**Note:** These interfaces are deprecated, and applications should avoid using them. These interfaces may be withdrawn in future releases of this specification.

**Table 10-39 libm - Math Deprecated Function Interfaces**

__finitel(GLIBC_2.1) [LSB]	acoshl(GLIBC_2.0) [SUSv4]	acosl(GLIBC_2.0) [SUSv4]	asinh(GLIBC_2.0) [SUSv4]
asinl(GLIBC_2.0) [SUSv4]	atan2l(GLIBC_2.0) [SUSv4]	atanhl(GLIBC_2.0) [SUSv4]	atanl(GLIBC_2.0) [SUSv4]
cabsl(GLIBC_2.1) [SUSv4]	cacoshl(GLIBC_2.1) [SUSv4]	cacosl(GLIBC_2.1) [SUSv4]	cargl(GLIBC_2.1) [SUSv4]
casinh(GLIBC_2.1) [SUSv4]	casinl(GLIBC_2.1) [SUSv4]	catanh(GLIBC_2.1) [SUSv4]	catanl(GLIBC_2.1) [SUSv4]

cbRTL(GLIBC_2.0) [SUSv4]	ccoshl(GLIBC_2.1) [SUSv4]	ccosl(GLIBC_2.1) [SUSv4]	ceil(GLIBC_2.0) [SUSv4]
cexpl(GLIBC_2.1) [SUSv4]	cimagl(GLIBC_2.1) [SUSv4]	clog10l(GLIBC_2.1) [LSB]	clogl(GLIBC_2.1) [SUSv4]
conjL(GLIBC_2.1) [SUSv4]	copysignl(GLIBC_2.0) [SUSv4]	coshl(GLIBC_2.0) [SUSv4]	cosl(GLIBC_2.0) [SUSv4]
cpowl(GLIBC_2.1) [SUSv4]	cprojl(GLIBC_2.1) [SUSv4]	creall(GLIBC_2.1) [SUSv4]	csinhl(GLIBC_2.1) [SUSv4]
csinl(GLIBC_2.1) [SUSv4]	csqrtl(GLIBC_2.1) [SUSv4]	ctanhl(GLIBC_2.1) [SUSv4]	ctanl(GLIBC_2.1) [SUSv4]
drem(GLIBC_2.0) [LSB]	dremf(GLIBC_2.0) [LSB]	dreml(GLIBC_2.0) [LSB]	dreml(GLIBC_2.4) [LSB]
erfcl(GLIBC_2.0) [SUSv4]	erfl(GLIBC_2.0) [SUSv4]	exp10l(GLIBC_2.1) [LSB]	expl(GLIBC_2.0) [SUSv4]
expm1l(GLIBC_2.0) [SUSv4]	fabsl(GLIBC_2.0) [SUSv4]	fdiml(GLIBC_2.1) [SUSv4]	finite(GLIBC_2.0) [LSB]
finitel(GLIBC_2.0) [LSB]	finitel(GLIBC_2.0) [LSB]	finitel(GLIBC_2.4) [LSB]	floorl(GLIBC_2.0) [SUSv4]
fmal(GLIBC_2.1) [SUSv4]	fmaxl(GLIBC_2.1) [SUSv4]	fminl(GLIBC_2.1) [SUSv4]	fmodl(GLIBC_2.0) [SUSv4]
frexpl(GLIBC_2.0) [SUSv4]	gamma(GLIBC_2.0) [LSB]	gammaf(GLIBC_2.0) [LSB]	gammaL(GLIBC_2.0) [LSB]
gammaL(GLIBC_2.4) [LSB]	hypotl(GLIBC_2.0) [SUSv4]	ilogbl(GLIBC_2.0) [SUSv4]	j0l(GLIBC_2.0) [LSB]
j1l(GLIBC_2.0) [LSB]	jnl(GLIBC_2.0) [LSB]	ldexpl(GLIBC_2.0) [SUSv4]	lgammaL(GLIBC_2.0) [SUSv4]
lgamma_r(GLIBC_2.0) [LSB]	llrintl(GLIBC_2.1) [SUSv4]	llroundl(GLIBC_2.1) [SUSv4]	log10l(GLIBC_2.0) [SUSv4]
log1pl(GLIBC_2.0) [SUSv4]	log2l(GLIBC_2.1) [SUSv4]	logbl(GLIBC_2.0) [SUSv4]	logl(GLIBC_2.0) [SUSv4]
lrintl(GLIBC_2.1) [SUSv4]	lroundl(GLIBC_2.1) [SUSv4]	matherr(GLIBC_2.0) [LSB]	modfl(GLIBC_2.0) [SUSv4]
nanl(GLIBC_2.1) [SUSv4]	nearbyintl(GLIBC_2.1) [SUSv4]	nextafterl(GLIBC_2.0) [SUSv4]	nexttoward(GLIBC_2.1) [SUSv4]
nexttowardf(GLIBC_2.1) [SUSv4]	nexttowardl(GLIBC_2.1) [SUSv4]	pow10l(GLIBC_2.1) [LSB]	powl(GLIBC_2.0) [SUSv4]
remainderl(GLIBC_2.0) [SUSv4]	remquol(GLIBC_2.1) [SUSv4]	rintl(GLIBC_2.0) [SUSv4]	roundl(GLIBC_2.1) [SUSv4]
scalbl(GLIBC_2.0) [LSB]	scalblnl(GLIBC_2.1) [SUSv4]	scalbnl(GLIBC_2.0) [SUSv4]	significantdl(GLIBC_2.0) [LSB]
sincosl(GLIBC_2.1) [LSB]	sinhl(GLIBC_2.0) [SUSv4]	sinl(GLIBC_2.0) [SUSv4]	sqrtl(GLIBC_2.0) [SUSv4]

tanh(GLIBC_2.0) [SUSv4]	tan(GLIBC_2.0) [SUSv4]	tgammal(GLIBC_2.1) [SUSv4]	trunc1(GLIBC_2.1) [SUSv4]
y0l(GLIBC_2.0) [LSB]	y1l(GLIBC_2.0) [LSB]	ynl(GLIBC_2.0) [LSB]	

An LSB conforming implementation shall provide the architecture specific data interfaces for Math specified in Table 10-40, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-40 libm - Math Data Interfaces**

signgam(GLIBC_2.0) [SUSv4]			
-------------------------------	--	--	--

## 10.5 Data Definitions for libm

This section defines global identifiers and their values that are associated with interfaces contained in libm. These definitions are organized into groups that correspond to system headers. This convention is used as a convenience for the reader, and does not imply the existence of these headers, or their content. Where an interface is defined as requiring a particular system header file all of the data definitions for that system header file presented here shall be in effect.

This section gives data definitions to promote binary application portability, not to repeat source interface definitions available elsewhere. System providers and application developers should use this ABI to supplement - not to replace - source interface definition specifications.

This specification uses the ISO C (1999) C Language as the reference programming language, and data definitions are specified in ISO C format. The C language is used here as a convenient notation. Using a C language description of these data objects does not preclude their use by other programming languages.

### 10.5.1 complex.h

```
/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */
```

### 10.5.2 fenv.h

```
#define FE_INEXACT      0x08
#define FE_UNDERFLOW   0x10
#define FE_OVERFLOW    0x20
#define FE_DIVBYZERO   0x40
#define FE_INVALID     0x80

#define FE_ALL_EXCEPT \
    (FE_INEXACT | FE_DIVBYZERO | FE_UNDERFLOW | FE_OVERFLOW | \
    FE_INVALID)

#define FE_TONEAREST   0
#define FE_TOWARDZERO  0x1
#define FE_UPWARD      0x2
#define FE_DOWNWARD    0x3
```

```

typedef unsigned int fexcept_t;

typedef struct {
    fexcept_t fpc;
    void *ieee_instruction_pointer;
} fenv_t;

#define FE_DFL_ENV      ((const fenv_t *) -1)

```

### 10.5.3 math.h

```

typedef double float_t;
typedef double double_t;

#define isfinite(x) \
    (sizeof (x) == sizeof (float) ? __finitef (x) : sizeof (x) == \
    sizeof (double) ? __finite (x) : __finitel (x)) /* Return nonzero \
    value if X is not +-Inf or NaN. */
#define fpclassify(x) \
    (sizeof (x) == sizeof (float) ? __fpclassifyf (x) : sizeof (x) == \
    sizeof (double) ? __fpclassify (x) : __fpclassifyl (x)) /* \
    Return number of classification appropriate for X. */
#define isinf(x) \
    (sizeof (x) == sizeof (float) ? __isnanf (x) : sizeof (x) == \
    sizeof (double) ? __isnan (x) : __isnanl (x))
#define isnan(x) \
    (sizeof (x) == sizeof (float) ? __isnanf (x) : sizeof (x) == \
    sizeof (double) ? __isnan (x) : __isnanl (x))
#define signbit(x) \
    (sizeof (x) == sizeof (float) ? __signbitf (x) : sizeof (x) == \
    sizeof (double) ? __signbit (x) : __signbitl (x)) /* Return nonzero \
    value if sign of X is negative. */

#define HUGE_VALL      0x1.0p2047L

#define FP_ILOGB0      -2147483647
#define FP_ILOGBNAN    2147483647

extern int __fpclassifyl(long double);
extern int __signbitl(long double);
extern long double exp2l(long double);

```

### 10.6 Interface Definitions for libm

The interfaces defined on the following pages are included in libm and are defined by this specification. Unless otherwise noted, these interfaces shall be included in the source standard.

Other interfaces listed in Section 10.4 shall behave as described in the referenced base document. For interfaces referencing LSB and not listed below, please see the generic part of the specification.

## \_\_fpclassify

### Name

`__fpclassify` – Classify real floating type

### Synopsis

```
int __fpclassify(long double arg);
```

### Description

`__fpclassify()` has the same specification as `fpclassify()` in POSIX 1003.1-2008 (ISO/IEC 9945-2009), except that the argument type for `__fpclassify()` is known to be long double.

`__fpclassify()` is not in the source standard; it is only in the binary standard.

## \_\_signbitl

### Name

`__signbitl` – test sign of floating point value

### Synopsis

```
#include <math.h>
int __signbitl(long double arg);
```

### Description

`__signbitl()` has the same specification as `signbit()` in POSIX 1003.1-2008 (ISO/IEC 9945-2009), except that the argument type for `__signbitl()` is known to be long double.

`__signbitl()` is not in the source standard; it is only in the binary standard.

## 10.7 Interfaces for libpthread

Table 10-41 defines the library name and shared object name for the libpthread library

Table 10-41 libpthread Definition

Library:	libpthread
SONAME:	libpthread.so.0

The behavior of the interfaces in this library is specified by the following specifications:

- [LFS] Large File Support
- [LSB] LSB Core - Generic
- [SUSv3] POSIX 1003.1-2001 (ISO/IEC 9945-2003)
- [SUSv4] POSIX 1003.1-2008 (ISO/IEC 9945-2009)

## 10.7.1 Realtime Threads

### 10.7.1.1 Interfaces for Realtime Threads

An LSB conforming implementation shall provide the architecture specific functions for Realtime Threads specified in Table 10-42, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-42 libpthread - Realtime Threads Function Interfaces**

pthread_attr_getinheritsched(GLIBC_2.0) [SUSv4]	pthread_attr_getschedpolicy(GLIBC_2.0) [SUSv4]	pthread_attr_getscope(GLIBC_2.0) [SUSv4]	pthread_attr_setinheritsched(GLIBC_2.0) [SUSv4]
pthread_attr_setschedpolicy(GLIBC_2.0) [SUSv4]	pthread_attr_setscope(GLIBC_2.0) [SUSv4]	pthread_getschedparam(GLIBC_2.0) [SUSv4]	pthread_setschedparam(GLIBC_2.0) [SUSv4]

## 10.7.2 Advanced Realtime Threads

### 10.7.2.1 Interfaces for Advanced Realtime Threads

An LSB conforming implementation shall provide the architecture specific functions for Advanced Realtime Threads specified in Table 10-43, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-43 libpthread - Advanced Realtime Threads Function Interfaces**

pthread_barrier_destroy(GLIBC_2.2) [SUSv4]	pthread_barrier_init(GLIBC_2.2) [SUSv4]	pthread_barrier_wait(GLIBC_2.2) [SUSv4]	pthread_barrier_destroy(GLIBC_2.2) [SUSv4]
pthread_barrierattr_init(GLIBC_2.2) [SUSv4]	pthread_barrierattr_setshared(GLIBC_2.2) [SUSv4]	pthread_getcpucookieid(GLIBC_2.2) [SUSv4]	pthread_spin_destroy(GLIBC_2.2) [SUSv4]
pthread_spin_init(GLIBC_2.2) [SUSv4]	pthread_spin_lock(GLIBC_2.2) [SUSv4]	pthread_spin_trylock(GLIBC_2.2) [SUSv4]	pthread_spin_unlock(GLIBC_2.2) [SUSv4]

## 10.7.3 Posix Threads

### 10.7.3.1 Interfaces for Posix Threads

An LSB conforming implementation shall provide the architecture specific functions for Posix Threads specified in Table 10-44, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-44 libpthread - Posix Threads Function Interfaces**

_pthread_cleanups_pop(GLIBC_2.0) [LSB]	_pthread_cleanups_push(GLIBC_2.0) [LSB]	pthread_attr_detach(GLIBC_2.0) [SUSv4]	pthread_attr_getdetachstate(GLIBC_2.0) [SUSv4]
pthread_attr_getguardsize(GLIBC_2.1) [SUSv4]	pthread_attr_getschedparam(GLIBC_2.0) [SUSv4]	pthread_attr_getstack(GLIBC_2.2) [SUSv4]	pthread_attr_getstackaddr(GLIBC_2.1) [SUSv3]

pthread_attr_getstacksize(GLIBC_2.1) [SUSv4]	pthread_attr_init(GLIBC_2.1) [SUSv4]	pthread_attr_setdetachstate(GLIBC_2.0) [SUSv4]	pthread_attr_setguardsize(GLIBC_2.1) [SUSv4]
pthread_attr_setschedparam(GLIBC_2.0) [SUSv4]	pthread_attr_setstack(GLIBC_2.2) [SUSv4]	pthread_attr_setstackaddr(GLIBC_2.1) [SUSv3]	pthread_attr_setstacksize(GLIBC_2.1) [SUSv4]
pthread_cancel(GLIBC_2.0) [SUSv4]	pthread_cond_broadcast(GLIBC_2.3.2) [SUSv4]	pthread_cond_destroy(GLIBC_2.3.2) [SUSv4]	pthread_cond_init(GLIBC_2.3.2) [SUSv4]
pthread_cond_signal(GLIBC_2.3.2) [SUSv4]	pthread_cond_timedwait(GLIBC_2.3.2) [SUSv4]	pthread_cond_wait(GLIBC_2.3.2) [SUSv4]	pthread_condattr_destroy(GLIBC_2.0) [SUSv4]
pthread_condattr_getpshared(GLIBC_2.2) [SUSv4]	pthread_condattr_init(GLIBC_2.0) [SUSv4]	pthread_condattr_setpshared(GLIBC_2.2) [SUSv4]	pthread_create(GLIBC_2.1) [SUSv4]
pthread_detach(GLIBC_2.0) [SUSv4]	pthread_equal(GLIBC_2.0) [SUSv4]	pthread_exit(GLIBC_2.0) [SUSv4]	pthread_getconcurrency(GLIBC_2.1) [SUSv4]
pthread_getspecific(GLIBC_2.0) [SUSv4]	pthread_join(GLIBC_2.0) [SUSv4]	pthread_key_create(GLIBC_2.0) [SUSv4]	pthread_key_delete(GLIBC_2.0) [SUSv4]
pthread_kill(GLIBC_2.0) [SUSv4]	pthread_mutex_destroy(GLIBC_2.0) [SUSv4]	pthread_mutex_init(GLIBC_2.0) [SUSv4]	pthread_mutex_lock(GLIBC_2.0) [SUSv4]
pthread_mutex_timedlock(GLIBC_2.2) [SUSv4]	pthread_mutex_trylock(GLIBC_2.0) [SUSv4]	pthread_mutex_unlock(GLIBC_2.0) [SUSv4]	pthread_mutexattr_destroy(GLIBC_2.0) [SUSv4]
pthread_mutexattr_getpshared(GLIBC_2.2) [SUSv4]	pthread_mutexattr_gettype(GLIBC_2.1) [SUSv4]	pthread_mutexattr_init(GLIBC_2.0) [SUSv4]	pthread_mutexattr_setpshared(GLIBC_2.2) [SUSv4]
pthread_mutexattr_settype(GLIBC_2.1) [SUSv4]	pthread_once(GLIBC_2.0) [SUSv4]	pthread_rwlock_destroy(GLIBC_2.1) [SUSv4]	pthread_rwlock_init(GLIBC_2.1) [SUSv4]
pthread_rwlock_rdlock(GLIBC_2.1) [SUSv4]	pthread_rwlock_timedrdlock(GLIBC_2.2) [SUSv4]	pthread_rwlock_timedwrlock(GLIBC_2.2) [SUSv4]	pthread_rwlock_tryrdlock(GLIBC_2.1) [SUSv4]
pthread_rwlock_trywrlock(GLIBC_2.1) [SUSv4]	pthread_rwlock_unlock(GLIBC_2.1) [SUSv4]	pthread_rwlock_wrlock(GLIBC_2.1) [SUSv4]	pthread_rwlockattr_destroy(GLIBC_2.1) [SUSv4]
pthread_rwlockattr_getpshared(GLIBC_2.1) [SUSv4]	pthread_rwlockattr_init(GLIBC_2.1) [SUSv4]	pthread_rwlockattr_setpshared(GLIBC_2.1) [SUSv4]	pthread_self(GLIBC_2.0) [SUSv4]

pthread_setcancelstate(GLIBC_2.0) [SUSv4]	pthread_setcanceltype(GLIBC_2.0) [SUSv4]	pthread_setconcurrency(GLIBC_2.1) [SUSv4]	pthread_setspecific(GLIBC_2.0) [SUSv4]
pthread_sigmask(GLIBC_2.0) [SUSv4]	pthread_testcancel(GLIBC_2.0) [SUSv4]	sem_close(GLIBC_2.1.1) [SUSv4]	sem_destroy(GLIBC_2.1) [SUSv4]
sem_getvalue(GLIBC_2.1) [SUSv4]	sem_init(GLIBC_2.1) [SUSv4]	sem_open(GLIBC_2.1.1) [SUSv4]	sem_post(GLIBC_2.1) [SUSv4]
sem_timedwait(GLIBC_2.2) [SUSv4]	sem_trywait(GLIBC_2.1) [SUSv4]	sem_unlink(GLIBC_2.1.1) [SUSv4]	sem_wait(GLIBC_2.1) [SUSv4]

An LSB conforming implementation shall provide the architecture specific deprecated functions for Posix Threads specified in Table 10-45, with the full mandatory functionality as described in the referenced underlying specification.

**Note:** These interfaces are deprecated, and applications should avoid using them. These interfaces may be withdrawn in future releases of this specification.

**Table 10-45 libpthread - Posix Threads Deprecated Function Interfaces**

pthread_attr_getstackaddr(GLIBC_2.1) [SUSv3]	pthread_attr_setstackaddr(GLIBC_2.1) [SUSv3]		
--	--	--	--

## 10.7.4 Thread aware versions of libc interfaces

### 10.7.4.1 Interfaces for Thread aware versions of libc interfaces

An LSB conforming implementation shall provide the architecture specific functions for Thread aware versions of libc interfaces specified in Table 10-46, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-46 libpthread - Thread aware versions of libc interfaces Function Interfaces**

lseek64(GLIBC_2.2) [LFS]	open64(GLIBC_2.2) [LFS]	pread(GLIBC_2.2) [SUSv4]	pread64(GLIBC_2.2) [LSB]
pwrite(GLIBC_2.2) [SUSv4]	pwrite64(GLIBC_2.2) [LSB]		

## 10.7.5 GNU Extensions for libpthread

### 10.7.5.1 Interfaces for GNU Extensions for libpthread

An LSB conforming implementation shall provide the architecture specific functions for GNU Extensions for libpthread specified in Table 10-47, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-47 libpthread - GNU Extensions for libpthread Function Interfaces**

pthread_getattr_np(GLIBC_2.2.3) [LSB]	pthread_mutex_consistent_np(GLIBC_2.4) [LSB]	pthread_mutexattr_getrobust_np(GLIBC_2.4) [LSB]	pthread_mutexattr_setrobust_np(GLIBC_2.4) [LSB]
pthread_rwlockattr_getkind_np(GLIBC_2.1) [LSB]	pthread_rwlockattr_setkind_np(GLIBC_2.1) [LSB]		

## 10.7.6 System Calls

### 10.7.6.1 Interfaces for System Calls

An LSB conforming implementation shall provide the architecture specific functions for System Calls specified in Table 10-48, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-48 libpthread - System Calls Function Interfaces**

close(GLIBC_2.0) [SUSv4]	fcntl(GLIBC_2.0) [LSB]	fork(GLIBC_2.0) [SUSv4]	fsync(GLIBC_2.0) [SUSv4]
lseek(GLIBC_2.0) [SUSv4]	msync(GLIBC_2.0) [SUSv4]	nanosleep(GLIBC_2.0) [SUSv4]	open(GLIBC_2.0) [SUSv4]
pause(GLIBC_2.0) [SUSv4]	read(GLIBC_2.0) [SUSv4]	vfork(GLIBC_2.0) [SUSv3]	wait(GLIBC_2.0) [SUSv4]
waitpid(GLIBC_2.0) [LSB]	write(GLIBC_2.0) [SUSv4]		

## 10.7.7 Standard I/O

### 10.7.7.1 Interfaces for Standard I/O

An LSB conforming implementation shall provide the architecture specific functions for Standard I/O specified in Table 10-49, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-49 libpthread - Standard I/O Function Interfaces**

flockfile(GLIBC_2.0) [SUSv4]			
------------------------------	--	--	--

## 10.7.8 Signal Handling

### 10.7.8.1 Interfaces for Signal Handling

An LSB conforming implementation shall provide the architecture specific functions for Signal Handling specified in Table 10-50, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-50 libpthread - Signal Handling Function Interfaces**

__libc_current_sigrtmax(GLIBC_2.1) [LSB]	__libc_current_sigrtmin(GLIBC_2.1) [LSB]	raise(GLIBC_2.0) [SUSv4]	sigaction(GLIBC_2.0) [SUSv4]
--	--	--------------------------	------------------------------

siglongjmp(GLIBC_2.0) [SUSv4]	sigwait(GLIBC_2.0) [SUSv4]		
-------------------------------	----------------------------	--	--

## 10.7.9 Standard Library

### 10.7.9.1 Interfaces for Standard Library

An LSB conforming implementation shall provide the architecture specific functions for Standard Library specified in Table 10-51, with the full mandatory functionality as described in the referenced underlying specification.

Table 10-51 libpthread - Standard Library Function Interfaces

__errno_location(GLIBC_2.0) [LSB]	ftrylockfile(GLIBC_2.0) [SUSv4]	funlockfile(GLIBC_2.0) [SUSv4]	longjmp(GLIBC_2.0) [SUSv4]
system(GLIBC_2.0) [LSB]			

## 10.7.10 Socket Interface

### 10.7.10.1 Interfaces for Socket Interface

An LSB conforming implementation shall provide the architecture specific functions for Socket Interface specified in Table 10-52, with the full mandatory functionality as described in the referenced underlying specification.

Table 10-52 libpthread - Socket Interface Function Interfaces

__h_errno_location(GLIBC_2.0) [LSB]	accept(GLIBC_2.0) [SUSv4]	connect(GLIBC_2.0) [SUSv4]	recv(GLIBC_2.0) [SUSv4]
recvfrom(GLIBC_2.0) [SUSv4]	recvmsg(GLIBC_2.0) [SUSv4]	send(GLIBC_2.0) [SUSv4]	sendmsg(GLIBC_2.0) [SUSv4]
sendto(GLIBC_2.0) [SUSv4]			

## 10.7.11 Terminal Interface Functions

### 10.7.11.1 Interfaces for Terminal Interface Functions

An LSB conforming implementation shall provide the architecture specific functions for Terminal Interface Functions specified in Table 10-53, with the full mandatory functionality as described in the referenced underlying specification.

Table 10-53 libpthread - Terminal Interface Functions Function Interfaces

tcdrain(GLIBC_2.0) [SUSv4]			
----------------------------	--	--	--

## 10.8 Data Definitions for libpthread

This section defines global identifiers and their values that are associated with interfaces contained in libpthread. These definitions are organized into groups that correspond to system headers. This convention is used as a convenience for the reader, and does not imply the existence of these headers, or their content.

Where an interface is defined as requiring a particular system header file all of the data definitions for that system header file presented here shall be in effect.

This section gives data definitions to promote binary application portability, not to repeat source interface definitions available elsewhere. System providers and application developers should use this ABI to supplement - not to replace - source interface definition specifications.

This specification uses the ISO C (1999) C Language as the reference programming language, and data definitions are specified in ISO C format. The C language is used here as a convenient notation. Using a C language description of these data objects does not preclude their use by other programming languages.

### 10.8.1 lsb/pthread.h

```
/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */
```

### 10.8.2 pthread.h

```
#define __SIZEOF_PTHREAD_BARRIER_T 20
#define __SIZEOF_PTHREAD_MUTEX_T 24
#define __SIZEOF_PTHREAD_RWLOCK_T 32
#define __SIZEOF_PTHREAD_ATTR_T 36
#define PTHREAD_RWLOCK_INITIALIZER { { 0, 0, 0, 0, 0, 0, 0, 0, 0 } }
#define PTHREAD_MUTEX_INITIALIZER { { 0, 0, 0, 0, 0, 0, { 0 } } }

typedef union {
    char __size[__SIZEOF_PTHREAD_BARRIER_T];
    long int __align;
} pthread_barrier_t;

struct __pthread_mutex_s {
    int __lock;
    unsigned int __count;
    int __owner;
    int __kind;
    unsigned int __nusers;
    __extension__ union {
        int __spins;
        pthread_slist_t __list;
    };
};

typedef struct __pthread_internal_slist __pthread_slist_t;

typedef union {
    struct {
        int __lock;
        unsigned int __nr_readers;
        unsigned int __readers_wakeup;
        unsigned int __writer_wakeup;
        unsigned int __nr_readers_queued;
        unsigned int __nr_writers_queued;
        unsigned int __flags;
        int __writer;
    } __data;
    char __size[__SIZEOF_PTHREAD_RWLOCK_T];
    long int __align;
} pthread_rwlock_t;
```

### 10.8.3 semaphore.h

```
#define __SIZEOF_SEM_T 16
```

## 10.9 Interfaces for libgcc\_s

Table 10-54 defines the library name and shared object name for the libgcc\_s library

**Table 10-54 libgcc\_s Definition**

Library:	libgcc_s
SONAME:	libgcc_s.so.1

The behavior of the interfaces in this library is specified by the following specifications:

[LSB] LSB Core - Generic

### 10.9.1 Unwind Library

#### 10.9.1.1 Interfaces for Unwind Library

An LSB conforming implementation shall provide the architecture specific functions for Unwind Library specified in Table 10-55, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-55 libgcc\_s - Unwind Library Function Interfaces**

_Unwind_Backtrace(GCC_3.3) [LSB]	_Unwind_DeleteException(GCC_3.0) [LSB]	_Unwind_FindEnclosingFunction(GCC_3.3) [LSB]	_Unwind_FindFrame(GCC_3.0) [LSB]
_Unwind_ForcedUnwind(GCC_3.0) [LSB]	_Unwind_GetCFA(GCC_3.3) [LSB]	_Unwind_GetDataRelBase(GCC_3.0) [LSB]	_Unwind_GetGR(GCC_3.0) [LSB]
_Unwind_GetIP(GCC_3.0) [LSB]	_Unwind_GetLanguageSpecificData(GCC_3.0) [LSB]	_Unwind_GetRegionStart(GCC_3.0) [LSB]	_Unwind_GetTextRelBase(GCC_3.0) [LSB]
_Unwind_RaiseException(GCC_3.0) [LSB]	_Unwind_Resume(GCC_3.0) [LSB]	_Unwind_Resume_or_Rethrow(GCC_3.3) [LSB]	_Unwind_SetGR(GCC_3.0) [LSB]
_Unwind_SetIP(GCC_3.0) [LSB]			

## 10.10 Data Definitions for libgcc\_s

This section defines global identifiers and their values that are associated with interfaces contained in libgcc\_s. These definitions are organized into groups that correspond to system headers. This convention is used as a convenience for the reader, and does not imply the existence of these headers, or their content. Where an interface is defined as requiring a particular system header file all of the data definitions for that system header file presented here shall be in effect.

This section gives data definitions to promote binary application portability, not to repeat source interface definitions available elsewhere. System providers and application developers should use this ABI to supplement - not to replace - source interface definition specifications.

This specification uses the ISO C (1999) C Language as the reference programming language, and data definitions are specified in ISO C format. The C language is used here as a convenient notation. Using a C language description of these data objects does not preclude their use by other programming languages.

### 10.10.1 unwind.h

```
extern _Unwind_Ptr _Unwind_GetDataRelBase(struct _Unwind_Context
*);
extern _Unwind_Ptr _Unwind_GetTextRelBase(struct _Unwind_Context
*);
```

## 10.11 Interface Definitions for libgcc\_s

The interfaces defined on the following pages are included in `libgcc_s` and are defined by this specification. Unless otherwise noted, these interfaces shall be included in the source standard.

Other interfaces listed in Section 10.9 shall behave as described in the referenced base document. For interfaces referencing LSB and not listed below, please see the generic part of the specification.

### **\_Unwind\_Find\_FDE**

#### **Name**

`_Unwind_Find_FDE` — private C++ error handling method

#### **Synopsis**

```
fde * _Unwind_Find_FDE(void * pc, struct dwarf_eh_bases * bases);
```

#### **Description**

`_Unwind_Find_FDE()` looks for the object containing `pc`, then inserts into `bases`.

### **\_Unwind\_GetDataRelBase**

#### **Name**

`_Unwind_GetDataRelBase` — private IA64 C++ error handling method

#### **Synopsis**

```
_Unwind_Ptr _Unwind_GetDataRelBase(struct _Unwind_Context * context);
```

#### **Description**

`_Unwind_GetDataRelBase()` returns the global pointer in register one for `context`.

## **\_Unwind\_GetTextRelBase**

### **Name**

`_Unwind_GetTextRelBase` — private IA64 C++ error handling method

### **Synopsis**

```
_Unwind_Ptr _Unwind_GetTextRelBase(struct _Unwind_Context * context);
```

### **Description**

`_Unwind_GetTextRelBase()` calls the abort method, then returns.

## **10.12 Interfaces for libdl**

Table 10-56 defines the library name and shared object name for the libdl library

**Table 10-56 libdl Definition**

Library:	libdl
SONAME:	libdl.so.2

The behavior of the interfaces in this library is specified by the following specifications:

[LSB] LSB Core - Generic

[SUSv4] POSIX 1003.1-2008 (ISO/IEC 9945-2:2009)

### **10.12.1 Dynamic Loader**

#### **10.12.1.1 Interfaces for Dynamic Loader**

An LSB conforming implementation shall provide the architecture specific functions for Dynamic Loader specified in Table 10-57, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-57 libdl - Dynamic Loader Function Interfaces**

<code>dldaddr(GLIBC_2.0)</code> [LSB]	<code>dldclose(GLIBC_2.0)</code> [SUSv4]	<code>dlderror(GLIBC_2.0)</code> [SUSv4]	<code>dldopen(GLIBC_2.1)</code> [LSB]
<code>dldsym(GLIBC_2.0)</code> [LSB]	<code>dldvsym(GLIBC_2.1)</code> [LSB]		

## **10.13 Data Definitions for libdl**

This section defines global identifiers and their values that are associated with interfaces contained in libdl. These definitions are organized into groups that correspond to system headers. This convention is used as a convenience for the reader, and does not imply the existence of these headers, or their content. Where an interface is defined as requiring a particular system header file all of the data definitions for that system header file presented here shall be in effect.

This section gives data definitions to promote binary application portability, not to repeat source interface definitions available elsewhere. System providers and application developers should use this ABI to supplement - not to replace - source interface definition specifications.

This specification uses the ISO C (1999) C Language as the reference programming language, and data definitions are specified in ISO C format. The C language is used here as a convenient notation. Using a C language description of these data objects does not preclude their use by other programming languages.

### 10.13.1 dlfcn.h

```
/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */
```

## 10.14 Interfaces for libcrypt

Table 10-58 defines the library name and shared object name for the libcrypt library

**Table 10-58 libcrypt Definition**

Library:	libcrypt
SONAME:	libcrypt.so.1

The behavior of the interfaces in this library is specified by the following specifications:

[LSB] LSB Core - Generic  
[SUSv4] POSIX 1003.1-2008 (ISO/IEC 9945-2009)

### 10.14.1 Encryption

#### 10.14.1.1 Interfaces for Encryption

An LSB conforming implementation shall provide the architecture specific functions for Encryption specified in Table 10-59, with the full mandatory functionality as described in the referenced underlying specification.

**Table 10-59 libcrypt - Encryption Function Interfaces**

crypt(GLIBC_2.0) [SUSv4]	crypt_r(GLIBC_2.0) [LSB]	encrypt(GLIBC_2.0) [SUSv4]	encrypt_r(GLIBC_2.0) [LSB]
setkey(GLIBC_2.0) [SUSv4]	setkey_r(GLIBC_2.0) [LSB]		

## 10.15 Data Definitions for libcrypt

This section defines global identifiers and their values that are associated with interfaces contained in libcrypt. These definitions are organized into groups that correspond to system headers. This convention is used as a convenience for the reader, and does not imply the existence of these headers, or their content. Where an interface is defined as requiring a particular system header file all of the data definitions for that system header file presented here shall be in effect.

This section gives data definitions to promote binary application portability, not to repeat source interface definitions available elsewhere. System providers and application developers should use this ABI to supplement - not to replace - source interface definition specifications.

This specification uses the ISO C (1999) C Language as the reference programming language, and data definitions are specified in ISO C format. The C language is used here as a convenient notation. Using a C language description of these data objects does not preclude their use by other programming languages.

### 10.15.1 crypt.h

```
/*  
 * This header is architecture neutral  
 * Please refer to the generic specification for details  
 */
```

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## IV Utility Libraries

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## 11 Libraries

An LSB-conforming implementation shall also support the following utility libraries which are built on top of the interfaces provided by the base libraries. These libraries implement common functionality, and hide additional system dependent information such as file formats and device names.

### 11.1 Interfaces for libz

Table 11-1 defines the library name and shared object name for the libz library

Table 11-1 libz Definition

Library:	libz
SONAME:	libz.so.1

#### 11.1.1 Compression Library

##### 11.1.1.1 Interfaces for Compression Library

No external functions are defined for libz - Compression Library in this part of the specification. See also the generic specification.

### 11.2 Data Definitions for libz

This section defines global identifiers and their values that are associated with interfaces contained in libz. These definitions are organized into groups that correspond to system headers. This convention is used as a convenience for the reader, and does not imply the existence of these headers, or their content. Where an interface is defined as requiring a particular system header file all of the data definitions for that system header file presented here shall be in effect.

This section gives data definitions to promote binary application portability, not to repeat source interface definitions available elsewhere. System providers and application developers should use this ABI to supplement - not to replace - source interface definition specifications.

This specification uses the ISO C (1999) C Language as the reference programming language, and data definitions are specified in ISO C format. The C language is used here as a convenient notation. Using a C language description of these data objects does not preclude their use by other programming languages.

#### 11.2.1 zconf.h

```
/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */
```

#### 11.2.2 zlib.h

```
/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */
```

## 11.3 Interfaces for libncurses

Table 11-2 defines the library name and shared object name for the libncurses library

**Table 11-2 libncurses Definition**

Library:	libncurses
SONAME:	libncurses.so.5

### 11.3.1 Curses

#### 11.3.1.1 Interfaces for Curses

No external functions are defined for libncurses - Curses in this part of the specification. See also the generic specification.

## 11.4 Data Definitions for libncurses

This section defines global identifiers and their values that are associated with interfaces contained in libncurses. These definitions are organized into groups that correspond to system headers. This convention is used as a convenience for the reader, and does not imply the existence of these headers, or their content. Where an interface is defined as requiring a particular system header file all of the data definitions for that system header file presented here shall be in effect.

This section gives data definitions to promote binary application portability, not to repeat source interface definitions available elsewhere. System providers and application developers should use this ABI to supplement - not to replace - source interface definition specifications.

This specification uses the ISO C (1999) C Language as the reference programming language, and data definitions are specified in ISO C format. The C language is used here as a convenient notation. Using a C language description of these data objects does not preclude their use by other programming languages.

### 11.4.1 curses.h

```
/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */
```

## 11.5 Interfaces for libncursesw

Table 11-3 defines the library name and shared object name for the libncursesw library

**Table 11-3 libncursesw Definition**

Library:	libncursesw
SONAME:	libncursesw.so.5

## 11.5.1 Curses Wide

### 11.5.1.1 Interfaces for Curses Wide

No external functions are defined for libncursesw - Curses Wide in this part of the specification. See also the generic specification.

## 11.6 Data Definitions for libncursesw

This section defines global identifiers and their values that are associated with interfaces contained in libncursesw. These definitions are organized into groups that correspond to system headers. This convention is used as a convenience for the reader, and does not imply the existence of these headers, or their content. Where an interface is defined as requiring a particular system header file all of the data definitions for that system header file presented here shall be in effect.

This section gives data definitions to promote binary application portability, not to repeat source interface definitions available elsewhere. System providers and application developers should use this ABI to supplement - not to replace - source interface definition specifications.

This specification uses the ISO C (1999) C Language as the reference programming language, and data definitions are specified in ISO C format. The C language is used here as a convenient notation. Using a C language description of these data objects does not preclude their use by other programming languages.

### 11.6.1 ncursesw/curses.h

```
/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */
```

### 11.6.2 ncursesw/ncurses\_dll.h

```
/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */
```

### 11.6.3 ncursesw/term.h

```
/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */
```

### 11.6.4 ncursesw/unctrl.h

```
/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */
```

## 11.7 Interfaces for libutil

Table 11-4 defines the library name and shared object name for the libutil library

**Table 11-4 libutil Definition**

Library:	libutil
SONAME:	libutil.so.1

The behavior of the interfaces in this library is specified by the following specifications:

[LSB] LSB Core - Generic

## 11.7.1 Utility Functions

### 11.7.1.1 Interfaces for Utility Functions

An LSB conforming implementation shall provide the architecture specific functions for Utility Functions specified in Table 11-5, with the full mandatory functionality as described in the referenced underlying specification.

**Table 11-5 libutil - Utility Functions Function Interfaces**

forkpty(GLIBC_2.0) [LSB]	login(GLIBC_2.0) [LSB]	login_tty(GLIBC_2.0) [LSB]	logout(GLIBC_2.0) [LSB]
logwtmp(GLIBC_2.0) [LSB]	openpty(GLIBC_2.0) [LSB]		

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## V Base Libraries

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## 12 Libraries

An LSB-conforming implementation shall support base libraries which provide interfaces for accessing the operating system, processor and other hardware in the system.

Only those interfaces that are unique to the PowerPC 32 platform are defined here. This section should be used in conjunction with the corresponding section in the Linux Standard Base Specification.

### 12.1 Interfaces for libstdcxx

Table 12-1 defines the library name and shared object name for the libstdcxx library

**Table 12-1 libstdcxx Definition**

Library:	libstdcxx
SONAME:	libstdc++.so.6

The behavior of the interfaces in this library is specified by the following specifications:

[CXXABI-1.86] Itanium™ C++ ABI  
 [ISOCXX] ISO/IEC 14882: 2003 C++ Language  
 [LSB] LSB Core - Generic

#### 12.1.1 C++ Runtime Support

##### 12.1.1.1 Interfaces for C++ Runtime Support

An LSB conforming implementation shall provide the architecture specific methods for C++ Runtime Support specified in Table 12-2, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-2 libstdcxx - C++ Runtime Support Function Interfaces**

operator new[](unsigned long)(GLIBCXX_3.4) [ISOCXX]
operator new[](unsigned long, nothrow_t const&)(GLIBCXX_3.4) [ISOCXX]
operator new(unsigned long)(GLIBCXX_3.4) [ISOCXX]
operator new(unsigned long, nothrow_t const&)(GLIBCXX_3.4) [ISOCXX]

#### 12.1.2 C++ type descriptors for built-in types

##### 12.1.2.1 Interfaces for C++ type descriptors for built-in types

No external methods are defined for libstdcxx - C++ type descriptors for built-in types in this part of the specification. See also the generic specification.

#### 12.1.3 C++ \_Rb\_tree

##### 12.1.3.1 Interfaces for C++ \_Rb\_tree

No external methods are defined for libstdcxx - C++ \_Rb\_tree in this part of the specification. See also the generic specification.

## 12.1.4 Class type\_info

### 12.1.4.1 Class data for type\_info

The virtual table for the `std::type_info` class is described in the generic part of this specification.

The Run Time Type Information for the `std::type_info` class is described by Table 12-3

Table 12-3 typeinfo for type\_info

Base Vtable	vtable for <code>__cxxabiv1::__class_type_info</code>
Name	typeinfo name for <code>type_info</code>

### 12.1.4.2 Interfaces for Class type\_info

No external methods are defined for `libstdc++` - Class `std::type_info` in this part of the specification. See also the generic specification.

## 12.1.5 Class \_\_cxxabiv1::\_\_enum\_type\_info

### 12.1.5.1 Class data for \_\_cxxabiv1::\_\_enum\_type\_info

The virtual table for the `__cxxabiv1::__enum_type_info` class is described in the generic part of this specification.

The Run Time Type Information for the `__cxxabiv1::__enum_type_info` class is described by Table 12-4

Table 12-4 typeinfo for `__cxxabiv1::__enum_type_info`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeinfo name for <code>__cxxabiv1::__enum_type_info</code>

### 12.1.5.2 Interfaces for Class \_\_cxxabiv1::\_\_enum\_type\_info

No external methods are defined for `libstdc++` - Class `__cxxabiv1::__enum_type_info` in this part of the specification. See also the generic specification.

## 12.1.6 Class \_\_cxxabiv1::\_\_array\_type\_info

### 12.1.6.1 Class data for \_\_cxxabiv1::\_\_array\_type\_info

The virtual table for the `__cxxabiv1::__array_type_info` class is described in the generic part of this specification.

The Run Time Type Information for the `__cxxabiv1::__array_type_info` class is described by Table 12-5

Table 12-5 typeinfo for `__cxxabiv1::__array_type_info`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
-------------	---

Name	typeid name for __cxxabiv1::__array_type_info
------	--

### 12.1.6.2 Interfaces for Class \_\_cxxabiv1::\_\_array\_type\_info

No external methods are defined for libstdc++ - Class \_\_cxxabiv1::\_\_array\_type\_info in this part of the specification. See also the generic specification.

### 12.1.7 Class \_\_cxxabiv1::\_\_class\_type\_info

#### 12.1.7.1 Class data for \_\_cxxabiv1::\_\_class\_type\_info

The virtual table for the \_\_cxxabiv1::\_\_class\_type\_info class is described by Table 12-6

Table 12-6 Primary vtable for \_\_cxxabiv1::\_\_class\_type\_info

Base Offset	0
Virtual Base Offset	0
RTTI	typeid for __cxxabiv1::__class_type_info
vfunc[0]:	__cxxabiv1::__class_type_info::~~__class_type_info()
vfunc[1]:	__cxxabiv1::__class_type_info::~~__class_type_info()
vfunc[2]:	type_info::__is_pointer_p() const
vfunc[3]:	type_info::__is_function_p() const
vfunc[4]:	__cxxabiv1::__class_type_info::__do_catch(type_info const*, void**, unsigned int) const
vfunc[5]:	__cxxabiv1::__class_type_info::__do_upcast(__cxxabiv1::__class_type_info const*, void**) const
vfunc[6]:	__cxxabiv1::__class_type_info::__do_upcast(__cxxabiv1::__class_type_info const*, void const*, __cxxabiv1::__class_type_info::__upcast_result&) const
vfunc[7]:	__cxxabiv1::__class_type_info::__do_dyncast(int, __cxxabiv1::__class_type_info::__sub_kind, __cxxabiv1::__class_type_info const*, void const*, __cxxabiv1::__class_type_info const*, void const*, __cxxabiv1::__class_type_info::__dyncast_result&) const

vfunc[8]:	<code>__cxxabiv1::__class_type_info::__do_find_public_src(int, void const*, __cxxabiv1::__class_type_info const*, void const*) const</code>
-----------	---

The Run Time Type Information for the `__cxxabiv1::__class_type_info` class is described by Table 12-7

**Table 12-7 typeinfo for `__cxxabiv1::__class_type_info`**

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeinfo name for <code>__cxxabiv1::__class_type_info</code>

### 12.1.7.2 Interfaces for Class `__cxxabiv1::__class_type_info`

An LSB conforming implementation shall provide the architecture specific methods for Class `__cxxabiv1::__class_type_info` specified in Table 12-8, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-8 libstdc++ - Class `__cxxabiv1::__class_type_info` Function Interfaces**

<code>__cxxabiv1::__class_type_info::__do_dyncast(int, __cxxabiv1::__class_type_info::__sub_kind, __cxxabiv1::__class_type_info const*, void const*, __cxxabiv1::__class_type_info const*, void const*, __cxxabiv1::__class_type_info::__dyncast_result&amp;) const(CXXABI_1.3)</code> [CXXABI-1.86]
<code>__cxxabiv1::__class_type_info::__do_find_public_src(int, void const*, __cxxabiv1::__class_type_info const*, void const*) const(CXXABI_1.3)</code> [CXXABI-1.86]

### 12.1.8 Class `__cxxabiv1::__pbase_type_info`

#### 12.1.8.1 Class data for `__cxxabiv1::__pbase_type_info`

The virtual table for the `__cxxabiv1::__pbase_type_info` class is described in the generic part of this specification.

The Run Time Type Information for the `__cxxabiv1::__pbase_type_info` class is described by Table 12-9

**Table 12-9 typeinfo for `__cxxabiv1::__pbase_type_info`**

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeinfo name for <code>__cxxabiv1::__pbase_type_info</code>

#### 12.1.8.2 Interfaces for Class `__cxxabiv1::__pbase_type_info`

No external methods are defined for `libstdc++ - Class __cxxabiv1::__pbase_type_info` in this part of the specification. See also the generic specification.

## 12.1.9 Class `__cxxabiv1::__pointer_type_info`

### 12.1.9.1 Class data for `__cxxabiv1::__pointer_type_info`

The virtual table for the `__cxxabiv1::__pointer_type_info` class is described in the generic part of this specification.

The Run Time Type Information for the `__cxxabiv1::__pointer_type_info` class is described by Table 12-10

Table 12-10 `typeinfo` for `__cxxabiv1::__pointer_type_info`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	<code>typeinfo</code> name for <code>__cxxabiv1::__pointer_type_info</code>

### 12.1.9.2 Interfaces for Class `__cxxabiv1::__pointer_type_info`

No external methods are defined for `libstdc++` - Class `__cxxabiv1::__pointer_type_info` in this part of the specification. See also the generic specification.

## 12.1.10 Class `__cxxabiv1::__function_type_info`

### 12.1.10.1 Class data for `__cxxabiv1::__function_type_info`

The virtual table for the `__cxxabiv1::__function_type_info` class is described in the generic part of this specification.

The Run Time Type Information for the `__cxxabiv1::__function_type_info` class is described by Table 12-11

Table 12-11 `typeinfo` for `__cxxabiv1::__function_type_info`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	<code>typeinfo</code> name for <code>__cxxabiv1::__function_type_info</code>

### 12.1.10.2 Interfaces for Class `__cxxabiv1::__function_type_info`

No external methods are defined for `libstdc++` - Class `__cxxabiv1::__function_type_info` in this part of the specification. See also the generic specification.

## 12.1.11 Class `__cxxabiv1::__si_class_type_info`

### 12.1.11.1 Class data for `__cxxabiv1::__si_class_type_info`

The virtual table for the `__cxxabiv1::__si_class_type_info` class is described by Table 12-12

Table 12-12 Primary vtable for `__cxxabiv1::__si_class_type_info`

Base Offset	0
-------------	---

Virtual Base Offset	0
RTTI	typeid for __cxxabiv1::__si_class_type_info
vfunc[0]:	__cxxabiv1::__si_class_type_info::~~ si_class_type_info()
vfunc[1]:	__cxxabiv1::__si_class_type_info::~~ si_class_type_info()
vfunc[2]:	type_info::__is_pointer_p() const
vfunc[3]:	type_info::__is_function_p() const
vfunc[4]:	__cxxabiv1::__class_type_info::__do_ catch(type_info const*, void**, unsigned int) const
vfunc[5]:	__cxxabiv1::__class_type_info::__do_ upcast(__cxxabiv1::__class_type_info const*, void**) const
vfunc[6]:	__cxxabiv1::__si_class_type_info::__d o_upcast(__cxxabiv1::__class_type_in fo const*, void const*, __cxxabiv1::__class_type_info::__upc ast_result&) const
vfunc[7]:	__cxxabiv1::__si_class_type_info::__d o_dyncast(int, __cxxabiv1::__class_type_info::__sub _kind, __cxxabiv1::__class_type_info const*, void const*, __cxxabiv1::__class_type_info const*, void const*, __cxxabiv1::__class_type_info::__dyn cast_result&) const
vfunc[8]:	__cxxabiv1::__si_class_type_info::__d o_find_public_src(int, void const*, __cxxabiv1::__class_type_info const*, void const*) const

The Run Time Type Information for the \_\_cxxabiv1::\_\_si\_class\_type\_info class is described by Table 12-13

**Table 12-13 typeid for \_\_cxxabiv1::\_\_si\_class\_type\_info**

Base Vtable	vtable for __cxxabiv1::__si_class_type_info
Name	typeid name for __cxxabiv1::__si_class_type_info

### 12.1.11.2 Interfaces for Class \_\_cxxabiv1::\_\_si\_class\_type\_info

An LSB conforming implementation shall provide the architecture specific methods for Class \_\_cxxabiv1::\_\_si\_class\_type\_info specified in Table 12-14, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-14 libstdc++ - Class \_\_cxxabiv1::\_\_si\_class\_type\_info Function Interfaces**

<pre>__cxxabiv1::__si_class_type_info::__do_dynccast(int, __cxxabiv1::__class_type_info::__sub_kind, __cxxabiv1::__class_type_info const*, void const*, __cxxabiv1::__class_type_info const*, void const*, __cxxabiv1::__class_type_info::__dynccast_result&amp;) const(CXXABI_1.3) [CXXABI-1.86]</pre>
<pre>__cxxabiv1::__si_class_type_info::__do_find_public_src(int, void const*, __cxxabiv1::__class_type_info const*, void const*) const(CXXABI_1.3) [CXXABI-1.86]</pre>

### 12.1.12 Class \_\_cxxabiv1::\_\_vmi\_class\_type\_info

#### 12.1.12.1 Class data for \_\_cxxabiv1::\_\_vmi\_class\_type\_info

The virtual table for the \_\_cxxabiv1::\_\_vmi\_class\_type\_info class is described by Table 12-15

**Table 12-15 Primary vtable for \_\_cxxabiv1::\_\_vmi\_class\_type\_info**

Base Offset	0
Virtual Base Offset	0
RTTI	typeinfo for __cxxabiv1::__vmi_class_type_info
vfunc[0]:	__cxxabiv1::__vmi_class_type_info::~~ __vmi_class_type_info()
vfunc[1]:	__cxxabiv1::__vmi_class_type_info::~~ __vmi_class_type_info()
vfunc[2]:	type_info::__is_pointer_p() const
vfunc[3]:	type_info::__is_function_p() const
vfunc[4]:	__cxxabiv1::__class_type_info::__do_ catch(type_info const*, void**, unsigned int) const
vfunc[5]:	__cxxabiv1::__class_type_info::__do_ upcast(__cxxabiv1::__class_type_info const*, void**) const
vfunc[6]:	__cxxabiv1::__vmi_class_type_info::__ do_upcast(__cxxabiv1::__class_type _info const*, void const*, __cxxabiv1::__class_type_info::__upc ast_result&) const

vfunc[7]:	<code>__cxxabiv1::__vmi_class_type_info::_do_dyncast(int, __cxxabiv1::__class_type_info::_sub_kind, __cxxabiv1::__class_type_info const*, void const*, __cxxabiv1::__class_type_info const*, void const*, __cxxabiv1::__class_type_info::_dyncast_result&amp;) const</code>
vfunc[8]:	<code>__cxxabiv1::__vmi_class_type_info::_do_find_public_src(int, void const*, __cxxabiv1::__class_type_info const* void const*) const</code>

The Run Time Type Information for the `__cxxabiv1::__vmi_class_type_info` class is described by Table 12-16

**Table 12-16** typeinfo for `__cxxabiv1::__vmi_class_type_info`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeinfo name for <code>__cxxabiv1::__vmi_class_type_info</code>

### 12.1.12.2 Interfaces for Class `__cxxabiv1::__vmi_class_type_info`

An LSB conforming implementation shall provide the architecture specific methods for Class `__cxxabiv1::__vmi_class_type_info` specified in Table 12-17, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-17** `libstdc++` - Class `__cxxabiv1::__vmi_class_type_info` Function Interfaces

<code>__cxxabiv1::__vmi_class_type_info::_do_dyncast(int, __cxxabiv1::__class_type_info::_sub_kind, __cxxabiv1::__class_type_info const*, void const*, __cxxabiv1::__class_type_info const*, void const*, __cxxabiv1::__class_type_info::_dyncast_result&amp;) const(CXXABI_1.3)</code> [CXXABI-1.86]
<code>__cxxabiv1::__vmi_class_type_info::_do_find_public_src(int, void const*, __cxxabiv1::__class_type_info const*, void const*) const(CXXABI_1.3)</code> [CXXABI-1.86]

### 12.1.13 Class `__cxxabiv1::__fundamental_type_info`

#### 12.1.13.1 Class data for `__cxxabiv1::__fundamental_type_info`

The virtual table for the `__cxxabiv1::__fundamental_type_info` class is described in the generic part of this specification.

The Run Time Type Information for the `__cxxabiv1::__fundamental_type_info` class is described by Table 12-18

Table 12-18 typeid for `__cxxabiv1::__fundamental_type_info`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeid name for <code>__cxxabiv1::__fundamental_type_info</code>

### 12.1.13.2 Interfaces for Class

#### `__cxxabiv1::__fundamental_type_info`

No external methods are defined for `libstdc++` - Class `__cxxabiv1::__fundamental_type_info` in this part of the specification. See also the generic specification.

### 12.1.14 Class

#### `__cxxabiv1::__pointer_to_member_type_info`

##### 12.1.14.1 Class data for

#### `__cxxabiv1::__pointer_to_member_type_info`

The virtual table for the `__cxxabiv1::__pointer_to_member_type_info` class is described in the generic part of this specification.

The Run Time Type Information for the `__cxxabiv1::__pointer_to_member_type_info` class is described by Table 12-19

Table 12-19 typeid for `__cxxabiv1::__pointer_to_member_type_info`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeid name for <code>__cxxabiv1::__pointer_to_member_type_info</code>

### 12.1.14.2 Interfaces for Class

#### `__cxxabiv1::__pointer_to_member_type_info`

No external methods are defined for `libstdc++` - Class `__cxxabiv1::__pointer_to_member_type_info` in this part of the specification. See also the generic specification.

### 12.1.15 Class `__gnu_cxx::stdio_filebuf<char, char_traits<char> >`

#### 12.1.15.1 Interfaces for Class `__gnu_cxx::stdio_filebuf<char, char_traits<char> >`

No external methods are defined for `libstdc++` - Class `__gnu_cxx::stdio_filebuf<char, std::char_traits<char> >` in this part of the specification. See also the generic specification.

## 12.1.16 Class `__gnu_cxx::stdio_filebuf<wchar_t, char_traits<wchar_t>>`

### 12.1.16.1 Interfaces for Class

#### `__gnu_cxx::stdio_filebuf<wchar_t, char_traits<wchar_t>>`

No external methods are defined for `libstdcxx` - Class `__gnu_cxx::stdio_filebuf<wchar_t, std::char_traits<wchar_t>>` in this part of the specification. See also the generic specification.

## 12.1.17 Class `__gnu_cxx::__pool_alloc_base`

### 12.1.17.1 Interfaces for Class `__gnu_cxx::__pool_alloc_base`

An LSB conforming implementation shall provide the architecture specific methods for Class `__gnu_cxx::__pool_alloc_base` specified in Table 12-20, with the full mandatory functionality as described in the referenced underlying specification.

Table 12-20 `libstdcxx` - Class `__gnu_cxx::__pool_alloc_base` Function Interfaces

<code>__gnu_cxx::__pool_alloc_base::_M_get_free_list(unsigned long)(GLIBCXX_3.4.2) [LSB]</code>
<code>__gnu_cxx::__pool_alloc_base::_M_refill(unsigned long)(GLIBCXX_3.4.2) [LSB]</code>

## 12.1.18 Class `__gnu_cxx::stdio_sync_filebuf<char, char_traits<char>>`

### 12.1.18.1 Class data for `__gnu_cxx::stdio_sync_filebuf<char, char_traits<char>>`

The virtual table for the `__gnu_cxx::stdio_sync_filebuf<char, std::char_traits<char>>` class is described by Table 12-21

Table 12-21 Primary vtable for `__gnu_cxx::stdio_sync_filebuf<char, char_traits<char>>`

Base Offset	0
Virtual Base Offset	0
RTTI	<code>typeid for __gnu_cxx::stdio_sync_filebuf&lt;char, char_traits&lt;char&gt;&gt;</code>
<code>vfunc[0]:</code>	<code>__gnu_cxx::stdio_sync_filebuf&lt;char, char_traits&lt;char&gt;&gt;::~stdio_sync_filebuf()</code>
<code>vfunc[1]:</code>	<code>__gnu_cxx::stdio_sync_filebuf&lt;char, char_traits&lt;char&gt;&gt;::~stdio_sync_filebuf()</code>
<code>vfunc[2]:</code>	<code>basic_streambuf&lt;char, char_traits&lt;char&gt;&gt;::imbue(locale const&amp;)</code>

vfunc[3]:	basic_streambuf<char, char_traits<char> >::setbuf(char*, int)
vfunc[4]:	__gnu_cxx::stdio_sync_filebuf<char, char_traits<char> >::seekoff(long long, _Ios_Seekdir, _Ios_Openmode)
vfunc[5]:	__gnu_cxx::stdio_sync_filebuf<char, char_traits<char> >::seekpos(fpos<__mbstate_t>, _Ios_Openmode)
vfunc[6]:	__gnu_cxx::stdio_sync_filebuf<char, char_traits<char> >::sync()
vfunc[7]:	basic_streambuf<char, char_traits<char> >::showmanyc()
vfunc[8]:	__gnu_cxx::stdio_sync_filebuf<char, char_traits<char> >::xsgetn(char*, int)
vfunc[9]:	__gnu_cxx::stdio_sync_filebuf<char, char_traits<char> >::underflow()
vfunc[10]:	__gnu_cxx::stdio_sync_filebuf<char, char_traits<char> >::uflow()
vfunc[11]:	__gnu_cxx::stdio_sync_filebuf<char, char_traits<char> >::pbackfail(int)
vfunc[12]:	__gnu_cxx::stdio_sync_filebuf<char, char_traits<char> >::xsputn(char const*, int)
vfunc[13]:	__gnu_cxx::stdio_sync_filebuf<char, char_traits<char> >::overflow(int)

### 12.1.18.2 Interfaces for Class

#### **\_\_gnu\_cxx::stdio\_sync\_filebuf<char, char\_traits<char> >**

No external methods are defined for libstdc++ - Class `__gnu_cxx::stdio_sync_filebuf<char, std::char_traits<char> >` in this part of the specification. See also the generic specification.

### 12.1.19 Class **\_\_gnu\_cxx::stdio\_sync\_filebuf<wchar\_t, char\_traits<wchar\_t> >**

#### 12.1.19.1 Class data for

#### **\_\_gnu\_cxx::stdio\_sync\_filebuf<wchar\_t, char\_traits<wchar\_t> >**

The virtual table for the `__gnu_cxx::stdio_sync_filebuf<wchar_t, std::char_traits<wchar_t> >` class is described by Table 12-22

Table 12-22 Primary vtable for `__gnu_cxx::stdio_sync_filebuf<wchar_t, char_traits<wchar_t> >`

Base Offset	0
-------------	---

Virtual Base Offset	0
RTTI	typeid for __gnu_cxx::stdio_sync_filebuf<wcha r_t, char_traits<wchar_t> >
vfunc[0]:	__gnu_cxx::stdio_sync_filebuf<wcha r_t, char_traits<wchar_t> >::~stdio_sync_filebuf()
vfunc[1]:	__gnu_cxx::stdio_sync_filebuf<wcha r_t, char_traits<wchar_t> >::~stdio_sync_filebuf()
vfunc[2]:	basic_streambuf<wchar_t, char_traits<wchar_t> >::imbue(locale const&)
vfunc[3]:	basic_streambuf<wchar_t, char_traits<wchar_t> >::setbuf(wchar_t*, int)
vfunc[4]:	__gnu_cxx::stdio_sync_filebuf<wcha r_t, char_traits<wchar_t> >::seekoff(long long, _Ios_Seekdir, _Ios_Openmode)
vfunc[5]:	__gnu_cxx::stdio_sync_filebuf<wcha r_t, char_traits<wchar_t> >::seekpos(fpos<__mbstate_t>, _Ios_Openmode)
vfunc[6]:	__gnu_cxx::stdio_sync_filebuf<wcha r_t, char_traits<wchar_t> >::sync()
vfunc[7]:	basic_streambuf<wchar_t, char_traits<wchar_t> >::showmanyc()
vfunc[8]:	__gnu_cxx::stdio_sync_filebuf<wcha r_t, char_traits<wchar_t> >::xsgetn(wchar_t*, int)
vfunc[9]:	__gnu_cxx::stdio_sync_filebuf<wcha r_t, char_traits<wchar_t> >::underflow()
vfunc[10]:	__gnu_cxx::stdio_sync_filebuf<wcha r_t, char_traits<wchar_t> >::uflow()
vfunc[11]:	__gnu_cxx::stdio_sync_filebuf<wcha r_t, char_traits<wchar_t> >::pbackfail(unsigned int)
vfunc[12]:	__gnu_cxx::stdio_sync_filebuf<wcha r_t, char_traits<wchar_t> >::xspn(wchar_t const*, int)

vfunc[13]:	__gnu_cxx::stdio_sync_filebuf<wchar_t, char_traits<wchar_t>>::overflow(unsigned int)
------------	--

### 12.1.19.2 Interfaces for Class

#### **\_\_gnu\_cxx::stdio\_sync\_filebuf<wchar\_t, char\_traits<wchar\_t>>**

No external methods are defined for libstdc++ - Class `__gnu_cxx::stdio_sync_filebuf<wchar_t, std::char_traits<wchar_t>>` in this part of the specification. See also the generic specification.

### 12.1.20 Class exception

#### 12.1.20.1 Class data for exception

The virtual table for the `std::exception` class is described in the generic part of this specification.

The Run Time Type Information for the `std::exception` class is described by Table 12-23

Table 12-23 typeinfo for exception

Base Vtable	vtable for <code>__cxxabiv1::__class_type_info</code>
Name	typeinfo name for exception

#### 12.1.20.2 Interfaces for Class exception

No external methods are defined for libstdc++ - Class `std::exception` in this part of the specification. See also the generic specification.

### 12.1.21 Class bad\_typeid

#### 12.1.21.1 Class data for bad\_typeid

The virtual table for the `std::bad_typeid` class is described in the generic part of this specification.

The Run Time Type Information for the `std::bad_typeid` class is described by Table 12-24

Table 12-24 typeinfo for bad\_typeid

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeinfo name for bad_typeid

#### 12.1.21.2 Interfaces for Class bad\_typeid

No external methods are defined for libstdc++ - Class `std::bad_typeid` in this part of the specification. See also the generic specification.

## 12.1.22 Class `logic_error`

### 12.1.22.1 Class data for `logic_error`

The virtual table for the `std::logic_error` class is described in the generic part of this specification.

The Run Time Type Information for the `std::logic_error` class is described by Table 12-25

**Table 12-25** typeinfo for `logic_error`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeinfo name for <code>logic_error</code>

### 12.1.22.2 Interfaces for Class `logic_error`

No external methods are defined for `libstdc++` - Class `std::logic_error` in this part of the specification. See also the generic specification.

## 12.1.23 Class `range_error`

### 12.1.23.1 Class data for `range_error`

The virtual table for the `std::range_error` class is described in the generic part of this specification.

The Run Time Type Information for the `std::range_error` class is described by Table 12-26

**Table 12-26** typeinfo for `range_error`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeinfo name for <code>range_error</code>

### 12.1.23.2 Interfaces for Class `range_error`

No external methods are defined for `libstdc++` - Class `std::range_error` in this part of the specification. See also the generic specification.

## 12.1.24 Class `domain_error`

### 12.1.24.1 Class data for `domain_error`

The virtual table for the `std::domain_error` class is described in the generic part of this specification.

The Run Time Type Information for the `std::domain_error` class is described by Table 12-27

**Table 12-27** typeinfo for `domain_error`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeinfo name for <code>domain_error</code>

**12.1.24.2 Interfaces for Class domain\_error**

No external methods are defined for libstdc++ - Class std::domain\_error in this part of the specification. See also the generic specification.

**12.1.25 Class length\_error****12.1.25.1 Class data for length\_error**

The virtual table for the std::length\_error class is described in the generic part of this specification.

The Run Time Type Information for the std::length\_error class is described by Table 12-28

**Table 12-28 typeinfo for length\_error**

Base Vtable	vtable for __cxxabiv1::__si_class_type_info
Name	typeinfo name for length_error

**12.1.25.2 Interfaces for Class length\_error**

No external methods are defined for libstdc++ - Class std::length\_error in this part of the specification. See also the generic specification.

**12.1.26 Class out\_of\_range****12.1.26.1 Class data for out\_of\_range**

The virtual table for the std::out\_of\_range class is described in the generic part of this specification.

The Run Time Type Information for the std::out\_of\_range class is described by Table 12-29

**Table 12-29 typeinfo for out\_of\_range**

Base Vtable	vtable for __cxxabiv1::__si_class_type_info
Name	typeinfo name for out_of_range

**12.1.26.2 Interfaces for Class out\_of\_range**

No external methods are defined for libstdc++ - Class std::out\_of\_range in this part of the specification. See also the generic specification.

**12.1.27 Class bad\_exception****12.1.27.1 Class data for bad\_exception**

The virtual table for the std::bad\_exception class is described in the generic part of this specification.

The Run Time Type Information for the std::bad\_exception class is described by Table 12-30

Table 12-30 typeinfo for bad\_exception

Base Vtable	vtable for __cxxabiv1::__si_class_type_info
Name	typeinfo name for bad_exception

### 12.1.27.2 Interfaces for Class bad\_exception

No external methods are defined for libstdc++ - Class std::bad\_exception in this part of the specification. See also the generic specification.

### 12.1.28 Class runtime\_error

#### 12.1.28.1 Class data for runtime\_error

The virtual table for the std::runtime\_error class is described in the generic part of this specification.

The Run Time Type Information for the std::runtime\_error class is described by Table 12-31

Table 12-31 typeinfo for runtime\_error

Base Vtable	vtable for __cxxabiv1::__si_class_type_info
Name	typeinfo name for runtime_error

#### 12.1.28.2 Interfaces for Class runtime\_error

No external methods are defined for libstdc++ - Class std::runtime\_error in this part of the specification. See also the generic specification.

### 12.1.29 Class overflow\_error

#### 12.1.29.1 Class data for overflow\_error

The virtual table for the std::overflow\_error class is described in the generic part of this specification.

The Run Time Type Information for the std::overflow\_error class is described by Table 12-32

Table 12-32 typeinfo for overflow\_error

Base Vtable	vtable for __cxxabiv1::__si_class_type_info
Name	typeinfo name for overflow_error

#### 12.1.29.2 Interfaces for Class overflow\_error

No external methods are defined for libstdc++ - Class std::overflow\_error in this part of the specification. See also the generic specification.

## 12.1.30 Class `underflow_error`

### 12.1.30.1 Class data for `underflow_error`

The virtual table for the `std::underflow_error` class is described in the generic part of this specification.

The Run Time Type Information for the `std::underflow_error` class is described by Table 12-33

Table 12-33 typeinfo for `underflow_error`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeinfo name for <code>underflow_error</code>

### 12.1.30.2 Interfaces for Class `underflow_error`

No external methods are defined for `libstdc++` - Class `std::underflow_error` in this part of the specification. See also the generic specification.

## 12.1.31 Class `invalid_argument`

### 12.1.31.1 Class data for `invalid_argument`

The virtual table for the `std::invalid_argument` class is described in the generic part of this specification.

The Run Time Type Information for the `std::invalid_argument` class is described by Table 12-34

Table 12-34 typeinfo for `invalid_argument`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeinfo name for <code>invalid_argument</code>

### 12.1.31.2 Interfaces for Class `invalid_argument`

No external methods are defined for `libstdc++` - Class `std::invalid_argument` in this part of the specification. See also the generic specification.

## 12.1.32 Class `bad_cast`

### 12.1.32.1 Class data for `bad_cast`

The virtual table for the `std::bad_cast` class is described in the generic part of this specification.

The Run Time Type Information for the `std::bad_cast` class is described by Table 12-35

Table 12-35 typeinfo for `bad_cast`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeinfo name for <code>bad_cast</code>

**12.1.32.2 Interfaces for Class bad\_cast**

No external methods are defined for libstdc++ - Class std::bad\_cast in this part of the specification. See also the generic specification.

**12.1.33 Class bad\_alloc****12.1.33.1 Class data for bad\_alloc**

The virtual table for the std::bad\_alloc class is described in the generic part of this specification.

The Run Time Type Information for the std::bad\_alloc class is described by Table 12-36

Table 12-36 typeid for bad\_alloc

Base Vtable	vtable for __cxxabiv1::__si_class_type_info
Name	typeid name for bad_alloc

**12.1.33.2 Interfaces for Class bad\_alloc**

No external methods are defined for libstdc++ - Class std::bad\_alloc in this part of the specification. See also the generic specification.

**12.1.34 struct \_\_numeric\_limits\_base****12.1.34.1 Interfaces for struct \_\_numeric\_limits\_base**

No external methods are defined for libstdc++ - struct \_\_numeric\_limits\_base in this part of the specification. See also the generic specification.

**12.1.35 struct numeric\_limits<long double>****12.1.35.1 Interfaces for struct numeric\_limits<long double>**

No external methods are defined for libstdc++ - struct numeric\_limits<long double> in this part of the specification. See also the generic specification.

**12.1.36 struct numeric\_limits<long long>****12.1.36.1 Interfaces for struct numeric\_limits<long long>**

No external methods are defined for libstdc++ - struct numeric\_limits<long long> in this part of the specification. See also the generic specification.

**12.1.37 struct numeric\_limits<unsigned long long>****12.1.37.1 Interfaces for struct numeric\_limits<unsigned long long>**

No external methods are defined for libstdc++ - struct numeric\_limits<unsigned long long> in this part of the specification. See also the generic specification.

**12.1.38 struct numeric\_limits<float>****12.1.38.1 Interfaces for struct numeric\_limits<float>**

No external methods are defined for libstdcxx - struct numeric\_limits<float> in this part of the specification. See also the generic specification.

**12.1.39 struct numeric\_limits<double>****12.1.39.1 Interfaces for struct numeric\_limits<double>**

No external methods are defined for libstdcxx - struct numeric\_limits<double> in this part of the specification. See also the generic specification.

**12.1.40 struct numeric\_limits<short>****12.1.40.1 Interfaces for struct numeric\_limits<short>**

No external methods are defined for libstdcxx - struct numeric\_limits<short> in this part of the specification. See also the generic specification.

**12.1.41 struct numeric\_limits<unsigned short>****12.1.41.1 Interfaces for struct numeric\_limits<unsigned short>**

No external methods are defined for libstdcxx - struct numeric\_limits<unsigned short> in this part of the specification. See also the generic specification.

**12.1.42 struct numeric\_limits<int>****12.1.42.1 Interfaces for struct numeric\_limits<int>**

No external methods are defined for libstdcxx - struct numeric\_limits<int> in this part of the specification. See also the generic specification.

**12.1.43 struct numeric\_limits<unsigned int>****12.1.43.1 Interfaces for struct numeric\_limits<unsigned int>**

No external methods are defined for libstdcxx - struct numeric\_limits<unsigned int> in this part of the specification. See also the generic specification.

**12.1.44 struct numeric\_limits<long>****12.1.44.1 Interfaces for struct numeric\_limits<long>**

No external methods are defined for libstdcxx - struct numeric\_limits<long> in this part of the specification. See also the generic specification.

**12.1.45 struct numeric\_limits<unsigned long>****12.1.45.1 Interfaces for struct numeric\_limits<unsigned long>**

No external methods are defined for libstdcxx - struct numeric\_limits<unsigned long> in this part of the specification. See also the generic specification.

**12.1.46 struct numeric\_limits<wchar\_t>****12.1.46.1 Interfaces for struct numeric\_limits<wchar\_t>**

No external methods are defined for libstdcxx - struct numeric\_limits<wchar\_t> in this part of the specification. See also the generic specification.

**12.1.47 struct numeric\_limits<unsigned char>****12.1.47.1 Interfaces for struct numeric\_limits<unsigned char>**

No external methods are defined for libstdcxx - struct numeric\_limits<unsigned char> in this part of the specification. See also the generic specification.

**12.1.48 struct numeric\_limits<signed char>****12.1.48.1 Interfaces for struct numeric\_limits<signed char>**

No external methods are defined for libstdcxx - struct numeric\_limits<signed char> in this part of the specification. See also the generic specification.

**12.1.49 struct numeric\_limits<char>****12.1.49.1 Interfaces for struct numeric\_limits<char>**

No external methods are defined for libstdcxx - struct numeric\_limits<char> in this part of the specification. See also the generic specification.

**12.1.50 struct numeric\_limits<bool>****12.1.50.1 Interfaces for struct numeric\_limits<bool>**

No external methods are defined for libstdcxx - struct numeric\_limits<bool> in this part of the specification. See also the generic specification.

**12.1.51 struct numeric\_limits<\_\_float128>****12.1.51.1 Interfaces for struct numeric\_limits<\_\_float128>**

No external methods are defined for libstdcxx - struct numeric\_limits<\_\_float128> in this part of the specification. See also the generic specification.

An LSB conforming implementation shall provide the architecture specific data interfaces for struct numeric\_limits<\_\_float128> specified in Table 12-37, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-37 libstdcxx - struct numeric\_limits<\_\_float128> Data Interfaces**

numeric_limits<__float128>::has_denorm(GLIBCXX_LDBL_3.4) [ISOCXX]
numeric_limits<__float128>::is_bounded(GLIBCXX_LDBL_3.4) [ISOCXX]
numeric_limits<__float128>::is_integer(GLIBCXX_LDBL_3.4) [ISOCXX]
numeric_limits<__float128>::round_style(GLIBCXX_LDBL_3.4) [ISOCXX]
numeric_limits<__float128>::has_infinity(GLIBCXX_LDBL_3.4) [ISOCXX]

numeric_limits<__float128>::max_exponent(GLIBCXX_LDBL_3.4) [ISOCXX]
numeric_limits<__float128>::min_exponent(GLIBCXX_LDBL_3.4) [ISOCXX]
numeric_limits<__float128>::has_quiet_NaN(GLIBCXX_LDBL_3.4) [ISOCXX]
numeric_limits<__float128>::is_specialized(GLIBCXX_LDBL_3.4) [ISOCXX]
numeric_limits<__float128>::max_exponent10(GLIBCXX_LDBL_3.4) [ISOCXX]
numeric_limits<__float128>::min_exponent10(GLIBCXX_LDBL_3.4) [ISOCXX]
numeric_limits<__float128>::has_denorm_loss(GLIBCXX_LDBL_3.4) [ISOCXX]
numeric_limits<__float128>::tinyness_before(GLIBCXX_LDBL_3.4) [ISOCXX]
numeric_limits<__float128>::has_signaling_NaN(GLIBCXX_LDBL_3.4) [ISOCXX]
numeric_limits<__float128>::radix(GLIBCXX_LDBL_3.4) [ISOCXX]
numeric_limits<__float128>::traps(GLIBCXX_LDBL_3.4) [ISOCXX]
numeric_limits<__float128>::digits(GLIBCXX_LDBL_3.4) [ISOCXX]
numeric_limits<__float128>::digits10(GLIBCXX_LDBL_3.4) [ISOCXX]
numeric_limits<__float128>::is_exact(GLIBCXX_LDBL_3.4) [ISOCXX]
numeric_limits<__float128>::is_iec559(GLIBCXX_LDBL_3.4) [ISOCXX]
numeric_limits<__float128>::is_modulo(GLIBCXX_LDBL_3.4) [ISOCXX]
numeric_limits<__float128>::is_signed(GLIBCXX_LDBL_3.4) [ISOCXX]
typeid for __float128 const*(CXXABI_LDBL_1.3) [CXXABI-1.86]
typeid for __float128*(CXXABI_LDBL_1.3) [CXXABI-1.86]
typeid for __float128(CXXABI_LDBL_1.3) [CXXABI-1.86]
typeid name for __float128 const*(CXXABI_LDBL_1.3) [CXXABI-1.86]
typeid name for __float128*(CXXABI_LDBL_1.3) [CXXABI-1.86]
typeid name for __float128(CXXABI_LDBL_1.3) [CXXABI-1.86]

## 12.1.52 Class ctype\_base

### 12.1.52.1 Class data for ctype\_base

The Run Time Type Information for the std::ctype\_base class is described by Table 12-38

**Table 12-38 typeid for ctype\_base**

Base Vtable	vtable for __cxxabiv1::__class_type_info
Name	typeid name for ctype_base

**12.1.52.2 Interfaces for Class ctype\_base**

No external methods are defined for libstdcxx - Class std::ctype\_base in this part of the specification. See also the generic specification.

**12.1.53 Class \_\_ctype\_abstract\_base<char>****12.1.53.1 Class data for \_\_ctype\_abstract\_base<char>**

The virtual table for the std::\_\_ctype\_abstract\_base<char> class is described in the generic part of this specification.

**12.1.53.2 Interfaces for Class \_\_ctype\_abstract\_base<char>**

No external methods are defined for libstdcxx - Class std::\_\_ctype\_abstract\_base<char> in this part of the specification. See also the generic specification.

**12.1.54 Class \_\_ctype\_abstract\_base<wchar\_t>****12.1.54.1 Class data for \_\_ctype\_abstract\_base<wchar\_t>**

The virtual table for the std::\_\_ctype\_abstract\_base<wchar\_t> class is described in the generic part of this specification.

**12.1.54.2 Interfaces for Class  
\_\_ctype\_abstract\_base<wchar\_t>**

No external methods are defined for libstdcxx - Class std::\_\_ctype\_abstract\_base<wchar\_t> in this part of the specification. See also the generic specification.

**12.1.55 Class ctype<char>****12.1.55.1 Class data for ctype<char>**

The virtual table for the std::ctype<char> class is described in the generic part of this specification.

**12.1.55.2 Interfaces for Class ctype<char>**

An LSB conforming implementation shall provide the architecture specific methods for Class std::ctype<char> specified in Table 12-39, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-39 libstdcxx - Class ctype<char> Function Interfaces**

ctype<char>::ctype(__locale_struct*, unsigned short const*, bool, unsigned long)(GLIBCXX_3.4) [ISOCXX]
ctype<char>::ctype(unsigned short const*, bool, unsigned long)(GLIBCXX_3.4) [ISOCXX]
ctype<char>::ctype(__locale_struct*, unsigned short const*, bool, unsigned long)(GLIBCXX_3.4) [ISOCXX]
ctype<char>::ctype(unsigned short const*, bool, unsigned long)(GLIBCXX_3.4) [ISOCXX]

## 12.1.56 Class `ctype<wchar_t>`

### 12.1.56.1 Class data for `ctype<wchar_t>`

The virtual table for the `std::ctype<wchar_t>` class is described in the generic part of this specification.

The Run Time Type Information for the `std::ctype<wchar_t>` class is described by Table 12-40

**Table 12-40** `typeinfo` for `ctype<wchar_t>`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	<code>typeinfo</code> name for <code>ctype&lt;wchar_t&gt;</code>

### 12.1.56.2 Interfaces for Class `ctype<wchar_t>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::ctype<wchar_t>` specified in Table 12-41, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-41** `libstdcxx` - Class `ctype<wchar_t>` Function Interfaces

<code>ctype&lt;wchar_t&gt;::ctype(__locale_struct*, unsigned long)(GLIBCXX_3.4)</code> [ISOCXX]
<code>ctype&lt;wchar_t&gt;::ctype(unsigned long)(GLIBCXX_3.4)</code> [ISOCXX]
<code>ctype&lt;wchar_t&gt;::ctype(__locale_struct*, unsigned long)(GLIBCXX_3.4)</code> [ISOCXX]
<code>ctype&lt;wchar_t&gt;::ctype(unsigned long)(GLIBCXX_3.4)</code> [ISOCXX]

## 12.1.57 Class `ctype_byname<char>`

### 12.1.57.1 Class data for `ctype_byname<char>`

The virtual table for the `std::ctype_byname<char>` class is described in the generic part of this specification.

The Run Time Type Information for the `std::ctype_byname<char>` class is described by Table 12-42

**Table 12-42** `typeinfo` for `ctype_byname<char>`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	<code>typeinfo</code> name for <code>ctype_byname&lt;char&gt;</code>

### 12.1.57.2 Interfaces for Class `ctype_byname<char>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::ctype_byname<char>` specified in Table 12-43, with the full mandatory functionality as described in the referenced underlying specification.

Table 12-43 libstdcxx - Class ctype\_byname&lt;char&gt; Function Interfaces

ctype_byname<char>::ctype_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]
ctype_byname<char>::ctype_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]

## 12.1.58 Class ctype\_byname<wchar\_t>

### 12.1.58.1 Class data for ctype\_byname<wchar\_t>

The virtual table for the std::ctype\_byname<wchar\_t> class is described in the generic part of this specification.

The Run Time Type Information for the std::ctype\_byname<wchar\_t> class is described by Table 12-44

Table 12-44 typeid for ctype\_byname&lt;wchar\_t&gt;

Base Vtable	vtable for __cxxabiv1::__si_class_type_info
Name	typeid name for ctype_byname<wchar_t>

### 12.1.58.2 Interfaces for Class ctype\_byname<wchar\_t>

An LSB conforming implementation shall provide the architecture specific methods for Class std::ctype\_byname<wchar\_t> specified in Table 12-45, with the full mandatory functionality as described in the referenced underlying specification.

Table 12-45 libstdcxx - Class ctype\_byname&lt;wchar\_t&gt; Function Interfaces

ctype_byname<wchar_t>::ctype_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]
ctype_byname<wchar_t>::ctype_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]

## 12.1.59 Class basic\_string<char, char\_traits<char>, allocator<char> >

### 12.1.59.1 Interfaces for Class basic\_string<char, char\_traits<char>, allocator<char> >

An LSB conforming implementation shall provide the architecture specific methods for Class std::basic\_string<char, std::char\_traits<char>, std::allocator<char> > specified in Table 12-46, with the full mandatory functionality as described in the referenced underlying specification.

Table 12-46 libstdcxx - Class basic\_string&lt;char, char\_traits&lt;char&gt;, allocator&lt;char&gt; &gt; Function Interfaces

basic_string<char, char_traits<char>, allocator<char> >::find_last_of(char const*, unsigned long) const(GLIBCXX_3.4) [ISOCXX]
---

<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::find_last_of(char const*, unsigned long, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::find_last_of(basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt; const&amp;, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::find_last_of(char, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::find_first_of(char const*, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::find_first_of(char const*, unsigned long, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::find_first_of(basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt; const&amp;, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::find_first_of(char, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::_M_check_length(unsigned long, unsigned long, char const*) const</code> (GLIBCXX_3.4.5) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::find_last_not_of(char const*, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::find_last_not_of(char const*, unsigned long, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::find_last_not_of(basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt; const&amp;, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::find_last_not_of(char, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::find_first_not_of(char const*, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::find_first_not_of(char const*, unsigned long, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::find_first_not_of(basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt; const&amp;, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::find_first_not_of(char, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::at(unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::copy(char*, unsigned long, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]

<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::find(char const*, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::find(char const*, unsigned long, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::find(basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt; const&amp;, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::find(char, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::rfind(char const*, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::rfind(char const*, unsigned long, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::rfind(basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt; const&amp;, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::rfind(char, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::substr(unsigned long, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::compare(unsigned long, unsigned long, char const*) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::compare(unsigned long, unsigned long, char const*, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::compare(unsigned long, unsigned long, basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt; const&amp;) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::compare(unsigned long, unsigned long, basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt; const&amp;, unsigned long, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::_M_check(unsigned long, char const*) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::_M_limit(unsigned long, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::operator[](unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::_S_construct(unsigned long, char, allocator&lt;char&gt; const&amp;)</code> (GLIBCXX_3.4) [ISOCXX]
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::_M_replace_aux(unsigned long, unsigned long, unsigned long, char)</code> (GLIBCXX_3.4) [ISOCXX]

<pre>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::_M_replace_safe(unsigned long, unsigned long, char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::at(unsigned long)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::_Rep::_M_set_length_and_sharable(unsigned long)(GLIBCXX_3.4.5) [ISOCXX]</pre>
<pre>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::_Rep::_M_clone(allocator&lt;char&gt; const&amp;, unsigned long)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::_Rep::_S_create(unsigned long, unsigned long, allocator&lt;char&gt; const&amp;)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::erase(unsigned long, unsigned long)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::append(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::append(basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt; const&amp;, unsigned long, unsigned long)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::append(unsigned long, char)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::assign(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::assign(basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt; const&amp;, unsigned long, unsigned long)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::assign(unsigned long, char)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::insert(__gnu_cxx::__normal_iterator&lt;char*, basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt; &gt;, unsigned long, char)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::insert(unsigned long, char const*)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::insert(unsigned long, char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::insert(unsigned long, basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt; const&amp;)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::insert(unsigned long, basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt; const&amp;, unsigned long, unsigned long)(GLIBCXX_3.4) [ISOCXX]</pre>

<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::insert(unsigned long, unsigned long, char)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::resize(unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::resize(unsigned long, char)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::_M_copy(char*, char const*, unsigned long)(GLIBCXX_3.4.5) [ISOCXX]</code>
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::_M_move(char*, char const*, unsigned long)(GLIBCXX_3.4.5) [ISOCXX]</code>
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::replace(__gnu_cxx::__normal_iterator&lt;char*, basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt; &gt;, __gnu_cxx::__normal_iterator&lt;char*, basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt; &gt;, char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::replace(__gnu_cxx::__normal_iterator&lt;char*, basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt; &gt;, __gnu_cxx::__normal_iterator&lt;char*, basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt; &gt;, unsigned long, char)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::replace(unsigned long, unsigned long, char const*)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::replace(unsigned long, unsigned long, char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::replace(unsigned long, unsigned long, basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt; const&amp;)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::replace(unsigned long, unsigned long, basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt; const&amp;, unsigned long, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::replace(unsigned long, unsigned long, unsigned long, char)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::reserve(unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::_M_assign(char*, unsigned long, char)(GLIBCXX_3.4.5) [ISOCXX]</code>
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::_M_mutate(unsigned long, unsigned long, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::basic_string(char const*, unsigned long, allocator&lt;char&gt; const&amp;)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::basic_string(basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt; const&amp;, unsigned long, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>

<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt; &gt;::basic_string(basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt; &gt; const&amp;, unsigned long, unsigned long, allocator&lt;char&gt; const&amp;)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt; &gt;::basic_string(unsigned long, char, allocator&lt;char&gt; const&amp;)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt; &gt;::basic_string(char const*, unsigned long, allocator&lt;char&gt; const&amp;)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt; &gt;::basic_string(basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt; &gt; const&amp;, unsigned long, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt; &gt;::basic_string(basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt; &gt; const&amp;, unsigned long, unsigned long, allocator&lt;char&gt; const&amp;)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt; &gt;::basic_string(unsigned long, char, allocator&lt;char&gt; const&amp;)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt; &gt;::operator[](unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>

## 12.1.60 Class `basic_string<wchar_t, char_traits<wchar_t>, allocator<wchar_t>>`

### 12.1.60.1 Interfaces for Class `basic_string<wchar_t, char_traits<wchar_t>, allocator<wchar_t>>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::basic_string<wchar_t, std::char_traits<wchar_t>, std::allocator<wchar_t>>` specified in Table 12-47, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-47 libstdcxx - Class `basic_string<wchar_t, char_traits<wchar_t>, allocator<wchar_t>>` Function Interfaces**

<code>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt; &gt;::find_last_of(wchar_t const*, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt; &gt;::find_last_of(wchar_t const*, unsigned long, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt; &gt;::find_last_of(basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt; const&amp;, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt; &gt;::find_last_of(wchar_t, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</code>

<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::find_first_of(wchar_t const*, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::find_first_of(wchar_t const*, unsigned long, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::find_first_of(basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt; const&amp;, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::find_first_of(wchar_t, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::_M_check_length(unsigned long, unsigned long, char const*) const(GLIBCXX_3.4.5) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::find_last_not_of(wchar_t const*, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::find_last_not_of(wchar_t const*, unsigned long, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::find_last_not_of(basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt; const&amp;, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::find_last_not_of(wchar_t, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::find_first_not_of(wchar_t const*, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::find_first_not_of(wchar_t const*, unsigned long, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::find_first_not_of(basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt; const&amp;, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::find_first_not_of(wchar_t, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::at(unsigned long) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::copy(wchar_t*, unsigned long, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::find(wchar_t const*, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</pre>

<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::find(wchar_t const*, unsigned long, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::find(basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt; const&amp;, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::find(wchar_t, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::rfind(wchar_t const*, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::rfind(wchar_t const*, unsigned long, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::rfind(basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt; const&amp;, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::rfind(wchar_t, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::substr(unsigned long, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::compare(unsigned long, unsigned long, wchar_t const*) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::compare(unsigned long, unsigned long, wchar_t const*, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::compare(unsigned long, unsigned long, basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt; const&amp;) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::compare(unsigned long, unsigned long, basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt; const&amp;, unsigned long, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::_M_check(unsigned long, char const*) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::_M_limit(unsigned long, unsigned long) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::operator[](unsigned long) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::_S_construct(unsigned long, wchar_t, allocator&lt;wchar_t&gt; const&amp;)(GLIBCXX_3.4) [ISOCXX]</pre>

<p>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::M_replace_aux(unsigned long, unsigned long, unsigned long, wchar_t)(GLIBCXX_3.4) [ISOCXX]</p>
<p>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::M_replace_safe(unsigned long, unsigned long, wchar_t const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</p>
<p>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::at(unsigned long)(GLIBCXX_3.4) [ISOCXX]</p>
<p>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::Rep::M_set_length_and_sharable(unsigned long)(GLIBCXX_3.4.5) [ISOCXX]</p>
<p>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::Rep::M_clone(allocator&lt;wchar_t&gt; const&amp;, unsigned long)(GLIBCXX_3.4) [ISOCXX]</p>
<p>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::Rep::S_create(unsigned long, unsigned long, allocator&lt;wchar_t&gt; const&amp;)(GLIBCXX_3.4) [ISOCXX]</p>
<p>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::erase(unsigned long, unsigned long)(GLIBCXX_3.4) [ISOCXX]</p>
<p>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::append(wchar_t const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</p>
<p>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::append(basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt; const&amp;, unsigned long, unsigned long)(GLIBCXX_3.4) [ISOCXX]</p>
<p>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::append(unsigned long, wchar_t)(GLIBCXX_3.4) [ISOCXX]</p>
<p>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::assign(wchar_t const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</p>
<p>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::assign(basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt; const&amp;, unsigned long, unsigned long)(GLIBCXX_3.4) [ISOCXX]</p>
<p>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::assign(unsigned long, wchar_t)(GLIBCXX_3.4) [ISOCXX]</p>
<p>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::insert(__gnu_cxx::__normal_iterator&lt;wchar_t*, basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;&gt;, unsigned long, wchar_t)(GLIBCXX_3.4) [ISOCXX]</p>
<p>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::insert(unsigned long, wchar_t const*)(GLIBCXX_3.4) [ISOCXX]</p>
<p>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::insert(unsigned long, wchar_t const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</p>
<p>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::insert(unsigned long, basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt; const&amp;)(GLIBCXX_3.4) [ISOCXX]</p>

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<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::insert(unsigned long, basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt; const&amp;, unsigned long, unsigned long)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::insert(unsigned long, unsigned long, wchar_t)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::resize(unsigned long)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::resize(unsigned long, wchar_t)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::_M_copy(wchar_t*, wchar_t const*, unsigned long)(GLIBCXX_3.4.5) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::_M_move(wchar_t*, wchar_t const*, unsigned long)(GLIBCXX_3.4.5) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::replace(__gnu_cxx::__normal_iterator&lt;wchar_t*, basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt; &gt;, __gnu_cxx::__normal_iterator&lt;wchar_t*, basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt; &gt;, wchar_t const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::replace(__gnu_cxx::__normal_iterator&lt;wchar_t*, basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt; &gt;, __gnu_cxx::__normal_iterator&lt;wchar_t*, basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt; &gt;, unsigned long, wchar_t)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::replace(unsigned long, unsigned long, wchar_t const*)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::replace(unsigned long, unsigned long, wchar_t const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::replace(unsigned long, unsigned long, basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt; const&amp;)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::replace(unsigned long, unsigned long, basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt; const&amp;, unsigned long, unsigned long)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::replace(unsigned long, unsigned long, unsigned long, wchar_t)(GLIBCXX_3.4) [ISOCXX]</pre>

<code>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::reserve(unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::M_assign(wchar_t*, unsigned long, wchar_t)(GLIBCXX_3.4.5) [ISOCXX]</code>
<code>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::M_mutate(unsigned long, unsigned long, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::basic_string(wchar_t const*, unsigned long, allocator&lt;wchar_t&gt; const&amp;)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::basic_string(basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt; const&amp;, unsigned long, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::basic_string(basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt; const&amp;, unsigned long, unsigned long, allocator&lt;wchar_t&gt; const&amp;)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::basic_string(unsigned long, wchar_t, allocator&lt;wchar_t&gt; const&amp;)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::basic_string(wchar_t const*, unsigned long, allocator&lt;wchar_t&gt; const&amp;)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::basic_string(basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt; const&amp;, unsigned long, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::basic_string(basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt; const&amp;, unsigned long, unsigned long, allocator&lt;wchar_t&gt; const&amp;)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::basic_string(unsigned long, wchar_t, allocator&lt;wchar_t&gt; const&amp;)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::operator[](unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>

### 12.1.61 Class `basic_stringstream<char, char_traits<char>, allocator<char>>`

#### 12.1.61.1 Class data for `basic_stringstream<char, char_traits<char>, allocator<char>>`

The virtual table for the `std::basic_stringstream<char, std::char_traits<char>, std::allocator<char>>` class is described by Table 12-48

**Table 12-48 Primary vtable for `basic_stringstream<char, char_traits<char>, allocator<char>>`**

Base Offset	0
Virtual Base Offset	52
RTTI	<code>typeid for basic_stringstream&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt;</code>
<code>vfunc[0]:</code>	<code>basic_stringstream&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt;::~basic_stringstream()</code>
<code>vfunc[1]:</code>	<code>basic_stringstream&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt;::~basic_stringstream()</code>

**Table 12-49 Secondary vtable for `basic_stringstream<char, char_traits<char>, allocator<char>>`**

Base Offset	-8
Virtual Base Offset	44
RTTI	<code>typeid for basic_stringstream&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt;</code>
<code>vfunc[0]:</code>	non-virtual thunk to <code>basic_stringstream&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt;::~basic_stringstream()</code>
<code>vfunc[1]:</code>	non-virtual thunk to <code>basic_stringstream&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt;::~basic_stringstream()</code>

**Table 12-50 Secondary vtable for `basic_stringstream<char, char_traits<char>, allocator<char>>`**

Base Offset	-52
Virtual Base Offset	-52
RTTI	<code>typeid for basic_stringstream&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt;</code>
<code>vfunc[0]:</code>	virtual thunk to <code>basic_stringstream&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt;::~basic_stringstream()</code>
<code>vfunc[1]:</code>	virtual thunk to <code>basic_stringstream&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt;::~basic_stringstream()</code>

The VTT for the `std::basic_stringstream<char, std::char_traits<char>, std::allocator<char>>` class is described by Table 12-51

**Table 12-51 VTT for `basic_stringstream<char, char_traits<char>, allocator<char>>`**

VTT Name	<code>_ZTTSt18basic_stringstreamIcSt11char_traitsIcESaIcEE</code>
Number of Entries	10

**12.1.61.2 Interfaces for Class `basic_stringstream<char, char_traits<char>, allocator<char>>`**

An LSB conforming implementation shall provide the architecture specific methods for Class `std::basic_stringstream<char, std::char_traits<char>, std::allocator<char>>` specified in Table 12-52, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-52 `libstdcxx` - Class `basic_stringstream<char, char_traits<char>, allocator<char>>` Function Interfaces**

non-virtual thunk to <code>basic_stringstream&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt;::~basic_stringstream()</code> (GLIBCXX_3.4) [CXXABI-1.86]
non-virtual thunk to <code>basic_stringstream&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt;::~basic_stringstream()</code> (GLIBCXX_3.4) [CXXABI-1.86]
virtual thunk to <code>basic_stringstream&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt;::~basic_stringstream()</code> (GLIBCXX_3.4) [CXXABI-1.86]
virtual thunk to <code>basic_stringstream&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt;::~basic_stringstream()</code> (GLIBCXX_3.4) [CXXABI-1.86]

**12.1.62 Class `basic_stringstream<wchar_t, char_traits<wchar_t>, allocator<wchar_t>>`****12.1.62.1 Class data for `basic_stringstream<wchar_t, char_traits<wchar_t>, allocator<wchar_t>>`**

The virtual table for the `std::basic_stringstream<wchar_t, std::char_traits<wchar_t>, std::allocator<wchar_t>>` class is described by Table 12-53

**Table 12-53 Primary vtable for `basic_stringstream<wchar_t, char_traits<wchar_t>, allocator<wchar_t>>`**

Base Offset	0
Virtual Base Offset	52
RTTI	<code>typeid</code> for <code>basic_stringstream&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;</code>
<code>vfunc[0]</code> :	<code>basic_stringstream&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::~basic_stringstream()</code>

vfunc[1]:	basic_stringstream<wchar_t, char_traits<wchar_t>, allocator<wchar_t> >::~basic_stringstream()
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**Table 12-54 Secondary vtable for basic\_stringstream<wchar\_t, char\_traits<wchar\_t>, allocator<wchar\_t> >**

Base Offset	-8
Virtual Base Offset	44
RTTI	typeid for basic_stringstream<wchar_t, char_traits<wchar_t>, allocator<wchar_t> >
vfunc[0]:	non-virtual thunk to basic_stringstream<wchar_t, char_traits<wchar_t>, allocator<wchar_t> >::~basic_stringstream()
vfunc[1]:	non-virtual thunk to basic_stringstream<wchar_t, char_traits<wchar_t>, allocator<wchar_t> >::~basic_stringstream()

**Table 12-55 Secondary vtable for basic\_stringstream<wchar\_t, char\_traits<wchar\_t>, allocator<wchar\_t> >**

Base Offset	-52
Virtual Base Offset	-52
RTTI	typeid for basic_stringstream<wchar_t, char_traits<wchar_t>, allocator<wchar_t> >
vfunc[0]:	virtual thunk to basic_stringstream<wchar_t, char_traits<wchar_t>, allocator<wchar_t> >::~basic_stringstream()
vfunc[1]:	virtual thunk to basic_stringstream<wchar_t, char_traits<wchar_t>, allocator<wchar_t> >::~basic_stringstream()

The VTT for the std::basic\_stringstream<wchar\_t, std::char\_traits<wchar\_t>, std::allocator<wchar\_t> > class is described by Table 12-56

**Table 12-56 VTT for `basic_stringstream<wchar_t, char_traits<wchar_t>, allocator<wchar_t>>`**

VTT Name	<code>_ZTTSt18basic_stringstreamIwSt11char_traitsIwESaIwEE</code>
Number of Entries	10

### 12.1.62.2 Interfaces for Class `basic_stringstream<wchar_t, char_traits<wchar_t>, allocator<wchar_t>>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::basic_stringstream<wchar_t, std::char_traits<wchar_t>, std::allocator<wchar_t>>` specified in Table 12-57, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-57 `libstdcxx` - Class `basic_stringstream<wchar_t, char_traits<wchar_t>, allocator<wchar_t>>` Function Interfaces**

non-virtual thunk to <code>basic_stringstream&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::~basic_stringstream()</code> (GLIBCXX_3.4) [CXXABI-1.86]
non-virtual thunk to <code>basic_stringstream&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::~basic_stringstream()</code> (GLIBCXX_3.4) [CXXABI-1.86]
virtual thunk to <code>basic_stringstream&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::~basic_stringstream()</code> (GLIBCXX_3.4) [CXXABI-1.86]
virtual thunk to <code>basic_stringstream&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::~basic_stringstream()</code> (GLIBCXX_3.4) [CXXABI-1.86]

### 12.1.63 Class `basic_istringstream<char, char_traits<char>, allocator<char>>`

#### 12.1.63.1 Class data for `basic_istringstream<char, char_traits<char>, allocator<char>>`

The virtual table for the `std::basic_istringstream<char, std::char_traits<char>, std::allocator<char>>` class is described by Table 12-58

**Table 12-58 Primary vtable for `basic_istringstream<char, char_traits<char>, allocator<char>>`**

Base Offset	0
Virtual Base Offset	48
RTTI	<code>typeinfo for basic_istringstream&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt;</code>
<code>vfunc[0]:</code>	<code>basic_istringstream&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt;::~basic_istringstream()</code>
<code>vfunc[1]:</code>	<code>basic_istringstream&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt;::~basic_istringstream()</code>

**Table 12-59 Secondary vtable for basic\_istream<char, char\_traits<char>, allocator<char> >**

Base Offset	-48
Virtual Base Offset	-48
RTTI	typeinfo for basic_istream<char, char_traits<char>, allocator<char> >
vfunc[0]:	virtual thunk to basic_istream<char, char_traits<char>, allocator<char> >::~basic_istream()
vfunc[1]:	virtual thunk to basic_istream<char, char_traits<char>, allocator<char> >::~basic_istream()

The VTT for the `std::basic_istream<char, std::char_traits<char>, std::allocator<char> >` class is described by Table 12-60

**Table 12-60 VTT for basic\_istream<char, char\_traits<char>, allocator<char> >**

VTT Name	<code>_ZTISt19basic_istreamIcSt11char_traitsIcESaIcEE</code>
Number of Entries	4

### 12.1.63.2 Interfaces for Class `basic_istream<char, char_traits<char>, allocator<char> >`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::basic_istream<char, std::char_traits<char>, std::allocator<char> >` specified in Table 12-61, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-61 libstdc++ - Class `basic_istream<char, char_traits<char>, allocator<char> >` Function Interfaces**

virtual thunk to <code>basic_istream&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::~basic_istream()(GLIBCXX_3.4) [CXXABI-1.86]</code>
virtual thunk to <code>basic_istream&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::~basic_istream()(GLIBCXX_3.4) [CXXABI-1.86]</code>

### 12.1.64 Class `basic_istream<wchar_t, char_traits<wchar_t>, allocator<wchar_t> >`

#### 12.1.64.1 Class data for `basic_istream<wchar_t, char_traits<wchar_t>, allocator<wchar_t> >`

The virtual table for the `std::basic_istream<wchar_t, std::char_traits<wchar_t>, std::allocator<wchar_t> >` class is described by Table 12-62

**Table 12-62 Primary vtable for basic\_istream<wchar\_t, char\_traits<wchar\_t>, allocator<wchar\_t>>**

Base Offset	0
Virtual Base Offset	48
RTTI	typeid for basic_istream<wchar_t, char_traits<wchar_t>, allocator<wchar_t>>
vfunc[0]:	basic_istream<wchar_t, char_traits<wchar_t>, allocator<wchar_t>>::~~basic_istream()
vfunc[1]:	basic_istream<wchar_t, char_traits<wchar_t>, allocator<wchar_t>>::~~basic_istream()

**Table 12-63 Secondary vtable for basic\_istream<wchar\_t, char\_traits<wchar\_t>, allocator<wchar\_t>>**

Base Offset	-48
Virtual Base Offset	-48
RTTI	typeid for basic_istream<wchar_t, char_traits<wchar_t>, allocator<wchar_t>>
vfunc[0]:	virtual thunk to basic_istream<wchar_t, char_traits<wchar_t>, allocator<wchar_t>>::~~basic_istream()
vfunc[1]:	virtual thunk to basic_istream<wchar_t, char_traits<wchar_t>, allocator<wchar_t>>::~~basic_istream()

The VTT for the std::basic\_istream<wchar\_t, std::char\_traits<wchar\_t>, std::allocator<wchar\_t>> class is described by Table 12-64

**Table 12-64 VTT for basic\_istream<wchar\_t, char\_traits<wchar\_t>, allocator<wchar\_t>>**

VTT Name	_ZTTSt19basic_istreamIwSt11char_traitsIwESaIwEE
Number of Entries	4

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### 12.1.64.2 Interfaces for Class `basic_istream<wchar_t, char_traits<wchar_t>, allocator<wchar_t>>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::basic_istream<wchar_t, std::char_traits<wchar_t>, std::allocator<wchar_t>>` specified in Table 12-65, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-65** `libstdcxx` - Class `basic_istream<wchar_t, char_traits<wchar_t>, allocator<wchar_t>>` Function Interfaces

virtual thunk to <code>basic_istream&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::~basic_istream()(GLIBCXX_3.4)</code> [CXXABI-1.86]
virtual thunk to <code>basic_istream&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;::~basic_istream()(GLIBCXX_3.4)</code> [CXXABI-1.86]

### 12.1.65 Class `basic_ostringstream<char, char_traits<char>, allocator<char>>`

#### 12.1.65.1 Class data for `basic_ostringstream<char, char_traits<char>, allocator<char>>`

The virtual table for the `std::basic_ostringstream<char, std::char_traits<char>, std::allocator<char>>` class is described by Table 12-66

**Table 12-66** Primary vtable for `basic_ostringstream<char, char_traits<char>, allocator<char>>`

Base Offset	0
Virtual Base Offset	44
RTTI	typeid for <code>basic_ostringstream&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt;</code>
<code>vfunc[0]:</code>	<code>basic_ostringstream&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt;::~basic_ostringstream()</code>
<code>vfunc[1]:</code>	<code>basic_ostringstream&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt;::~basic_ostringstream()</code>

**Table 12-67** Secondary vtable for `basic_ostringstream<char, char_traits<char>, allocator<char>>`

Base Offset	-44
Virtual Base Offset	-44
RTTI	typeid for <code>basic_ostringstream&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt;</code>
<code>vfunc[0]:</code>	virtual thunk to <code>basic_ostringstream&lt;char,</code>

	char_traits<char>, allocator<char> >::~basic_ostringstream()
vfunc[1]:	virtual thunk to basic_ostringstream<char, char_traits<char>, allocator<char> >::~basic_ostringstream()

The VTT for the `std::basic_ostringstream<char, std::char_traits<char>, std::allocator<char> >` class is described by Table 12-68

**Table 12-68 VTT for `basic_ostringstream<char, char_traits<char>, allocator<char> >`**

VTT Name	<code>_ZTTSt19basic_ostringstreamIcSt11char_traitsIcESaIcEE</code>
Number of Entries	4

### 12.1.65.2 Interfaces for Class `basic_ostringstream<char, char_traits<char>, allocator<char> >`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::basic_ostringstream<char, std::char_traits<char>, std::allocator<char> >` specified in Table 12-69, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-69 `libstdc++` - Class `basic_ostringstream<char, char_traits<char>, allocator<char> >` Function Interfaces**

virtual thunk to <code>basic_ostringstream&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::~basic_ostringstream()(GLIBCXX_3.4) [CXXABI-1.86]</code>
virtual thunk to <code>basic_ostringstream&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::~basic_ostringstream()(GLIBCXX_3.4) [CXXABI-1.86]</code>

### 12.1.66 Class `basic_ostringstream<wchar_t, char_traits<wchar_t>, allocator<wchar_t> >`

#### 12.1.66.1 Class data for `basic_ostringstream<wchar_t, char_traits<wchar_t>, allocator<wchar_t> >`

The virtual table for the `std::basic_ostringstream<wchar_t, std::char_traits<wchar_t>, std::allocator<wchar_t> >` class is described by Table 12-70

**Table 12-70 Primary vtable for `basic_ostringstream<wchar_t, char_traits<wchar_t>, allocator<wchar_t> >`**

Base Offset	0
Virtual Base Offset	44
RTTI	typeinfo for <code>basic_ostringstream&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;</code>

vfunc[0]:	basic_ostringstream<wchar_t, char_traits<wchar_t>, allocator<wchar_t> >::~basic_ostringstream()
vfunc[1]:	basic_ostringstream<wchar_t, char_traits<wchar_t>, allocator<wchar_t> >::~basic_ostringstream()

**Table 12-71 Secondary vtable for basic\_ostringstream<wchar\_t, char\_traits<wchar\_t>, allocator<wchar\_t> >**

Base Offset	-44
Virtual Base Offset	-44
RTTI	typeinfo for basic_ostringstream<wchar_t, char_traits<wchar_t>, allocator<wchar_t> >
vfunc[0]:	virtual thunk to basic_ostringstream<wchar_t, char_traits<wchar_t>, allocator<wchar_t> >::~basic_ostringstream()
vfunc[1]:	virtual thunk to basic_ostringstream<wchar_t, char_traits<wchar_t>, allocator<wchar_t> >::~basic_ostringstream()

The VTT for the std::basic\_ostringstream<wchar\_t, std::char\_traits<wchar\_t>, std::allocator<wchar\_t> > class is described by Table 12-72

**Table 12-72 VTT for basic\_ostringstream<wchar\_t, char\_traits<wchar\_t>, allocator<wchar\_t> >**

VTT Name	_ZTTS19basic_ostringstreamIwSt11c har_traitsIwESaIwEE
Number of Entries	4

### 12.1.66.2 Interfaces for Class basic\_ostringstream<wchar\_t, char\_traits<wchar\_t>, allocator<wchar\_t> >

An LSB conforming implementation shall provide the architecture specific methods for Class std::basic\_ostringstream<wchar\_t, std::char\_traits<wchar\_t>, std::allocator<wchar\_t> > specified in Table 12-73, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-73 libstdc++ - Class basic\_ostringstream<wchar\_t, char\_traits<wchar\_t>, allocator<wchar\_t>> Function Interfaces**

virtual thunk to basic_ostringstream<wchar_t, char_traits<wchar_t>, allocator<wchar_t>>::~basic_ostringstream()(GLIBCXX_3.4) [CXXABI-1.86]
virtual thunk to basic_ostringstream<wchar_t, char_traits<wchar_t>, allocator<wchar_t>>::~basic_ostringstream()(GLIBCXX_3.4) [CXXABI-1.86]

## 12.1.67 Class basic\_stringbuf<char, char\_traits<char>, allocator<char>>

### 12.1.67.1 Class data for basic\_stringbuf<char, char\_traits<char>, allocator<char>>

The virtual table for the std::basic\_stringbuf<char, std::char\_traits<char>, std::allocator<char>> class is described by Table 12-74

**Table 12-74 Primary vtable for basic\_stringbuf<char, char\_traits<char>, allocator<char>>**

Base Offset	0
Virtual Base Offset	0
RTTI	typeid for basic_stringbuf<char, char_traits<char>, allocator<char>>
vfunc[0]:	basic_stringbuf<char, char_traits<char>, allocator<char>>::~basic_stringbuf()
vfunc[1]:	basic_stringbuf<char, char_traits<char>, allocator<char>>::~basic_stringbuf()
vfunc[2]:	basic_streambuf<char, char_traits<char>>::imbue(locale const&)
vfunc[3]:	basic_stringbuf<char, char_traits<char>, allocator<char>>::setbuf(char*, int)
vfunc[4]:	basic_stringbuf<char, char_traits<char>, allocator<char>>::seekoff(long long, _Ios_Seekdir, _Ios_Openmode)
vfunc[5]:	basic_stringbuf<char, char_traits<char>, allocator<char>>::seekpos(fpos<_mbstate_t>, _Ios_Openmode)
vfunc[6]:	basic_streambuf<char, char_traits<char>>::sync()
vfunc[7]:	basic_streambuf<char, char_traits<char>>::showmanyc()

vfunc[8]:	basic_streambuf<char, char_traits<char> >::xsgetn(char*, int)
vfunc[9]:	basic_stringbuf<char, char_traits<char>, allocator<char> >::underflow()
vfunc[10]:	basic_streambuf<char, char_traits<char> >::uflow()
vfunc[11]:	basic_stringbuf<char, char_traits<char>, allocator<char> >::pbackfail(int)
vfunc[12]:	basic_streambuf<char, char_traits<char> >::xsputn(char const*, int)
vfunc[13]:	basic_stringbuf<char, char_traits<char>, allocator<char> >::overflow(int)

The Run Time Type Information for the `std::basic_stringbuf<char, std::char_traits<char>, std::allocator<char> >` class is described by Table 12-75

**Table 12-75** typeid for `basic_stringbuf<char, char_traits<char>, allocator<char> >`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeid name for <code>basic_stringbuf&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;</code>

### 12.1.67.2 Interfaces for Class `basic_stringbuf<char, char_traits<char>, allocator<char> >`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::basic_stringbuf<char, std::char_traits<char>, std::allocator<char> >` specified in Table 12-76, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-76** `libstdcxx` - Class `basic_stringbuf<char, char_traits<char>, allocator<char> >` Function Interfaces

<code>basic_stringbuf&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::setbuf(char*, int)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_stringbuf&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::_M_sync(char*, unsigned long, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_stringbuf&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;::seekoff(long long, _Ios_Seekdir, _Ios_Openmode)(GLIBCXX_3.4) [ISOCXX]</code>

## 12.1.68 Class `basic_stringbuf<wchar_t, char_traits<wchar_t>, allocator<wchar_t> >`

### 12.1.68.1 Class data for `basic_stringbuf<wchar_t, char_traits<wchar_t>, allocator<wchar_t> >`

The virtual table for the `std::basic_stringbuf<wchar_t, std::char_traits<wchar_t>, std::allocator<wchar_t> >` class is described by Table 12-77

Table 12-77 Primary vtable for `basic_stringbuf<wchar_t, char_traits<wchar_t>, allocator<wchar_t> >`

Base Offset	0
Virtual Base Offset	0
RTTI	typeinfo for <code>basic_stringbuf&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;</code>
<code>vfunc[0]:</code>	<code>basic_stringbuf&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::~basic_stringbuf()</code>
<code>vfunc[1]:</code>	<code>basic_stringbuf&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::~basic_stringbuf()</code>
<code>vfunc[2]:</code>	<code>basic_streambuf&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt;::imbue(locale const&amp;)</code>
<code>vfunc[3]:</code>	<code>basic_stringbuf&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::setbuf(wchar_t*, int)</code>
<code>vfunc[4]:</code>	<code>basic_stringbuf&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::seekoff(long long, _Ios_Seekdir, _Ios_Openmode)</code>
<code>vfunc[5]:</code>	<code>basic_stringbuf&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::seekpos(fpos&lt;__mbstate_t&gt;, _Ios_Openmode)</code>
<code>vfunc[6]:</code>	<code>basic_streambuf&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt;::sync()</code>
<code>vfunc[7]:</code>	<code>basic_streambuf&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt;::showmanyc()</code>

vfunc[8]:	basic_streambuf<wchar_t, char_traits<wchar_t> >::xsgetn(wchar_t*, int)
vfunc[9]:	basic_stringbuf<wchar_t, char_traits<wchar_t>, allocator<wchar_t> >::underflow()
vfunc[10]:	basic_streambuf<wchar_t, char_traits<wchar_t> >::uflow()
vfunc[11]:	basic_stringbuf<wchar_t, char_traits<wchar_t>, allocator<wchar_t> >::pbackfail(unsigned int)
vfunc[12]:	basic_streambuf<wchar_t, char_traits<wchar_t> >::xsputn(wchar_t const*, int)
vfunc[13]:	basic_stringbuf<wchar_t, char_traits<wchar_t>, allocator<wchar_t> >::overflow(unsigned int)

The Run Time Type Information for the `std::basic_stringbuf<wchar_t, std::char_traits<wchar_t>, std::allocator<wchar_t> >` class is described by Table 12-78

**Table 12-78 typeid for basic\_stringbuf<wchar\_t, char\_traits<wchar\_t>, allocator<wchar\_t> >**

Base Vtable	vtable for __cxxabiv1::__si_class_type_info
Name	typeid name for basic_stringbuf<wchar_t, char_traits<wchar_t>, allocator<wchar_t> >

### 12.1.68.2 Interfaces for Class `basic_stringbuf<wchar_t, char_traits<wchar_t>, allocator<wchar_t> >`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::basic_stringbuf<wchar_t, std::char_traits<wchar_t>, std::allocator<wchar_t> >` specified in Table 12-79, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-79 libstdc++ - Class `basic_stringbuf<wchar_t, char_traits<wchar_t>, allocator<wchar_t> >` Function Interfaces**

<code>basic_stringbuf&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::setbuf(wchar_t*, int)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_stringbuf&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;::_M_sync(wchar_t*, unsigned long, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>

```
basic_stringbuf<wchar_t, char_traits<wchar_t>, allocator<wchar_t>
>::seekoff(long long, _Ios_Seekdir, _Ios_Openmode)(GLIBCXX_3.4)
[ISO CXX]
```

## 12.1.69 Class basic\_iostream<char, char\_traits<char> >

### 12.1.69.1 Class data for basic\_iostream<char, char\_traits<char> >

The virtual table for the `std::basic_iostream<char, std::char_traits<char> >` class is described by Table 12-80

Table 12-80 Primary vtable for `basic_iostream<char, char_traits<char> >`

Base Offset	0
Virtual Base Offset	12
RTTI	typeid for <code>basic_iostream&lt;char, char_traits&lt;char&gt; &gt;</code>
vfunc[0]:	<code>basic_iostream&lt;char, char_traits&lt;char&gt; &gt;::~~basic_iostream()</code>
vfunc[1]:	<code>basic_iostream&lt;char, char_traits&lt;char&gt; &gt;::~~basic_iostream()</code>

Table 12-81 Secondary vtable for `basic_iostream<char, char_traits<char> >`

Base Offset	-8
Virtual Base Offset	4
RTTI	typeid for <code>basic_iostream&lt;char, char_traits&lt;char&gt; &gt;</code>
vfunc[0]:	non-virtual thunk to <code>basic_iostream&lt;char, char_traits&lt;char&gt; &gt;::~~basic_iostream()</code>
vfunc[1]:	non-virtual thunk to <code>basic_iostream&lt;char, char_traits&lt;char&gt; &gt;::~~basic_iostream()</code>

Table 12-82 Secondary vtable for `basic_iostream<char, char_traits<char> >`

Base Offset	-12
Virtual Base Offset	-12
RTTI	typeid for <code>basic_iostream&lt;char, char_traits&lt;char&gt; &gt;</code>

vfunc[0]:	virtual thunk to basic_istream<char, char_traits<char>>::~~basic_istream()
vfunc[1]:	virtual thunk to basic_istream<char, char_traits<char>>::~~basic_istream()

The VTT for the `std::basic_istream<char, std::char_traits<char>>` class is described by Table 12-83

**Table 12-83 VTT for `basic_istream<char, char_traits<char>>`**

VTT Name	_ZTTSd
Number of Entries	7

### 12.1.69.2 Interfaces for Class `basic_istream<char, char_traits<char>>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::basic_istream<char, std::char_traits<char>>` specified in Table 12-84, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-84 `libstdc++` - Class `basic_istream<char, char_traits<char>>` Function Interfaces**

non-virtual thunk to <code>basic_istream&lt;char, char_traits&lt;char&gt;&gt;::~~basic_istream()</code> (GLIBCXX_3.4) [CXXABI-1.86]
non-virtual thunk to <code>basic_istream&lt;char, char_traits&lt;char&gt;&gt;::~~basic_istream()</code> (GLIBCXX_3.4) [CXXABI-1.86]
virtual thunk to <code>basic_istream&lt;char, char_traits&lt;char&gt;&gt;::~~basic_istream()</code> (GLIBCXX_3.4) [CXXABI-1.86]
virtual thunk to <code>basic_istream&lt;char, char_traits&lt;char&gt;&gt;::~~basic_istream()</code> (GLIBCXX_3.4) [CXXABI-1.86]

### 12.1.70 Class `basic_istream<wchar_t, char_traits<wchar_t>>`

#### 12.1.70.1 Class data for `basic_istream<wchar_t, char_traits<wchar_t>>`

The virtual table for the `std::basic_istream<wchar_t, std::char_traits<wchar_t>>` class is described by Table 12-85

**Table 12-85 Primary vtable for `basic_istream<wchar_t, char_traits<wchar_t>>`**

Base Offset	0
Virtual Base Offset	12
RTTI	typeinfo for <code>basic_istream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;</code>

vfunc[0]:	basic_istream<wchar_t, char_traits<wchar_t> >::~basic_istream()
vfunc[1]:	basic_istream<wchar_t, char_traits<wchar_t> >::~basic_istream()

**Table 12-86 Secondary vtable for basic\_istream<wchar\_t, char\_traits<wchar\_t> >**

Base Offset	-8
Virtual Base Offset	4
RTTI	typeid for basic_istream<wchar_t, char_traits<wchar_t> >
vfunc[0]:	non-virtual thunk to basic_istream<wchar_t, char_traits<wchar_t> >::~basic_istream()
vfunc[1]:	non-virtual thunk to basic_istream<wchar_t, char_traits<wchar_t> >::~basic_istream()

**Table 12-87 Secondary vtable for basic\_istream<wchar\_t, char\_traits<wchar\_t> >**

Base Offset	-12
Virtual Base Offset	-12
RTTI	typeid for basic_istream<wchar_t, char_traits<wchar_t> >
vfunc[0]:	virtual thunk to basic_istream<wchar_t, char_traits<wchar_t> >::~basic_istream()
vfunc[1]:	virtual thunk to basic_istream<wchar_t, char_traits<wchar_t> >::~basic_istream()

The VTT for the std::basic\_istream<wchar\_t, std::char\_traits<wchar\_t> > class is described by Table 12-88

**Table 12-88 VTT for basic\_istream<wchar\_t, char\_traits<wchar\_t> >**

VTT Name	_ZTTSt14basic_istreamlwSt11char_t raitslwEE
Number of Entries	7

### 12.1.70.2 Interfaces for Class `basic_iostream<wchar_t, char_traits<wchar_t> >`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::basic_iostream<wchar_t, std::char_traits<wchar_t> >` specified in Table 12-89, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-89 libstdcxx - Class `basic_iostream<wchar_t, char_traits<wchar_t> >` Function Interfaces**

non-virtual thunk to <code>basic_iostream&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt;::~basic_iostream()</code> (GLIBCXX_3.4) [CXXABI-1.86]
non-virtual thunk to <code>basic_iostream&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt;::~basic_iostream()</code> (GLIBCXX_3.4) [CXXABI-1.86]
virtual thunk to <code>basic_iostream&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt;::~basic_iostream()</code> (GLIBCXX_3.4) [CXXABI-1.86]
virtual thunk to <code>basic_iostream&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt;::~basic_iostream()</code> (GLIBCXX_3.4) [CXXABI-1.86]

### 12.1.71 Class `basic_istream<char, char_traits<char> >`

#### 12.1.71.1 Class data for `basic_istream<char, char_traits<char> >`

The virtual table for the `std::basic_istream<char, std::char_traits<char> >` class is described by Table 12-90

**Table 12-90 Primary vtable for `basic_istream<char, char_traits<char> >`**

Base Offset	0
Virtual Base Offset	8
RTTI	<code>typeinfo for basic_istream&lt;char, char_traits&lt;char&gt; &gt;</code>
<code>vfunc[0]:</code>	<code>basic_istream&lt;char, char_traits&lt;char&gt; &gt;::~basic_istream()</code>
<code>vfunc[1]:</code>	<code>basic_istream&lt;char, char_traits&lt;char&gt; &gt;::~basic_istream()</code>

**Table 12-91 Secondary vtable for `basic_istream<char, char_traits<char> >`**

Base Offset	-8
Virtual Base Offset	-8
RTTI	<code>typeinfo for basic_istream&lt;char, char_traits&lt;char&gt; &gt;</code>
<code>vfunc[0]:</code>	virtual thunk to <code>basic_istream&lt;char, char_traits&lt;char&gt; &gt;::~basic_istream()</code>
<code>vfunc[1]:</code>	virtual thunk to <code>basic_istream&lt;char, char_traits&lt;char&gt; &gt;::~basic_istream()</code>

The VTT for the `std::basic_istream<char, std::char_traits<char> >` class is described by Table 12-92

**Table 12-92 VTT for `basic_istream<char, char_traits<char> >`**

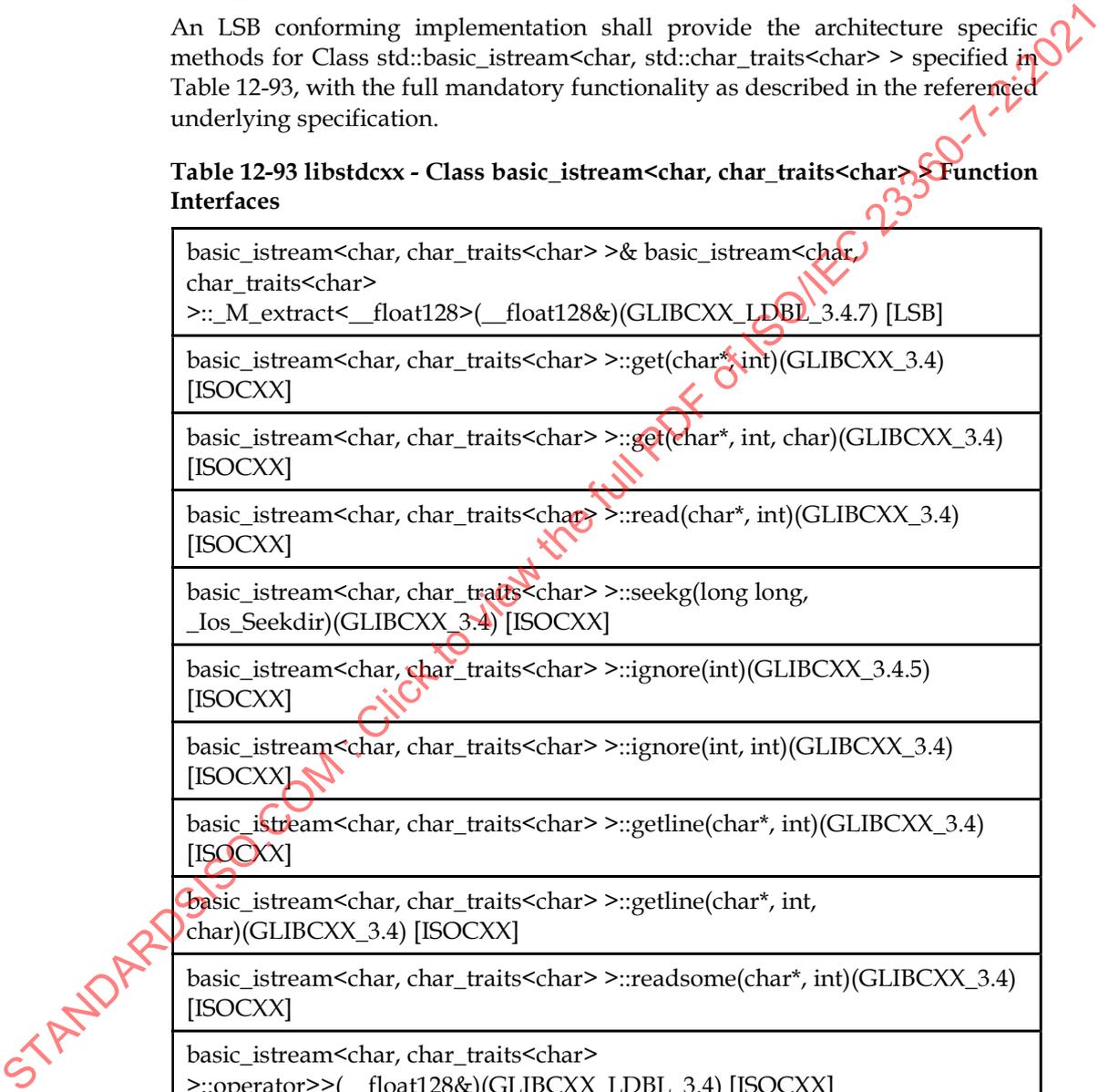
VTT Name	<code>_ZTTSi</code>
Number of Entries	2

**12.1.71.2 Interfaces for Class `basic_istream<char, char_traits<char> >`**

An LSB conforming implementation shall provide the architecture specific methods for Class `std::basic_istream<char, std::char_traits<char> >` specified in Table 12-93, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-93 `libstdcxx` - Class `basic_istream<char, char_traits<char> >` Function Interfaces**

<code>basic_istream&lt;char, char_traits&lt;char&gt; &gt;&amp; basic_istream&lt;char, char_traits&lt;char&gt; &gt;</code> <code>&gt;::_M_extract&lt;__float128&gt;(__float128&amp;)(GLIBCXX_LDBL_3.4.7) [LSB]</code>
<code>basic_istream&lt;char, char_traits&lt;char&gt; &gt;::get(char*, int)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_istream&lt;char, char_traits&lt;char&gt; &gt;::get(char*, int, char)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_istream&lt;char, char_traits&lt;char&gt; &gt;::read(char*, int)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_istream&lt;char, char_traits&lt;char&gt; &gt;::seekg(long long, _Ios_Seekdir)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_istream&lt;char, char_traits&lt;char&gt; &gt;::ignore(int)(GLIBCXX_3.4.5) [ISOCXX]</code>
<code>basic_istream&lt;char, char_traits&lt;char&gt; &gt;::ignore(int, int)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_istream&lt;char, char_traits&lt;char&gt; &gt;::getline(char*, int)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_istream&lt;char, char_traits&lt;char&gt; &gt;::getline(char*, int, char)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_istream&lt;char, char_traits&lt;char&gt; &gt;::readsome(char*, int)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_istream&lt;char, char_traits&lt;char&gt; &gt;</code> <code>&gt;::operator&gt;&gt;(__float128&amp;)(GLIBCXX_LDBL_3.4) [ISOCXX]</code>
<code>basic_istream&lt;char, char_traits&lt;char&gt; &gt;&amp; operator&gt;&gt;&lt;__float128, char, char_traits&lt;char&gt; &gt;(basic_istream&lt;char, char_traits&lt;char&gt; &gt;&amp;, complex&lt;__float128&gt;&amp;)(GLIBCXX_LDBL_3.4) [ISOCXX]</code>
<code>virtual think to basic_istream&lt;char, char_traits&lt;char&gt; &gt;</code> <code>&gt;::~~basic_istream()(GLIBCXX_3.4) [CXXABI-1.86]</code>



virtual thunk to basic\_istream<char, char\_traits<char>>::~basic\_istream()(GLIBCXX\_3.4) [CXXABI-1.86]

### 12.1.72 Class basic\_istream<wchar\_t, char\_traits<wchar\_t>>

#### 12.1.72.1 Class data for basic\_istream<wchar\_t, char\_traits<wchar\_t>>

The virtual table for the std::basic\_istream<wchar\_t, std::char\_traits<wchar\_t>> class is described by Table 12-94

Table 12-94 Primary vtable for basic\_istream<wchar\_t, char\_traits<wchar\_t>>

Base Offset	0
Virtual Base Offset	8
RTTI	typeid for basic_istream<wchar_t, char_traits<wchar_t>>
vfunc[0]:	basic_istream<wchar_t, char_traits<wchar_t>>::~basic_istream()
vfunc[1]:	basic_istream<wchar_t, char_traits<wchar_t>>::~basic_istream()

Table 12-95 Secondary vtable for basic\_istream<wchar\_t, char\_traits<wchar\_t>>

Base Offset	-8
Virtual Base Offset	-8
RTTI	typeid for basic_istream<wchar_t, char_traits<wchar_t>>
vfunc[0]:	virtual thunk to basic_istream<wchar_t, char_traits<wchar_t>>::~basic_istream()
vfunc[1]:	virtual thunk to basic_istream<wchar_t, char_traits<wchar_t>>::~basic_istream()

The VTT for the std::basic\_istream<wchar\_t, std::char\_traits<wchar\_t>> class is described by Table 12-96

Table 12-96 VTT for basic\_istream<wchar\_t, char\_traits<wchar\_t>>

VTT Name	_ZTTSt13basic_istreamIwSt11char_traitsIwEE
Number of Entries	2

### 12.1.72.2 Interfaces for Class `basic_istream<wchar_t, char_traits<wchar_t>>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::basic_istream<wchar_t, std::char_traits<wchar_t>>` specified in Table 12-97, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-97 libstdcxx - Class `basic_istream<wchar_t, char_traits<wchar_t>>` Function Interfaces**

<code>basic_istream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;&amp; basic_istream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;</code> <code>&gt;::_M_extract&lt;__float128&gt;(__float128&amp;)(GLIBCXX_LDBL_3.4.7) [LSB]</code>
<code>basic_istream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;::get(wchar_t*, int)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_istream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;::get(wchar_t*, int, wchar_t)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_istream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;::read(wchar_t*, int)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_istream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;::ignore(int)(GLIBCXX_3.4.5) [ISOCXX]</code>
<code>basic_istream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;::ignore(int, unsigned int)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_istream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;::getline(wchar_t*, int)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_istream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;::getline(wchar_t*, int, wchar_t)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_istream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;::readsome(wchar_t*, int)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_istream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;</code> <code>&gt;::operator&gt;&gt;(__float128&amp;)(GLIBCXX_LDBL_3.4) [ISOCXX]</code>
<code>basic_istream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;&amp; operator&gt;&gt;&lt;__float128, wchar_t, char_traits&lt;wchar_t&gt;&gt;(basic_istream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;&amp;, complex&lt;__float128&amp;)(GLIBCXX_LDBL_3.4) [ISOCXX]</code>
virtual thunk to <code>basic_istream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;</code> <code>&gt;::~basic_istream()(GLIBCXX_3.4) [CXXABI-1.86]</code>
virtual thunk to <code>basic_istream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;</code> <code>&gt;::~basic_istream()(GLIBCXX_3.4) [CXXABI-1.86]</code>

### 12.1.73 Class `istreambuf_iterator<wchar_t, char_traits<wchar_t>>`

#### 12.1.73.1 Interfaces for Class `istreambuf_iterator<wchar_t, char_traits<wchar_t>>`

No external methods are defined for `libstdcxx` - Class `std::istreambuf_iterator<wchar_t, std::char_traits<wchar_t>>` in this part of the specification. See also the generic specification.

### 12.1.74 Class `istreambuf_iterator<char, char_traits<char>>`

#### 12.1.74.1 Interfaces for Class `istreambuf_iterator<char, char_traits<char>>`

No external methods are defined for `libstdcxx` - Class `std::istreambuf_iterator<char, std::char_traits<char>>` in this part of the specification. See also the generic specification.

### 12.1.75 Class `basic_ostream<char, char_traits<char>>`

#### 12.1.75.1 Class data for `basic_ostream<char, char_traits<char>>`

The virtual table for the `std::basic_ostream<char, std::char_traits<char>>` class is described by Table 12-98

Table 12-98 Primary vtable for `basic_ostream<char, char_traits<char>>`

Base Offset	0
Virtual Base Offset	4
RTTI	<code>typeinfo for basic_ostream&lt;char, char_traits&lt;char&gt;&gt;</code>
<code>vfunc[0]:</code>	<code>basic_ostream&lt;char, char_traits&lt;char&gt;&gt;::~~basic_ostream()</code>
<code>vfunc[1]:</code>	<code>basic_ostream&lt;char, char_traits&lt;char&gt;&gt;::~~basic_ostream()</code>

Table 12-99 Secondary vtable for `basic_ostream<char, char_traits<char>>`

Base Offset	-4
Virtual Base Offset	-4
RTTI	<code>typeinfo for basic_ostream&lt;char, char_traits&lt;char&gt;&gt;</code>
<code>vfunc[0]:</code>	<code>virtual thunk to basic_ostream&lt;char, char_traits&lt;char&gt;&gt;::~~basic_ostream()</code>

vfunc[1]:	virtual thunk to basic_ostream<char, char_traits<char>>::~basic_ostream()
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The VTT for the `std::basic_ostream<char, std::char_traits<char>>` class is described by Table 12-100

**Table 12-100 VTT for `basic_ostream<char, char_traits<char>>`**

VTT Name	_ZTTSo
Number of Entries	2

### 12.1.75.2 Interfaces for Class `basic_ostream<char, char_traits<char>>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::basic_ostream<char, std::char_traits<char>>` specified in Table 12-101, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-101 `libstdcxx` - Class `basic_ostream<char, char_traits<char>>` > Function Interfaces**

<code>basic_ostream&lt;char, char_traits&lt;char&gt;&gt;::seekp(long long, _Ios_Seekdir)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_ostream&lt;char, char_traits&lt;char&gt;&gt;::write(char const*, int)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_ostream&lt;char, char_traits&lt;char&gt;&gt;::_M_write(char const*, int)(GLIBCXX_3.4) [ISOCXX]</code>
<code>basic_ostream&lt;char, char_traits&lt;char&gt;&gt;&amp; basic_ostream&lt;char, char_traits&lt;char&gt;&gt;::_M_insert&lt;_float128&gt;(_float128)(GLIBCXX_LDBL_3.4.7) [LSB]</code>
<code>basic_ostream&lt;char, char_traits&lt;char&gt;&gt;::operator&lt;&lt;(_float128)(GLIBCXX_LDBL_3.4) [ISOCXX]</code>
<code>basic_ostream&lt;char, char_traits&lt;char&gt;&gt;&amp; operator&lt;&lt;&lt;(_float128, char, char_traits&lt;char&gt;&gt;)(basic_ostream&lt;char, char_traits&lt;char&gt;&gt;&amp;, complex&lt;_float128&gt; const&amp;)(GLIBCXX_LDBL_3.4) [ISOCXX]</code>
<code>virtual thunk to basic_ostream&lt;char, char_traits&lt;char&gt;&gt;::~basic_ostream()(GLIBCXX_3.4) [CXXABI-1.86]</code>
<code>virtual thunk to basic_ostream&lt;char, char_traits&lt;char&gt;&gt;::~basic_ostream()(GLIBCXX_3.4) [CXXABI-1.86]</code>

### 12.1.76 Class `basic_ostream<wchar_t, char_traits<wchar_t>>`

#### 12.1.76.1 Class data for `basic_ostream<wchar_t, char_traits<wchar_t>>`

The virtual table for the `std::basic_ostream<wchar_t, std::char_traits<wchar_t>>` class is described by Table 12-102

**Table 12-102 Primary vtable for `basic_ostream<wchar_t, char_traits<wchar_t>>`**

Base Offset	0
Virtual Base Offset	4
RTTI	typeid for <code>basic_ostream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;</code>
vfunc[0]:	<code>basic_ostream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;::~basic_ostream()</code>
vfunc[1]:	<code>basic_ostream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;::~basic_ostream()</code>

**Table 12-103 Secondary vtable for `basic_ostream<wchar_t, char_traits<wchar_t>>`**

Base Offset	-4
Virtual Base Offset	-4
RTTI	typeid for <code>basic_ostream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;</code>
vfunc[0]:	virtual thunk to <code>basic_ostream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;::~basic_ostream()</code>
vfunc[1]:	virtual thunk to <code>basic_ostream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;::~basic_ostream()</code>

The VTT for the `std::basic_ostream<wchar_t, std::char_traits<wchar_t>>` class is described by Table 12-104

**Table 12-104 VTT for `basic_ostream<wchar_t, char_traits<wchar_t>>`**

VTT Name	<code>_ZTTSt13basic_ostreamIwSt11char_traitsIwEE</code>
Number of Entries	2

### 12.1.76.2 Interfaces for Class `basic_ostream<wchar_t, char_traits<wchar_t>>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::basic_ostream<wchar_t, std::char_traits<wchar_t>>` specified in Table 12-105, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-105 libstdcxx - Class basic\_ostream<wchar\_t, char\_traits<wchar\_t> > Function Interfaces**

basic_ostream<wchar_t, char_traits<wchar_t> >::write(wchar_t const*, int)(GLIBCXX_3.4) [ISOCXX]
basic_ostream<wchar_t, char_traits<wchar_t> >& basic_ostream<wchar_t, char_traits<wchar_t> >::M_insert<__float128>(__float128)(GLIBCXX_LDBL_3.4.7) [LSB]
basic_ostream<wchar_t, char_traits<wchar_t> >::operator<<(__float128)(GLIBCXX_LDBL_3.4) [ISOCXX]
basic_ostream<wchar_t, char_traits<wchar_t> >& operator<< <__float128, wchar_t, char_traits<wchar_t> >(basic_ostream<wchar_t, char_traits<wchar_t> >&, complex<__float128> const&)(GLIBCXX_LDBL_3.4) [ISOCXX]
virtual thunk to basic_ostream<wchar_t, char_traits<wchar_t> >::~~basic_ostream()(GLIBCXX_3.4) [CXXABI-1.86]
virtual thunk to basic_ostream<wchar_t, char_traits<wchar_t> >::~~basic_ostream()(GLIBCXX_3.4) [CXXABI-1.86]

**12.1.77 Class basic\_fstream<char, char\_traits<char> >****12.1.77.1 Class data for basic\_fstream<char, char\_traits<char> >**

The virtual table for the std::basic\_fstream<char, std::char\_traits<char> > class is described by Table 12-106

**Table 12-106 Primary vtable for basic\_fstream<char, char\_traits<char> >**

Base Offset	0
Virtual Base Offset	148
RTTI	typeid for basic_fstream<char, char_traits<char> >
vfunc[0]:	basic_fstream<char, char_traits<char> >::~~basic_fstream()
vfunc[1]:	basic_fstream<char, char_traits<char> >::~~basic_fstream()

**Table 12-107 Secondary vtable for basic\_fstream<char, char\_traits<char> >**

Base Offset	-8
Virtual Base Offset	140
RTTI	typeid for basic_fstream<char, char_traits<char> >
vfunc[0]:	non-virtual thunk to basic_fstream<char, char_traits<char> >::~~basic_fstream()

vfunc[1]:	non-virtual thunk to basic_fstream<char, char_traits<char> >::~basic_fstream()
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Table 12-108 Secondary vtable for basic\_fstream&lt;char, char\_traits&lt;char&gt; &gt;

Base Offset	-148
Virtual Base Offset	-148
RTTI	typeid for basic_fstream<char, char_traits<char> >
vfunc[0]:	virtual thunk to basic_fstream<char, char_traits<char> >::~basic_fstream()
vfunc[1]:	virtual thunk to basic_fstream<char, char_traits<char> >::~basic_fstream()

The VTT for the std::basic\_fstream<char, std::char\_traits<char> > class is described by Table 12-109

Table 12-109 VTT for basic\_fstream&lt;char, char\_traits&lt;char&gt; &gt;

VTT Name	_ZTTSt13basic_fstreamIcSt11char_traitsIcEE
Number of Entries	10

### 12.1.77.2 Interfaces for Class basic\_fstream<char, char\_traits<char> >

An LSB conforming implementation shall provide the architecture specific methods for Class std::basic\_fstream<char, std::char\_traits<char> > specified in Table 12-110, with the full mandatory functionality as described in the referenced underlying specification.

Table 12-110 libstdc++ - Class basic\_fstream&lt;char, char\_traits&lt;char&gt; &gt; Function Interfaces

non-virtual thunk to basic_fstream<char, char_traits<char> >::~basic_fstream()(GLIBCXX_3.4) [CXXABI-1.86]
non-virtual thunk to basic_fstream<char, char_traits<char> >::~basic_fstream()(GLIBCXX_3.4) [CXXABI-1.86]
virtual thunk to basic_fstream<char, char_traits<char> >::~basic_fstream()(GLIBCXX_3.4) [CXXABI-1.86]
virtual thunk to basic_fstream<char, char_traits<char> >::~basic_fstream()(GLIBCXX_3.4) [CXXABI-1.86]

## 12.1.78 Class `basic_fstream<wchar_t, char_traits<wchar_t>>`

### 12.1.78.1 Class data for `basic_fstream<wchar_t, char_traits<wchar_t>>`

The virtual table for the `std::basic_fstream<wchar_t, std::char_traits<wchar_t>>` class is described by Table 12-111

**Table 12-111 Primary vtable for `basic_fstream<wchar_t, char_traits<wchar_t>>`**

Base Offset	0
Virtual Base Offset	152
RTTI	<code>typeid</code> for <code>basic_fstream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;</code>
<code>vfunc[0]:</code>	<code>basic_fstream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;::~~basic_fstream()</code>
<code>vfunc[1]:</code>	<code>basic_fstream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;::~~basic_fstream()</code>

**Table 12-112 Secondary vtable for `basic_fstream<wchar_t, char_traits<wchar_t>>`**

Base Offset	-8
Virtual Base Offset	144
RTTI	<code>typeid</code> for <code>basic_fstream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;</code>
<code>vfunc[0]:</code>	non-virtual thunk to <code>basic_fstream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;::~~basic_fstream()</code>
<code>vfunc[1]:</code>	non-virtual thunk to <code>basic_fstream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;::~~basic_fstream()</code>

**Table 12-113 Secondary vtable for `basic_fstream<wchar_t, char_traits<wchar_t>>`**

Base Offset	-152
Virtual Base Offset	-152
RTTI	<code>typeid</code> for <code>basic_fstream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;</code>
<code>vfunc[0]:</code>	virtual thunk to <code>basic_fstream&lt;wchar_t,</code>

	char_traits<wchar_t> >::~basic_fstream()
vfunc[1]:	virtual thunk to basic_fstream<wchar_t, char_traits<wchar_t> >::~basic_fstream()

The VTT for the std::basic\_fstream<wchar\_t, std::char\_traits<wchar\_t> > class is described by Table 12-114

**Table 12-114 VTT for basic\_fstream<wchar\_t, char\_traits<wchar\_t> >**

VTT Name	_ZTTSt13basic_fstreamlwSt11char_traitsIwEE
Number of Entries	10

### 12.1.78.2 Interfaces for Class basic\_fstream<wchar\_t, char\_traits<wchar\_t> >

An LSB conforming implementation shall provide the architecture specific methods for Class std::basic\_fstream<wchar\_t, std::char\_traits<wchar\_t> > specified in Table 12-115, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-115 libstdc++ - Class basic\_fstream<wchar\_t, char\_traits<wchar\_t> > Function Interfaces**

non-virtual thunk to basic_fstream<wchar_t, char_traits<wchar_t> >::~basic_fstream()(GLIBCXX_3.4) [CXXABI-1.86]
non-virtual thunk to basic_fstream<wchar_t, char_traits<wchar_t> >::~basic_fstream()(GLIBCXX_3.4) [CXXABI-1.86]
virtual thunk to basic_fstream<wchar_t, char_traits<wchar_t> >::~basic_fstream()(GLIBCXX_3.4) [CXXABI-1.86]
virtual thunk to basic_fstream<wchar_t, char_traits<wchar_t> >::~basic_fstream()(GLIBCXX_3.4) [CXXABI-1.86]

### 12.1.79 Class basic\_ifstream<char, char\_traits<char> >

#### 12.1.79.1 Class data for basic\_ifstream<char, char\_traits<char> >

The virtual table for the std::basic\_ifstream<char, std::char\_traits<char> > class is described by Table 12-116

**Table 12-116 Primary vtable for basic\_ifstream<char, char\_traits<char> >**

Base Offset	0
Virtual Base Offset	144
RTTI	typeinfo for basic_ifstream<char, char_traits<char> >

vfunc[0]:	basic_ifstream<char, char_traits<char> >::~~basic_ifstream()
vfunc[1]:	basic_ifstream<char, char_traits<char> >::~~basic_ifstream()

Table 12-117 Secondary vtable for basic\_ifstream&lt;char, char\_traits&lt;char&gt; &gt;

Base Offset	-144
Virtual Base Offset	-144
RTTI	typeid for basic_ifstream<char, char_traits<char> >
vfunc[0]:	virtual thunk to basic_ifstream<char, char_traits<char> >::~~basic_ifstream()
vfunc[1]:	virtual thunk to basic_ifstream<char, char_traits<char> >::~~basic_ifstream()

The VTT for the std::basic\_ifstream<char, std::char\_traits<char> > class is described by Table 12-118

Table 12-118 VTT for basic\_ifstream&lt;char, char\_traits&lt;char&gt; &gt;

VTT Name	_ZTTSt14basic_ifstreamIcSt11char_traitsIcEE
Number of Entries	4

### 12.1.79.2 Interfaces for Class basic\_ifstream<char, char\_traits<char> >

An LSB conforming implementation shall provide the architecture specific methods for Class std::basic\_ifstream<char, std::char\_traits<char> > specified in Table 12-119, with the full mandatory functionality as described in the referenced underlying specification.

Table 12-119 libstdc++ - Class basic\_ifstream&lt;char, char\_traits&lt;char&gt; &gt; Function Interfaces

virtual thunk to basic_ifstream<char, char_traits<char> >::~~basic_ifstream()(GLIBCXX_3.4) [CXXABI-1.86]
virtual thunk to basic_ifstream<char, char_traits<char> >::~~basic_ifstream()(GLIBCXX_3.4) [CXXABI-1.86]

## 12.1.80 Class `basic_ifstream<wchar_t, char_traits<wchar_t>>`

### 12.1.80.1 Class data for `basic_ifstream<wchar_t, char_traits<wchar_t>>`

The virtual table for the `std::basic_ifstream<wchar_t, std::char_traits<wchar_t>>` class is described by Table 12-120

**Table 12-120 Primary vtable for `basic_ifstream<wchar_t, char_traits<wchar_t>>`**

Base Offset	0
Virtual Base Offset	148
RTTI	<code>typeid(basic_ifstream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;)</code>
<code>vfunc[0]:</code>	<code>basic_ifstream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;::~basic_ifstream()</code>
<code>vfunc[1]:</code>	<code>basic_ifstream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;::~basic_ifstream()</code>

**Table 12-121 Secondary vtable for `basic_ifstream<wchar_t, char_traits<wchar_t>>`**

Base Offset	-148
Virtual Base Offset	-148
RTTI	<code>typeid(basic_ifstream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;)</code>
<code>vfunc[0]:</code>	virtual thunk to <code>basic_ifstream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;::~basic_ifstream()</code>
<code>vfunc[1]:</code>	virtual thunk to <code>basic_ifstream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;::~basic_ifstream()</code>

The VTT for the `std::basic_ifstream<wchar_t, std::char_traits<wchar_t>>` class is described by Table 12-122

**Table 12-122 VTT for `basic_ifstream<wchar_t, char_traits<wchar_t>>`**

VTT Name	<code>_ZTTSt14basic_ifstreamIwSt11char_traitsIwEE</code>
Number of Entries	4

### 12.1.80.2 Interfaces for Class `basic_ifstream<wchar_t, char_traits<wchar_t>>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::basic_ifstream<wchar_t, std::char_traits<wchar_t>>` specified in Table 12-123, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-123 libstdc++ - Class `basic_ifstream<wchar_t, char_traits<wchar_t>>` Function Interfaces**

virtual thunk to <code>basic_ifstream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;::~basic_ifstream()</code> (GLIBCXX_3.4) [CXXABI-1.86]
virtual thunk to <code>basic_ifstream&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;::~basic_ifstream()</code> (GLIBCXX_3.4) [CXXABI-1.86]

### 12.1.81 Class `basic_ofstream<char, char_traits<char>>`

#### 12.1.81.1 Class data for `basic_ofstream<char, char_traits<char>>`

The virtual table for the `std::basic_ofstream<char, std::char_traits<char>>` class is described by Table 12-124

**Table 12-124 Primary vtable for `basic_ofstream<char, char_traits<char>>`**

Base Offset	0
Virtual Base Offset	140
RTTI	<code>typeid</code> for <code>basic_ofstream&lt;char, char_traits&lt;char&gt;&gt;</code>
<code>vfunc[0]:</code>	<code>basic_ofstream&lt;char, char_traits&lt;char&gt;&gt;::~basic_ofstream()</code>
<code>vfunc[1]:</code>	<code>basic_ofstream&lt;char, char_traits&lt;char&gt;&gt;::~basic_ofstream()</code>

**Table 12-125 Secondary vtable for `basic_ofstream<char, char_traits<char>>`**

Base Offset	-140
Virtual Base Offset	-140
RTTI	<code>typeid</code> for <code>basic_ofstream&lt;char, char_traits&lt;char&gt;&gt;</code>
<code>vfunc[0]:</code>	virtual thunk to <code>basic_ofstream&lt;char, char_traits&lt;char&gt;&gt;::~basic_ofstream()</code>
<code>vfunc[1]:</code>	virtual thunk to <code>basic_ofstream&lt;char, char_traits&lt;char&gt;&gt;::~basic_ofstream()</code>

The VTT for the `std::basic_ofstream<char, std::char_traits<char> >` class is described by Table 12-126

**Table 12-126 VTT for `basic_ofstream<char, char_traits<char> >`**

VTT Name	<code>_ZTTSt14basic_ofstreamIcSt11char_traitsIcEE</code>
Number of Entries	4

### 12.1.81.2 Interfaces for Class `basic_ofstream<char, char_traits<char> >`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::basic_ofstream<char, std::char_traits<char> >` specified in Table 12-127, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-127 `libstdcxx` - Class `basic_ofstream<char, char_traits<char> >` Function Interfaces**

<code>virtual</code> thunk to <code>basic_ofstream&lt;char, char_traits&lt;char&gt; &gt;::~basic_ofstream()</code> (GLIBCXX_3.4) [CXXABI-1.86]
<code>virtual</code> thunk to <code>basic_ofstream&lt;char, char_traits&lt;char&gt; &gt;::~basic_ofstream()</code> (GLIBCXX_3.4) [CXXABI-1.86]

### 12.1.82 Class `basic_ofstream<wchar_t, char_traits<wchar_t> >`

#### 12.1.82.1 Class data for `basic_ofstream<wchar_t, char_traits<wchar_t> >`

The virtual table for the `std::basic_ofstream<wchar_t, std::char_traits<wchar_t> >` class is described by Table 12-128

**Table 12-128 Primary vtable for `basic_ofstream<wchar_t, char_traits<wchar_t> >`**

Base Offset	0
Virtual Base Offset	144
RTTI	<code>typeinfo</code> for <code>basic_ofstream&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt;</code>
<code>vfunc[0]:</code>	<code>basic_ofstream&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt;::~basic_ofstream()</code>
<code>vfunc[1]:</code>	<code>basic_ofstream&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt;::~basic_ofstream()</code>

**Table 12-129 Secondary vtable for `basic_ofstream<wchar_t, char_traits<wchar_t> >`**

Base Offset	-144
-------------	------

Virtual Base Offset	-144
RTTI	typeinfo for basic_ofstream<wchar_t, char_traits<wchar_t> >
vfunc[0]:	virtual thunk to basic_ofstream<wchar_t, char_traits<wchar_t> >::~basic_ofstream()
vfunc[1]:	virtual thunk to basic_ofstream<wchar_t, char_traits<wchar_t> >::~basic_ofstream()

The VTT for the `std::basic_ofstream<wchar_t, std::char_traits<wchar_t> >` class is described by Table 12-130

**Table 12-130 VTT for `basic_ofstream<wchar_t, char_traits<wchar_t> >`**

VTT Name	<code>_ZTTSt14basic_ofstreamlwSt11char_traitslwEE</code>
Number of Entries	4

### 12.1.82.2 Interfaces for Class `basic_ofstream<wchar_t, char_traits<wchar_t> >`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::basic_ofstream<wchar_t, std::char_traits<wchar_t> >` specified in Table 12-131, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-131 `libstdcxx` - Class `basic_ofstream<wchar_t, char_traits<wchar_t> >` Function Interfaces**

virtual thunk to <code>basic_ofstream&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt;::~basic_ofstream()(GLIBCXX_3.4) [CXXABI-1.86]</code>
virtual thunk to <code>basic_ofstream&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt;::~basic_ofstream()(GLIBCXX_3.4) [CXXABI-1.86]</code>

### 12.1.83 Class `basic_streambuf<char, char_traits<char> >`

#### 12.1.83.1 Class data for `basic_streambuf<char, char_traits<char> >`

The virtual table for the `std::basic_streambuf<char, std::char_traits<char> >` class is described by Table 12-132

**Table 12-132 Primary vtable for `basic_streambuf<char, char_traits<char> >`**

Base Offset	0
Virtual Base Offset	0
RTTI	typeinfo for <code>basic_streambuf&lt;char, char_traits&lt;char&gt; &gt;</code>

vfunc[0]:	basic_streambuf<char, char_traits<char> >::~basic_streambuf()
vfunc[1]:	basic_streambuf<char, char_traits<char> >::~basic_streambuf()
vfunc[2]:	basic_streambuf<char, char_traits<char> >::imbue(locale const&)
vfunc[3]:	basic_streambuf<char, char_traits<char> >::setbuf(char*, int)
vfunc[4]:	basic_streambuf<char, char_traits<char> >::seekoff(long long, _Ios_Seekdir, _Ios_Openmode)
vfunc[5]:	basic_streambuf<char, char_traits<char> >::seekpos(fpos< _mbstate_t>, _Ios_Openmode)
vfunc[6]:	basic_streambuf<char, char_traits<char> >::sync()
vfunc[7]:	basic_streambuf<char, char_traits<char> >::showmanyc()
vfunc[8]:	basic_streambuf<char, char_traits<char> >::xsgetn(char*, int)
vfunc[9]:	basic_streambuf<char, char_traits<char> >::underflow()
vfunc[10]:	basic_streambuf<char, char_traits<char> >::uflow()
vfunc[11]:	basic_streambuf<char, char_traits<char> >::pbackfail(int)
vfunc[12]:	basic_streambuf<char, char_traits<char> >::xsputn(char const*, int)
vfunc[13]:	basic_streambuf<char, char_traits<char> >::overflow(int)

The Run Time Type Information for the `std::basic_streambuf<char, std::char_traits<char> >` class is described by Table 12-133

**Table 12-133 typeinfo for `basic_streambuf<char, char_traits<char> >`**

Base Vtable	vtable for <code>__cxxabiv1::__class_type_info</code>
-------------	--

Name	typeid name for basic_streambuf<char, char_traits<char> >
------	---

**12.1.83.2 Interfaces for Class basic\_streambuf<char, char\_traits<char> >**

An LSB conforming implementation shall provide the architecture specific methods for Class std::basic\_streambuf<char, std::char\_traits<char> > specified in Table 12-134, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-134 libstdcxx - Class basic\_streambuf<char, char\_traits<char> > Function Interfaces**

basic_streambuf<char, char_traits<char> >::pubseekoff(long long, _Ios_Seekdir, _Ios_Openmode)(GLIBCXX_3.4) [ISOCXX]
basic_streambuf<char, char_traits<char> >::sgetn(char*, int)(GLIBCXX_3.4) [ISOCXX]
basic_streambuf<char, char_traits<char> >::sputn(char const*, int)(GLIBCXX_3.4) [ISOCXX]
basic_streambuf<char, char_traits<char> >::setbuf(char*, int)(GLIBCXX_3.4) [ISOCXX]
basic_streambuf<char, char_traits<char> >::xsgetn(char*, int)(GLIBCXX_3.4) [ISOCXX]
basic_streambuf<char, char_traits<char> >::xsputn(char const*, int)(GLIBCXX_3.4) [ISOCXX]
basic_streambuf<char, char_traits<char> >::seekoff(long long, _Ios_Seekdir, _Ios_Openmode)(GLIBCXX_3.4) [ISOCXX]
basic_streambuf<char, char_traits<char> >::pubsetbuf(char*, int)(GLIBCXX_3.4) [ISOCXX]

**12.1.84 Class basic\_streambuf<wchar\_t, char\_traits<wchar\_t> >**

**12.1.84.1 Class data for basic\_streambuf<wchar\_t, char\_traits<wchar\_t> >**

The virtual table for the std::basic\_streambuf<wchar\_t, std::char\_traits<wchar\_t> > class is described by Table 12-135

**Table 12-135 Primary vtable for basic\_streambuf<wchar\_t, char\_traits<wchar\_t> >**

Base Offset	0
Virtual Base Offset	0
RTTI	typeid for basic_streambuf<wchar_t, char_traits<wchar_t> >

vfunc[0]:	basic_streambuf<wchar_t, char_traits<wchar_t> >::~basic_streambuf()
vfunc[1]:	basic_streambuf<wchar_t, char_traits<wchar_t> >::~basic_streambuf()
vfunc[2]:	basic_streambuf<wchar_t, char_traits<wchar_t> >::imbue(locale const&)
vfunc[3]:	basic_streambuf<wchar_t, char_traits<wchar_t> >::setbuf(wchar_t*, int)
vfunc[4]:	basic_streambuf<wchar_t, char_traits<wchar_t> >::seekoff(long long, _Ios_Seekdir, _Ios_Openmode)
vfunc[5]:	basic_streambuf<wchar_t, char_traits<wchar_t> >::seekpos(fpos<_mbstate_t>, _Ios_Openmode)
vfunc[6]:	basic_streambuf<wchar_t, char_traits<wchar_t> >::sync()
vfunc[7]:	basic_streambuf<wchar_t, char_traits<wchar_t> >::showmanyc()
vfunc[8]:	basic_streambuf<wchar_t, char_traits<wchar_t> >::xsgetn(wchar_t*, int)
vfunc[9]:	basic_streambuf<wchar_t, char_traits<wchar_t> >::underflow()
vfunc[10]:	basic_streambuf<wchar_t, char_traits<wchar_t> >::uflow()
vfunc[11]:	basic_streambuf<wchar_t, char_traits<wchar_t> >::pbackfail(unsigned int)
vfunc[12]:	basic_streambuf<wchar_t, char_traits<wchar_t> >::xspun(wchar_t const*, int)
vfunc[13]:	basic_streambuf<wchar_t, char_traits<wchar_t> >::overflow(unsigned int)

The Run Time Type Information for the `std::basic_streambuf<wchar_t, std::char_traits<wchar_t> >` class is described by Table 12-136

Table 12-136 typeid for basic\_streambuf&lt;wchar\_t, char\_traits&lt;wchar\_t&gt; &gt;

Base Vtable	vtable for __cxxabiv1::__class_type_info
Name	typeid name for basic_streambuf<wchar_t, char_traits<wchar_t> >

### 12.1.84.2 Interfaces for Class basic\_streambuf<wchar\_t, char\_traits<wchar\_t> >

An LSB conforming implementation shall provide the architecture specific methods for Class std::basic\_streambuf<wchar\_t, std::char\_traits<wchar\_t> > specified in Table 12-137, with the full mandatory functionality as described in the referenced underlying specification.

Table 12-137 libstdc++ - Class basic\_streambuf&lt;wchar\_t, char\_traits&lt;wchar\_t&gt; &gt; Function Interfaces

basic_streambuf<wchar_t, char_traits<wchar_t> >::pubseekoff(long long, _Ios_Seekdir, _Ios_Openmode)(GLIBCXX_3.4) [ISOCXX]
basic_streambuf<wchar_t, char_traits<wchar_t> >::sgetn(wchar_t*, int)(GLIBCXX_3.4) [ISOCXX]
basic_streambuf<wchar_t, char_traits<wchar_t> >::sputn(wchar_t const*, int)(GLIBCXX_3.4) [ISOCXX]
basic_streambuf<wchar_t, char_traits<wchar_t> >::setbuf(wchar_t*, int)(GLIBCXX_3.4) [ISOCXX]
basic_streambuf<wchar_t, char_traits<wchar_t> >::xsgetn(wchar_t*, int)(GLIBCXX_3.4) [ISOCXX]
basic_streambuf<wchar_t, char_traits<wchar_t> >::xsputn(wchar_t const*, int)(GLIBCXX_3.4) [ISOCXX]
basic_streambuf<wchar_t, char_traits<wchar_t> >::seekoff(long long, _Ios_Seekdir, _Ios_Openmode)(GLIBCXX_3.4) [ISOCXX]
basic_streambuf<wchar_t, char_traits<wchar_t> >::pubsetbuf(wchar_t*, int)(GLIBCXX_3.4) [ISOCXX]

### 12.1.85 Class basic\_filebuf<char, char\_traits<char> >

#### 12.1.85.1 Class data for basic\_filebuf<char, char\_traits<char> >

The virtual table for the std::basic\_filebuf<char, std::char\_traits<char> > class is described by Table 12-138

Table 12-138 Primary vtable for basic\_filebuf&lt;char, char\_traits&lt;char&gt; &gt;

Base Offset	0
Virtual Base Offset	0
RTTI	typeid for basic_filebuf<char, char_traits<char> >

vfunc[0]:	basic_filebuf<char, char_traits<char>>::~~basic_filebuf()
vfunc[1]:	basic_filebuf<char, char_traits<char>>::~~basic_filebuf()
vfunc[2]:	basic_filebuf<char, char_traits<char>>::~imbue(locale const&)
vfunc[3]:	basic_filebuf<char, char_traits<char>>::~setbuf(char*, int)
vfunc[4]:	basic_filebuf<char, char_traits<char>>::~seekoff(long long, _Ios_Seekdir, _Ios_Openmode)
vfunc[5]:	basic_filebuf<char, char_traits<char>>::~seekpos(fpos<__mbstate_t>, _Ios_Openmode)
vfunc[6]:	basic_filebuf<char, char_traits<char>>::~sync()
vfunc[7]:	basic_filebuf<char, char_traits<char>>::~showmanyc()
vfunc[8]:	basic_filebuf<char, char_traits<char>>::~xsgetn(char*, int)
vfunc[9]:	basic_filebuf<char, char_traits<char>>::~underflow()
vfunc[10]:	basic_streambuf<char, char_traits<char>>::~uflow()
vfunc[11]:	basic_filebuf<char, char_traits<char>>::~pbackfail(int)
vfunc[12]:	basic_filebuf<char, char_traits<char>>::~xsputn(char const*, int)
vfunc[13]:	basic_filebuf<char, char_traits<char>>::~overflow(int)

The Run Time Type Information for the `std::basic_filebuf<char, std::char_traits<char>>` class is described by Table 12-139

**Table 12-139 typeinfo for `basic_filebuf<char, char_traits<char>>`**

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeid name for <code>basic_filebuf&lt;char, char_traits&lt;char&gt;&gt;</code>

### 12.1.85.2 Interfaces for Class `basic_filebuf<char, char_traits<char>>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::basic_filebuf<char, std::char_traits<char>>` specified in

Table 12-140, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-140 libstdcxx - Class basic\_filebuf<char, char\_traits<char> > Function Interfaces**

basic_filebuf<char, char_traits<char> >::_M_set_buffer(int)(GLIBCXX_3.4) [ISOCXX]
basic_filebuf<char, char_traits<char> >::_M_convert_to_external(char*, int)(GLIBCXX_3.4) [ISOCXX]
basic_filebuf<char, char_traits<char> >::setbuf(char*, int)(GLIBCXX_3.4) [ISOCXX]
basic_filebuf<char, char_traits<char> >::xsgetn(char*, int)(GLIBCXX_3.4) [ISOCXX]
basic_filebuf<char, char_traits<char> >::xspn(char const*, int)(GLIBCXX_3.4) [ISOCXX]
basic_filebuf<char, char_traits<char> >::_M_seek(long long, _Ios_Seekdir, __mbstate_t)(GLIBCXX_3.4) [ISOCXX]
basic_filebuf<char, char_traits<char> >::seekoff(long long, _Ios_Seekdir, _Ios_Openmode)(GLIBCXX_3.4) [ISOCXX]

## 12.1.86 Class basic\_filebuf<wchar\_t, char\_traits<wchar\_t> >

### 12.1.86.1 Class data for basic\_filebuf<wchar\_t, char\_traits<wchar\_t> >

The virtual table for the std::basic\_filebuf<wchar\_t, std::char\_traits<wchar\_t> > class is described by Table 12-141

**Table 12-141 Primary vtable for basic\_filebuf<wchar\_t, char\_traits<wchar\_t> >**

Base Offset	0
Virtual Base Offset	0
RTTI	typeid for basic_filebuf<wchar_t, char_traits<wchar_t> >
vfunc[0]:	basic_filebuf<wchar_t, char_traits<wchar_t> >::~~basic_filebuf()
vfunc[1]:	basic_filebuf<wchar_t, char_traits<wchar_t> >::~~basic_filebuf()
vfunc[2]:	basic_filebuf<wchar_t, char_traits<wchar_t> >::imbue(locale const&)
vfunc[3]:	basic_filebuf<wchar_t, char_traits<wchar_t> >::setbuf(wchar_t*, int)

vfunc[4]:	basic_filebuf<wchar_t, char_traits<wchar_t> >::seekoff(long long, _Ios_Seekdir, _Ios_Openmode)
vfunc[5]:	basic_filebuf<wchar_t, char_traits<wchar_t> >::seekpos(fpos<__mbstate_t>, _Ios_Openmode)
vfunc[6]:	basic_filebuf<wchar_t, char_traits<wchar_t> >::sync()
vfunc[7]:	basic_filebuf<wchar_t, char_traits<wchar_t> >::showmanyc()
vfunc[8]:	basic_filebuf<wchar_t, char_traits<wchar_t> >::xsgetn(wchar_t*, int)
vfunc[9]:	basic_filebuf<wchar_t, char_traits<wchar_t> >::underflow()
vfunc[10]:	basic_streambuf<wchar_t, char_traits<wchar_t> >::uflow()
vfunc[11]:	basic_filebuf<wchar_t, char_traits<wchar_t> >::pbackfail(unsigned int)
vfunc[12]:	basic_filebuf<wchar_t, char_traits<wchar_t> >::xsputn(wchar_t const*, int)
vfunc[13]:	basic_filebuf<wchar_t, char_traits<wchar_t> >::overflow(unsigned int)

The Run Time Type Information for the `std::basic_filebuf<wchar_t, std::char_traits<wchar_t> >` class is described by Table 12-142

Table 12-142 typeinfo for `basic_filebuf<wchar_t, char_traits<wchar_t> >`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeinfo name for <code>basic_filebuf&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt;</code>

### 12.1.86.2 Interfaces for Class `basic_filebuf<wchar_t, char_traits<wchar_t> >`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::basic_filebuf<wchar_t, std::char_traits<wchar_t> >` specified in Table 12-143, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-143 libstdcxx - Class basic\_filebuf<wchar\_t, char\_traits<wchar\_t> > Function Interfaces**

basic_filebuf<wchar_t, char_traits<wchar_t> >::_M_set_buffer(int)(GLIBCXX_3.4) [ISOCXX]
basic_filebuf<wchar_t, char_traits<wchar_t> >::_M_convert_to_external(wchar_t*, int)(GLIBCXX_3.4) [ISOCXX]
basic_filebuf<wchar_t, char_traits<wchar_t> >::setbuf(wchar_t*, int)(GLIBCXX_3.4) [ISOCXX]
basic_filebuf<wchar_t, char_traits<wchar_t> >::xsgetn(wchar_t*, int)(GLIBCXX_3.4) [ISOCXX]
basic_filebuf<wchar_t, char_traits<wchar_t> >::xsputn(wchar_t const*, int)(GLIBCXX_3.4) [ISOCXX]
basic_filebuf<wchar_t, char_traits<wchar_t> >::_M_seek(long long, _Ios_Seekdir, __mbstate_t)(GLIBCXX_3.4) [ISOCXX]
basic_filebuf<wchar_t, char_traits<wchar_t> >::seekoff(long long, _Ios_Seekdir, _Ios_Openmode)(GLIBCXX_3.4) [ISOCXX]
basic_istream<wchar_t, char_traits<wchar_t> >::seekg(long long, _Ios_Seekdir)(GLIBCXX_3.4) [ISOCXX]
basic_ostream<wchar_t, char_traits<wchar_t> >::seekp(long long, _Ios_Seekdir)(GLIBCXX_3.4) [ISOCXX]
basic_ostream<wchar_t, char_traits<wchar_t> >::_M_write(wchar_t const*, int)(GLIBCXX_3.4) [ISOCXX]

## 12.1.87 Class ios\_base

### 12.1.87.1 Class data for ios\_base

The virtual table for the std::ios\_base class is described in the generic part of this specification.

The Run Time Type Information for the std::ios\_base class is described by Table 12-144

**Table 12-144 typeinfo for ios\_base**

Base Vtable	vtable for __cxxabiv1::__class_type_info
Name	typeinfo name for ios_base

### 12.1.87.2 Interfaces for Class ios\_base

No external methods are defined for libstdcxx - Class std::ios\_base in this part of the specification. See also the generic specification.

## 12.1.88 Class basic\_ios<char, char\_traits<char> >

### 12.1.88.1 Class data for basic\_ios<char, char\_traits<char> >

The virtual table for the std::basic\_ios<char, std::char\_traits<char> > class is described in the generic part of this specification.

### 12.1.88.2 Interfaces for Class `basic_ios<char, char_traits<char>>`

No external methods are defined for libstdc++ - Class `std::basic_ios<char, std::char_traits<char>>` in this part of the specification. See also the generic specification.

### 12.1.89 Class `basic_ios<wchar_t, char_traits<wchar_t>>`

#### 12.1.89.1 Class data for `basic_ios<wchar_t, char_traits<wchar_t>>`

The virtual table for the `std::basic_ios<wchar_t, std::char_traits<wchar_t>>` class is described in the generic part of this specification.

The Run Time Type Information for the `std::basic_ios<wchar_t, std::char_traits<wchar_t>>` class is described by Table 12-145

Table 12-145 typeinfo for `basic_ios<wchar_t, char_traits<wchar_t>>`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_t</code> type_info	1026
Name	typeinfo name for <code>basic_ios&lt;wchar_t,</code> <code>char_traits&lt;wchar_t&gt;&gt;</code>	
flags:	8	
basetype:	typeinfo for <code>ios_base</code>	

#### 12.1.89.2 Interfaces for Class `basic_ios<wchar_t, char_traits<wchar_t>>`

No external methods are defined for libstdc++ - Class `std::basic_ios<wchar_t, std::char_traits<wchar_t>>` in this part of the specification. See also the generic specification.

### 12.1.90 Class `ios_base::failure`

#### 12.1.90.1 Class data for `ios_base::failure`

The virtual table for the `std::ios_base::failure` class is described in the generic part of this specification.

The Run Time Type Information for the `std::ios_base::failure` class is described by Table 12-146

Table 12-146 typeinfo for `ios_base::failure`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeinfo name for <code>ios_base::failure</code>

#### 12.1.90.2 Interfaces for Class `ios_base::failure`

No external methods are defined for libstdc++ - Class `std::ios_base::failure` in this part of the specification. See also the generic specification.

## 12.1.91 Class `__timepunct<char>`

### 12.1.91.1 Class data for `__timepunct<char>`

The virtual table for the `std::__timepunct<char>` class is described in the generic part of this specification.

The Run Time Type Information for the `std::__timepunct<char>` class is described by Table 12-147

**Table 12-147** typeinfo for `__timepunct<char>`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeinfo name for <code>__timepunct&lt;char&gt;</code>

### 12.1.91.2 Interfaces for Class `__timepunct<char>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::__timepunct<char>` specified in Table 12-148, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-148** `libstdcxx` - Class `__timepunct<char>` Function Interfaces

<code>__timepunct&lt;char&gt;::_M_put(char*, unsigned long, char const*, tm const*)</code> <code>const</code> (GLIBCXX_3.4) [ISOCXX]
<code>__timepunct&lt;char&gt;::_timepunct(__locale_struct*, char const*, unsigned long)</code> (GLIBCXX_3.4) [ISOCXX]
<code>__timepunct&lt;char&gt;::_timepunct(__timepunct_cache&lt;char&gt;*, unsigned long)</code> (GLIBCXX_3.4) [ISOCXX]
<code>__timepunct&lt;char&gt;::_timepunct(unsigned long)</code> (GLIBCXX_3.4) [ISOCXX]
<code>__timepunct&lt;char&gt;::_timepunct(__locale_struct*, char const*, unsigned long)</code> (GLIBCXX_3.4) [ISOCXX]
<code>__timepunct&lt;char&gt;::_timepunct(__timepunct_cache&lt;char&gt;*, unsigned long)</code> (GLIBCXX_3.4) [ISOCXX]
<code>__timepunct&lt;char&gt;::_timepunct(unsigned long)</code> (GLIBCXX_3.4) [ISOCXX]

## 12.1.92 Class `__timepunct<wchar_t>`

### 12.1.92.1 Class data for `__timepunct<wchar_t>`

The virtual table for the `std::__timepunct<wchar_t>` class is described in the generic part of this specification.

The Run Time Type Information for the `std::__timepunct<wchar_t>` class is described by Table 12-149

**Table 12-149** typeinfo for `__timepunct<wchar_t>`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
-------------	---

Name	typeinfo name for __timepunct<wchar_t>
------	---

### 12.1.92.2 Interfaces for Class \_\_timepunct<wchar\_t>

An LSB conforming implementation shall provide the architecture specific methods for Class std::\_\_timepunct<wchar\_t> specified in Table 12-150, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-150 libstdcxx - Class \_\_timepunct<wchar\_t> Function Interfaces**

<code>__timepunct&lt;wchar_t&gt;::_M_put(wchar_t*, unsigned long, wchar_t const*, tm const*) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>__timepunct&lt;wchar_t&gt;::__timepunct(__locale_struct*, char const*, unsigned long)</code> (GLIBCXX_3.4) [ISOCXX]
<code>__timepunct&lt;wchar_t&gt;::__timepunct(__timepunct_cache&lt;wchar_t&gt;*, unsigned long)</code> (GLIBCXX_3.4) [ISOCXX]
<code>__timepunct&lt;wchar_t&gt;::__timepunct(unsigned long)</code> (GLIBCXX_3.4) [ISOCXX]
<code>__timepunct&lt;wchar_t&gt;::__timepunct(__locale_struct*, char const*, unsigned long)</code> (GLIBCXX_3.4) [ISOCXX]
<code>__timepunct&lt;wchar_t&gt;::__timepunct(__timepunct_cache&lt;wchar_t&gt;*, unsigned long)</code> (GLIBCXX_3.4) [ISOCXX]
<code>__timepunct&lt;wchar_t&gt;::__timepunct(unsigned long)</code> (GLIBCXX_3.4) [ISOCXX]

### 12.1.93 Class messages\_base

#### 12.1.93.1 Class data for messages\_base

The Run Time Type Information for the std::messages\_base class is described by Table 12-151

**Table 12-151 typeinfo for messages\_base**

Base Vtable	vtable for __cxxabiv1::__class_type_info
Name	typeinfo name for messages_base

#### 12.1.93.2 Interfaces for Class messages\_base

No external methods are defined for libstdcxx - Class std::messages\_base in this part of the specification. See also the generic specification.

### 12.1.94 Class messages<char>

#### 12.1.94.1 Class data for messages<char>

The virtual table for the std::messages<char> class is described in the generic part of this specification.

### 12.1.94.2 Interfaces for Class messages<char>

An LSB conforming implementation shall provide the architecture specific methods for Class std::messages<char> specified in Table 12-152, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-152 libstdcxx - Class messages<char> Function Interfaces**

messages<char>::messages(__locale_struct*, char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]
messages<char>::messages(unsigned long)(GLIBCXX_3.4) [ISOCXX]
messages<char>::messages(__locale_struct*, char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]
messages<char>::messages(unsigned long)(GLIBCXX_3.4) [ISOCXX]

### 12.1.95 Class messages<wchar\_t>

#### 12.1.95.1 Class data for messages<wchar\_t>

The virtual table for the std::messages<wchar\_t> class is described in the generic part of this specification.

#### 12.1.95.2 Interfaces for Class messages<wchar\_t>

An LSB conforming implementation shall provide the architecture specific methods for Class std::messages<wchar\_t> specified in Table 12-153, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-153 libstdcxx - Class messages<wchar\_t> Function Interfaces**

messages<wchar_t>::messages(__locale_struct*, char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]
messages<wchar_t>::messages(unsigned long)(GLIBCXX_3.4) [ISOCXX]
messages<wchar_t>::messages(__locale_struct*, char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]
messages<wchar_t>::messages(unsigned long)(GLIBCXX_3.4) [ISOCXX]

### 12.1.96 Class messages\_byname<char>

#### 12.1.96.1 Class data for messages\_byname<char>

The virtual table for the std::messages\_byname<char> class is described in the generic part of this specification.

The Run Time Type Information for the std::messages\_byname<char> class is described by Table 12-154

**Table 12-154 typeid for messages\_byname<char>**

Base Vtable	vtable for __cxxabiv1::__si_class_type_info
Name	typeid name for messages_byname<char>

### 12.1.96.2 Interfaces for Class `messages_byname<char>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::messages_byname<char>` specified in Table 12-155, with the full mandatory functionality as described in the referenced underlying specification.

Table 12-155 `libstdcxx` - Class `messages_byname<char>` Function Interfaces

<code>messages_byname&lt;char&gt;::messages_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>messages_byname&lt;char&gt;::messages_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>

### 12.1.97 Class `messages_byname<wchar_t>`

#### 12.1.97.1 Class data for `messages_byname<wchar_t>`

The virtual table for the `std::messages_byname<wchar_t>` class is described in the generic part of this specification.

The Run Time Type Information for the `std::messages_byname<wchar_t>` class is described by Table 12-156

Table 12-156 `typeinfo` for `messages_byname<wchar_t>`

Base Vtable	vtable for <code>cxxabiv1::__si_class_type_info</code>
Name	typeinfo name for <code>messages_byname&lt;wchar_t&gt;</code>

#### 12.1.97.2 Interfaces for Class `messages_byname<wchar_t>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::messages_byname<wchar_t>` specified in Table 12-157, with the full mandatory functionality as described in the referenced underlying specification.

Table 12-157 `libstdcxx` - Class `messages_byname<wchar_t>` Function Interfaces

<code>messages_byname&lt;wchar_t&gt;::messages_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>messages_byname&lt;wchar_t&gt;::messages_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>

### 12.1.98 Class `numpunct<char>`

#### 12.1.98.1 Class data for `numpunct<char>`

The virtual table for the `std::numpunct<char>` class is described in the generic part of this specification.

The Run Time Type Information for the `std::numpunct<char>` class is described by Table 12-158

Table 12-158 typeinfo for `numpunct<char>`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeinfo name for <code>numpunct&lt;char&gt;</code>

### 12.1.98.2 Interfaces for Class `numpunct<char>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::numpunct<char>` specified in Table 12-159, with the full mandatory functionality as described in the referenced underlying specification.

Table 12-159 `libstdcxx` - Class `numpunct<char>` Function Interfaces

<code>numpunct&lt;char&gt;::numpunct(__locale_struct*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>numpunct&lt;char&gt;::numpunct(__numpunct_cache&lt;char&gt;*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>numpunct&lt;char&gt;::numpunct(unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>numpunct&lt;char&gt;::numpunct(__locale_struct*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>numpunct&lt;char&gt;::numpunct(__numpunct_cache&lt;char&gt;*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>numpunct&lt;char&gt;::numpunct(unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>

### 12.1.99 Class `numpunct<wchar_t>`

#### 12.1.99.1 Class data for `numpunct<wchar_t>`

The virtual table for the `std::numpunct<wchar_t>` class is described in the generic part of this specification.

The Run Time Type Information for the `std::numpunct<wchar_t>` class is described by Table 12-160

Table 12-160 typeinfo for `numpunct<wchar_t>`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeinfo name for <code>numpunct&lt;wchar_t&gt;</code>

#### 12.1.99.2 Interfaces for Class `numpunct<wchar_t>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::numpunct<wchar_t>` specified in Table 12-161, with the full mandatory functionality as described in the referenced underlying specification.

Table 12-161 `libstdcxx` - Class `numpunct<wchar_t>` Function Interfaces

<code>numpunct&lt;wchar_t&gt;::numpunct(__locale_struct*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
---

<code>numpunct&lt;wchar_t&gt;::numpunct(unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>numpunct&lt;wchar_t&gt;::numpunct(__locale_struct*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>numpunct&lt;wchar_t&gt;::numpunct(unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>

## 12.1.100 Class `numpunct_byname<char>`

### 12.1.100.1 Class data for `numpunct_byname<char>`

The virtual table for the `std::numpunct_byname<char>` class is described in the generic part of this specification.

The Run Time Type Information for the `std::numpunct_byname<char>` class is described by Table 12-162

Table 12-162 `typeinfo` for `numpunct_byname<char>`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	<code>typeinfo</code> name for <code>numpunct_byname&lt;char&gt;</code>

### 12.1.100.2 Interfaces for Class `numpunct_byname<char>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::numpunct_byname<char>` specified in Table 12-163, with the full mandatory functionality as described in the referenced underlying specification.

Table 12-163 `libstdcxx` - Class `numpunct_byname<char>` Function Interfaces

<code>numpunct_byname&lt;char&gt;::numpunct_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>numpunct_byname&lt;char&gt;::numpunct_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>

## 12.1.101 Class `numpunct_byname<wchar_t>`

### 12.1.101.1 Class data for `numpunct_byname<wchar_t>`

The virtual table for the `std::numpunct_byname<wchar_t>` class is described in the generic part of this specification.

The Run Time Type Information for the `std::numpunct_byname<wchar_t>` class is described by Table 12-164

Table 12-164 `typeinfo` for `numpunct_byname<wchar_t>`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	<code>typeinfo</code> name for <code>numpunct_byname&lt;wchar_t&gt;</code>

**12.1.101.2 Interfaces for Class `numpunct_byname<wchar_t>`**

An LSB conforming implementation shall provide the architecture specific methods for Class `std::numpunct_byname<wchar_t>` specified in Table 12-165, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-165** `libstdcxx` - Class `numpunct_byname<wchar_t>` Function Interfaces

<code>numpunct_byname&lt;wchar_t&gt;::numpunct_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>numpunct_byname&lt;wchar_t&gt;::numpunct_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>

**12.1.102 Class `__codecvt_abstract_base<char, char, __mbstate_t>`****12.1.102.1 Class data for `__codecvt_abstract_base<char, char, __mbstate_t>`**

The virtual table for the `std::__codecvt_abstract_base<char, char, __mbstate_t>` class is described in the generic part of this specification.

**12.1.102.2 Interfaces for Class `__codecvt_abstract_base<char, char, __mbstate_t>`**

No external methods are defined for `libstdcxx` - Class `std::__codecvt_abstract_base<char, char, __mbstate_t>` in this part of the specification. See also the generic specification.

**12.1.103 Class `__codecvt_abstract_base<wchar_t, char, __mbstate_t>`****12.1.103.1 Class data for `__codecvt_abstract_base<wchar_t, char, __mbstate_t>`**

The virtual table for the `std::__codecvt_abstract_base<wchar_t, char, __mbstate_t>` class is described in the generic part of this specification.

**12.1.103.2 Interfaces for Class `__codecvt_abstract_base<wchar_t, char, __mbstate_t>`**

No external methods are defined for `libstdcxx` - Class `std::__codecvt_abstract_base<wchar_t, char, __mbstate_t>` in this part of the specification. See also the generic specification.

**12.1.104 Class `codecvt_base`****12.1.104.1 Class data for `codecvt_base`**

The Run Time Type Information for the `std::codecvt_base` class is described by Table 12-166

Table 12-166 typeinfo for codecvt\_base

Base Vtable	vtable for __cxxabiv1::__class_type_info
Name	typeinfo name for codecvt_base

### 12.1.104.2 Interfaces for Class codecvt\_base

No external methods are defined for libstdc++ - Class std::codecvt\_base in this part of the specification. See also the generic specification.

### 12.1.105 Class codecvt<char, char, \_\_mbstate\_t>

#### 12.1.105.1 Class data for codecvt<char, char, \_\_mbstate\_t>

The virtual table for the std::codecvt<char, char, \_\_mbstate\_t> class is described by Table 12-167

Table 12-167 Primary vtable for codecvt&lt;char, char, \_\_mbstate\_t&gt;

Base Offset	0
Virtual Base Offset	0
RTTI	typeinfo for codecvt<char, char, __mbstate_t>
vfunc[0]:	codecvt<char, char, __mbstate_t>::~~codecvt()
vfunc[1]:	codecvt<char, char, __mbstate_t>::~~codecvt()
vfunc[2]:	codecvt<char, char, __mbstate_t>::~do_out(__mbstate_t&, char const*, char const*, char const*&, char*, char*, char*&) const
vfunc[3]:	codecvt<char, char, __mbstate_t>::~do_unshift(__mbstate_ t&, char*, char*, char*&) const
vfunc[4]:	codecvt<char, char, __mbstate_t>::~do_in(__mbstate_t&, char const*, char const*, char const*&, char*, char*, char*&) const
vfunc[5]:	codecvt<char, char, __mbstate_t>::~do_encoding() const
vfunc[6]:	codecvt<char, char, __mbstate_t>::~do_always_noconv() const
vfunc[7]:	codecvt<char, char, __mbstate_t>::~do_length(__mbstate_t &, char const*, char const*, unsigned long) const

vfunc[8]:	codecvt<char, char, __mbstate_t>::do_max_length() const
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The Run Time Type Information for the `std::codecvt<char, char, __mbstate_t>` class is described by Table 12-168

**Table 12-168 typeid for `codecvt<char, char, __mbstate_t>`**

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeid name for <code>codecvt&lt;char, char, __mbstate_t&gt;</code>

### 12.1.105.2 Interfaces for Class `codecvt<char, char, __mbstate_t>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::codecvt<char, char, __mbstate_t>` specified in Table 12-169, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-169 libstdc++ - Class `codecvt<char, char, __mbstate_t>` Function Interfaces**

<code>codecvt&lt;char, char, __mbstate_t&gt;::do_length(__mbstate_t&amp;, char const*, char const*, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
<code>codecvt&lt;char, char, __mbstate_t&gt;::codecvt(__locale_struct*, unsigned long)</code> (GLIBCXX_3.4) [ISOCXX]
<code>codecvt&lt;char, char, __mbstate_t&gt;::codecvt(unsigned long)</code> (GLIBCXX_3.4) [ISOCXX]
<code>codecvt&lt;char, char, __mbstate_t&gt;::codecvt(__locale_struct*, unsigned long)</code> (GLIBCXX_3.4) [ISOCXX]
<code>codecvt&lt;char, char, __mbstate_t&gt;::codecvt(unsigned long)</code> (GLIBCXX_3.4) [ISOCXX]

### 12.1.106 Class `codecvt<wchar_t, char, __mbstate_t>`

#### 12.1.106.1 Class data for `codecvt<wchar_t, char, __mbstate_t>`

The virtual table for the `std::codecvt<wchar_t, char, __mbstate_t>` class is described by Table 12-170

**Table 12-170 Primary vtable for `codecvt<wchar_t, char, __mbstate_t>`**

Base Offset	0
Virtual Base Offset	0
RTTI	typeid for <code>codecvt&lt;wchar_t, char, __mbstate_t&gt;</code>
vfunc[0]:	<code>codecvt&lt;wchar_t, char, __mbstate_t&gt;::~~codecvt()</code>

vfunc[1]:	codecvt<wchar_t, char, __mbstate_t>::~codecvt()
vfunc[2]:	codecvt<wchar_t, char, __mbstate_t>::~do_out(__mbstate_t&, wchar_t const*, wchar_t const*, wchar_t const*&, char*, char*, char*&) const
vfunc[3]:	codecvt<wchar_t, char, __mbstate_t>::~do_unshift(__mbstate_t&, char*, char*, char*&) const
vfunc[4]:	codecvt<wchar_t, char, __mbstate_t>::~do_in(__mbstate_t&, char const*, char const*, char const*&, wchar_t*, wchar_t*, wchar_t*&) const
vfunc[5]:	codecvt<wchar_t, char, __mbstate_t>::~do_encoding() const
vfunc[6]:	codecvt<wchar_t, char, __mbstate_t>::~do_always_noconv() const
vfunc[7]:	codecvt<wchar_t, char, __mbstate_t>::~do_length(__mbstate_t&, char const*, char const*, unsigned long) const
vfunc[8]:	codecvt<wchar_t, char, __mbstate_t>::~do_max_length() const

The Run Time Type Information for the `std::codecvt<wchar_t, char, __mbstate_t>` class is described by Table 12-171

**Table 12-171** typeinfo for `codecvt<wchar_t, char, __mbstate_t>`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeinfo name for <code>codecvt&lt;wchar_t, char, __mbstate_t&gt;</code>

### 12.1.106.2 Interfaces for Class `codecvt<wchar_t, char, __mbstate_t>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::codecvt<wchar_t, char, __mbstate_t>` specified in Table 12-172, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-172** `libstdcxx` - Class `codecvt<wchar_t, char, __mbstate_t>` Function Interfaces

<code>codecvt&lt;wchar_t, char, __mbstate_t&gt;::~do_length(__mbstate_t&amp;, char const*, char const*, unsigned long) const</code> (GLIBCXX_3.4) [ISOCXX]
--

<code>codecvt&lt;wchar_t, char, __mbstate_t&gt;::codecvt(__locale_struct*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>codecvt&lt;wchar_t, char, __mbstate_t&gt;::codecvt(unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>codecvt&lt;wchar_t, char, __mbstate_t&gt;::codecvt(__locale_struct*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>codecvt&lt;wchar_t, char, __mbstate_t&gt;::codecvt(unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>

## 12.1.107 Class `codecvt_byname<char, char, __mbstate_t>`

### 12.1.107.1 Class data for `codecvt_byname<char, char, __mbstate_t>`

The virtual table for the `std::codecvt_byname<char, char, __mbstate_t>` class is described by Table 12-173

Table 12-173 Primary vtable for `codecvt_byname<char, char, __mbstate_t>`

Base Offset	0
Virtual Base Offset	0
RTTI	<code>typeinfo for codecvt_byname&lt;char, char, __mbstate_t&gt;</code>
<code>vfunc[0]:</code>	<code>codecvt_byname&lt;char, char, __mbstate_t&gt;::~~codecvt_byname()</code>
<code>vfunc[1]:</code>	<code>codecvt_byname&lt;char, char, __mbstate_t&gt;::~~codecvt_byname()</code>
<code>vfunc[2]:</code>	<code>codecvt&lt;char, char, __mbstate_t&gt;::do_out(__mbstate_t&amp;, char const*, char const*, char const*&amp;, char*, char*, char*&amp;) const</code>
<code>vfunc[3]:</code>	<code>codecvt&lt;char, char, __mbstate_t&gt;::do_unshift(__mbstate_t&amp;, char*, char*, char*&amp;) const</code>
<code>vfunc[4]:</code>	<code>codecvt&lt;char, char, __mbstate_t&gt;::do_in(__mbstate_t&amp;, char const*, char const*, char const*&amp;, char*, char*, char*&amp;) const</code>
<code>vfunc[5]:</code>	<code>codecvt&lt;char, char, __mbstate_t&gt;::do_encoding() const</code>
<code>vfunc[6]:</code>	<code>codecvt&lt;char, char, __mbstate_t&gt;::do_always_noconv() const</code>
<code>vfunc[7]:</code>	<code>codecvt&lt;char, char, __mbstate_t&gt;::do_length(__mbstate_t</code>

	&, char const*, char const*, unsigned long) const
vfunc[8]:	codecvt<char, char, __mbstate_t>::do_max_length() const

The Run Time Type Information for the `std::codecvt_byname<char, char, __mbstate_t>` class is described by Table 12-174

**Table 12-174 typeinfo for `codecvt_byname<char, char, __mbstate_t>`**

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeinfo name for <code>codecvt_byname&lt;char, char, __mbstate_t&gt;</code>

### 12.1.107.2 Interfaces for Class `codecvt_byname<char, char, __mbstate_t>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::codecvt_byname<char, char, __mbstate_t>` specified in Table 12-175, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-175 `libstdcxx` - Class `codecvt_byname<char, char, __mbstate_t>` Function Interfaces**

<code>codecvt_byname&lt;char, char, __mbstate_t&gt;::codecvt_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>codecvt_byname&lt;char, char, __mbstate_t&gt;::codecvt_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>

### 12.1.108 Class `codecvt_byname<wchar_t, char, __mbstate_t>`

#### 12.1.108.1 Class data for `codecvt_byname<wchar_t, char, __mbstate_t>`

The virtual table for the `std::codecvt_byname<wchar_t, char, __mbstate_t>` class is described by Table 12-176

**Table 12-176 Primary vtable for `codecvt_byname<wchar_t, char, __mbstate_t>`**

Base Offset	0
Virtual Base Offset	0
RTTI	typeinfo for <code>codecvt_byname&lt;wchar_t, char, __mbstate_t&gt;</code>
vfunc[0]:	<code>codecvt_byname&lt;wchar_t, char, __mbstate_t&gt;::~~codecvt_byname()</code>

vfunc[1]:	codecvt_byname<wchar_t, char, __mbstate_t>::~~codecvt_byname()
vfunc[2]:	codecvt<wchar_t, char, __mbstate_t>::do_out(__mbstate_t&, wchar_t const*, wchar_t const*, wchar_t const*&, char*, char*, char*&) const
vfunc[3]:	codecvt<wchar_t, char, __mbstate_t>::do_unshift(__mbstate_t&, char*, char*, char*&) const
vfunc[4]:	codecvt<wchar_t, char, __mbstate_t>::do_in(__mbstate_t&, char const*, char const*, char const*&, wchar_t*, wchar_t*, wchar_t*&) const
vfunc[5]:	codecvt<wchar_t, char, __mbstate_t>::do_encoding() const
vfunc[6]:	codecvt<wchar_t, char, __mbstate_t>::do_always_noconv() const
vfunc[7]:	codecvt<wchar_t, char, __mbstate_t>::do_length(__mbstate_t&, char const*, char const*, unsigned long) const
vfunc[8]:	codecvt<wchar_t, char, __mbstate_t>::do_max_length() const

The Run Time Type Information for the `std::codecvt_byname<wchar_t, char, __mbstate_t>` class is described by Table 12-177

**Table 12-177** typeinfo for `codecvt_byname<wchar_t, char, __mbstate_t>`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeinfo name for <code>codecvt_byname&lt;wchar_t, char, __mbstate_t&gt;</code>

### 12.1.108.2 Interfaces for Class `codecvt_byname<wchar_t, char, __mbstate_t>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::codecvt_byname<wchar_t, char, __mbstate_t>` specified in Table 12-178, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-178 libstdcxx - Class codecvt\_byname<wchar\_t, char, \_\_mbstate\_t> Function Interfaces**

codecvt_byname<wchar_t, char, __mbstate_t>::codecvt_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]
codecvt_byname<wchar_t, char, __mbstate_t>::codecvt_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]

**12.1.109 Class collate<char>****12.1.109.1 Class data for collate<char>**

The virtual table for the std::collate<char> class is described in the generic part of this specification.

The Run Time Type Information for the std::collate<char> class is described by Table 12-179

**Table 12-179 typeinfo for collate<char>**

Base Vtable	vtable for __cxxabiv1::__si_class_type_info
Name	typeinfo name for collate<char>

**12.1.109.2 Interfaces for Class collate<char>**

An LSB conforming implementation shall provide the architecture specific methods for Class std::collate<char> specified in Table 12-180, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-180 libstdcxx - Class collate<char> Function Interfaces**

collate<char>::_M_transform(char*, char const*, unsigned long) const(GLIBCXX_3.4) [ISOCXX]
collate<char>::collate(__locale_struct*, unsigned long)(GLIBCXX_3.4) [ISOCXX]
collate<char>::collate(unsigned long)(GLIBCXX_3.4) [ISOCXX]
collate<char>::collate(__locale_struct*, unsigned long)(GLIBCXX_3.4) [ISOCXX]
collate<char>::collate(unsigned long)(GLIBCXX_3.4) [ISOCXX]

**12.1.110 Class collate<wchar\_t>****12.1.110.1 Class data for collate<wchar\_t>**

The virtual table for the std::collate<wchar\_t> class is described in the generic part of this specification.

The Run Time Type Information for the std::collate<wchar\_t> class is described by Table 12-181

Table 12-181 typeinfo for collate&lt;wchar\_t&gt;

Base Vtable	vtable for __cxxabiv1::__si_class_type_info
Name	typeinfo name for collate<wchar_t>

### 12.1.110.2 Interfaces for Class collate<wchar\_t>

An LSB conforming implementation shall provide the architecture specific methods for Class std::collate<wchar\_t> specified in Table 12-182, with the full mandatory functionality as described in the referenced underlying specification.

Table 12-182 libstdcxx - Class collate&lt;wchar\_t&gt; Function Interfaces

collate<wchar_t>::_M_transform(wchar_t*, wchar_t const*, unsigned long), const(GLIBCXX_3.4) [ISOCXX]
collate<wchar_t>::collate(__locale_struct*, unsigned long)(GLIBCXX_3.4) [ISOCXX]
collate<wchar_t>::collate(unsigned long)(GLIBCXX_3.4) [ISOCXX]
collate<wchar_t>::collate(__locale_struct*, unsigned long)(GLIBCXX_3.4) [ISOCXX]
collate<wchar_t>::collate(unsigned long)(GLIBCXX_3.4) [ISOCXX]

### 12.1.111 Class collate\_byname<char>

#### 12.1.111.1 Class data for collate\_byname<char>

The virtual table for the std::collate\_byname<char> class is described in the generic part of this specification.

The Run Time Type Information for the std::collate\_byname<char> class is described by Table 12-183.

Table 12-183 typeinfo for collate\_byname&lt;char&gt;

Base Vtable	vtable for __cxxabiv1::__si_class_type_info
Name	typeinfo name for collate_byname<char>

#### 12.1.111.2 Interfaces for Class collate\_byname<char>

An LSB conforming implementation shall provide the architecture specific methods for Class std::collate\_byname<char> specified in Table 12-184, with the full mandatory functionality as described in the referenced underlying specification.

Table 12-184 libstdcxx - Class collate\_byname&lt;char&gt; Function Interfaces

collate_byname<char>::collate_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]
collate_byname<char>::collate_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]

**12.1.112 Class collate\_byname<wchar\_t>****12.1.112.1 Class data for collate\_byname<wchar\_t>**

The virtual table for the `std::collate_byname<wchar_t>` class is described in the generic part of this specification.

The Run Time Type Information for the `std::collate_byname<wchar_t>` class is described by Table 12-185

**Table 12-185 typeinfo for collate\_byname<wchar\_t>**

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeinfo name for <code>collate_byname&lt;wchar_t&gt;</code>

**12.1.112.2 Interfaces for Class collate\_byname<wchar\_t>**

An LSB conforming implementation shall provide the architecture specific methods for Class `std::collate_byname<wchar_t>` specified in Table 12-186, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-186 libstdcxx - Class collate\_byname<wchar\_t> Function Interfaces**

<code>collate_byname&lt;wchar_t&gt;::collate_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>collate_byname&lt;wchar_t&gt;::collate_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>

**12.1.113 Class time\_base****12.1.113.1 Class data for time\_base**

The Run Time Type Information for the `std::time_base` class is described by Table 12-187

**Table 12-187 typeinfo for time\_base**

Base Vtable	vtable for <code>__cxxabiv1::__class_type_info</code>
Name	typeinfo name for <code>time_base</code>

**12.1.113.2 Interfaces for Class time\_base**

No external methods are defined for `libstdcxx - Class std::time_base` in this part of the specification. See also the generic specification.

### 12.1.114 Class `time_get_byname<char, istreambuf_iterator<char, char_traits<char>>>`

#### 12.1.114.1 Class data for `time_get_byname<char, istreambuf_iterator<char, char_traits<char>>>`

The virtual table for the `std::time_get_byname<char, std::istreambuf_iterator<char, std::char_traits<char>>>` class is described in the generic part of this specification.

The Run Time Type Information for the `std::time_get_byname<char, std::istreambuf_iterator<char, std::char_traits<char>>>` class is described by Table 12-188

**Table 12-188** `typeinfo` for `time_get_byname<char, istreambuf_iterator<char, char_traits<char>>>`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeinfo name for <code>time_get_byname&lt;char, istreambuf_iterator&lt;char, char_traits&lt;char&gt;&gt;&gt;</code>

#### 12.1.114.2 Interfaces for Class `time_get_byname<char, istreambuf_iterator<char, char_traits<char>>>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::time_get_byname<char, std::istreambuf_iterator<char, std::char_traits<char>>>` specified in Table 12-189, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-189** `libstdcxx` - Class `time_get_byname<char, istreambuf_iterator<char, char_traits<char>>>` Function Interfaces

<code>time_get_byname&lt;char, istreambuf_iterator&lt;char, char_traits&lt;char&gt;&gt;&gt;</code> <code>&gt;::time_get_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>time_get_byname&lt;char, istreambuf_iterator&lt;char, char_traits&lt;char&gt;&gt;&gt;</code> <code>&gt;::time_get_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>

### 12.1.115 Class `time_get_byname<wchar_t, istreambuf_iterator<wchar_t, char_traits<wchar_t>>>`

#### 12.1.115.1 Class data for `time_get_byname<wchar_t, istreambuf_iterator<wchar_t, char_traits<wchar_t>>>`

The virtual table for the `std::time_get_byname<wchar_t, std::istreambuf_iterator<wchar_t, std::char_traits<wchar_t>>>` class is described in the generic part of this specification.

The Run Time Type Information for the `std::time_get_byname<wchar_t, std::istreambuf_iterator<wchar_t, std::char_traits<wchar_t>>>` class is described by Table 12-190

**Table 12-190** typeinfo for `time_get_byname<wchar_t, istreambuf_iterator<wchar_t, char_traits<wchar_t>>>`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeinfo name for <code>time_get_byname&lt;wchar_t, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;&gt;</code>

### 12.1.115.2 Interfaces for Class `time_get_byname<wchar_t, istreambuf_iterator<wchar_t, char_traits<wchar_t>>>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::time_get_byname<wchar_t, std::istreambuf_iterator<wchar_t, std::char_traits<wchar_t>>>` specified in Table 12-191, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-191** `libstdcxx` - Class `time_get_byname<wchar_t, istreambuf_iterator<wchar_t, char_traits<wchar_t>>>` Function Interfaces

<code>time_get_byname&lt;wchar_t, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;&gt;::time_get_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>time_get_byname&lt;wchar_t, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;&gt;::time_get_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>

### 12.1.116 Class `time_put_byname<char, ostreambuf_iterator<char, char_traits<char>>>`

#### 12.1.116.1 Class `data` for `time_put_byname<char, ostreambuf_iterator<char, char_traits<char>>>`

The virtual table for the `std::time_put_byname<char, std::ostreambuf_iterator<char, std::char_traits<char>>>` class is described in the generic part of this specification.

The Run Time Type Information for the `std::time_put_byname<char, std::ostreambuf_iterator<char, std::char_traits<char>>>` class is described by Table 12-192

**Table 12-192** typeinfo for `time_put_byname<char, ostreambuf_iterator<char, char_traits<char>>>`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeinfo name for <code>time_put_byname&lt;char, ostreambuf_iterator&lt;char, char_traits&lt;char&gt;&gt;&gt;</code>

### 12.1.116.2 Interfaces for Class `time_put_byname<char, ostreambuf_iterator<char, char_traits<char>>>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::time_put_byname<char, std::ostreambuf_iterator<char, std::char_traits<char>>>` specified in Table 12-193, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-193 libstdcxx - Class `time_put_byname<char, ostreambuf_iterator<char, char_traits<char>>>` Function Interfaces**

<code>time_put_byname&lt;char, ostreambuf_iterator&lt;char, char_traits&lt;char&gt;&gt;&gt;</code> <code>&gt;::time_put_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>time_put_byname&lt;char, ostreambuf_iterator&lt;char, char_traits&lt;char&gt;&gt;&gt;</code> <code>&gt;::time_put_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>

### 12.1.117 Class `time_put_byname<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t>>>`

#### 12.1.117.1 Class data for `time_put_byname<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t>>>`

The virtual table for the `std::time_put_byname<wchar_t, std::ostreambuf_iterator<wchar_t, std::char_traits<wchar_t>>>` class is described in the generic part of this specification.

The Run Time Type Information for the `std::time_put_byname<wchar_t, std::ostreambuf_iterator<wchar_t, std::char_traits<wchar_t>>>` class is described by Table 12-194

**Table 12-194 typeid for `time_put_byname<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t>>>`**

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeid name for <code>time_put_byname&lt;wchar_t, ostreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;&gt;</code>

#### 12.1.117.2 Interfaces for Class `time_put_byname<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t>>>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::time_put_byname<wchar_t, std::ostreambuf_iterator<wchar_t, std::char_traits<wchar_t>>>` specified in Table 12-195, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-195 libstdcxx - Class `time_put_byname<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t>>>` Function Interfaces**

<code>time_put_byname&lt;wchar_t, ostreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;&gt;</code> <code>&gt;::time_put_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
---

<pre>time_put_byname&lt;wchar_t, ostreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt; &gt;::time_put_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</pre>
--

### 12.1.118 Class `time_get<char, istreambuf_iterator<char, char_traits<char> > >`

#### 12.1.118.1 Class data for `time_get<char, istreambuf_iterator<char, char_traits<char> > >`

The virtual table for the `std::time_get<char, std::istreambuf_iterator<char, std::char_traits<char> > >` class is described in the generic part of this specification.

#### 12.1.118.2 Interfaces for Class `time_get<char, istreambuf_iterator<char, char_traits<char> > >`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::time_get<char, std::istreambuf_iterator<char, std::char_traits<char> > >` specified in Table 12-196, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-196 libstdc++ - Class `time_get<char, istreambuf_iterator<char, char_traits<char> > >` Function Interfaces**

<pre>time_get&lt;char, istreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; &gt;::M_extract_num(istreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt;, istreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt;, int&amp;, int, int, unsigned long, ios_base&amp;, _Ios_ostate&amp;) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>time_get&lt;char, istreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; &gt;::M_extract_name(istreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt;, istreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt;, int&amp;, char const**, unsigned long, ios_base&amp;, _Ios_ostate&amp;) const(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>time_get&lt;char, istreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; &gt;::time_get(unsigned long)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>time_get&lt;char, istreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; &gt;::time_get(unsigned long)(GLIBCXX_3.4) [ISOCXX]</pre>

### 12.1.119 Class `time_get<wchar_t, istreambuf_iterator<wchar_t, char_traits<wchar_t> > >`

#### 12.1.119.1 Class data for `time_get<wchar_t, istreambuf_iterator<wchar_t, char_traits<wchar_t> > >`

The virtual table for the `std::time_get<wchar_t, std::istreambuf_iterator<wchar_t, std::char_traits<wchar_t> > >` class is described in the generic part of this specification.

#### 12.1.119.2 Interfaces for Class `time_get<wchar_t, istreambuf_iterator<wchar_t, char_traits<wchar_t> > >`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::time_get<wchar_t, std::istreambuf_iterator<wchar_t,`

std::char\_traits<wchar\_t> > > specified in Table 12-197, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-197 libstdc++ - Class time\_get<wchar\_t, istreambuf\_iterator<wchar\_t, char\_traits<wchar\_t> > > Function Interfaces**

time_get<wchar_t, istreambuf_iterator<wchar_t, char_traits<wchar_t> > >::M_extract_num(istreambuf_iterator<wchar_t, char_traits<wchar_t> >, istreambuf_iterator<wchar_t, char_traits<wchar_t> >, int&, int, int, unsigned long, ios_base&, _Ios_Iostate&) const(GLIBCXX_3.4) [ISOCXX]
time_get<wchar_t, istreambuf_iterator<wchar_t, char_traits<wchar_t> > >::M_extract_name(istreambuf_iterator<wchar_t, char_traits<wchar_t> >, istreambuf_iterator<wchar_t, char_traits<wchar_t> >, int&, wchar_t const**, unsigned long, ios_base&, _Ios_Iostate&) const(GLIBCXX_3.4) [ISOCXX]
time_get<wchar_t, istreambuf_iterator<wchar_t, char_traits<wchar_t> > >::time_get(unsigned long)(GLIBCXX_3.4) [ISOCXX]
time_get<wchar_t, istreambuf_iterator<wchar_t, char_traits<wchar_t> > >::time_get(unsigned long)(GLIBCXX_3.4) [ISOCXX]

**12.1.120 Class time\_put<char, ostreambuf\_iterator<char, char\_traits<char> > >**

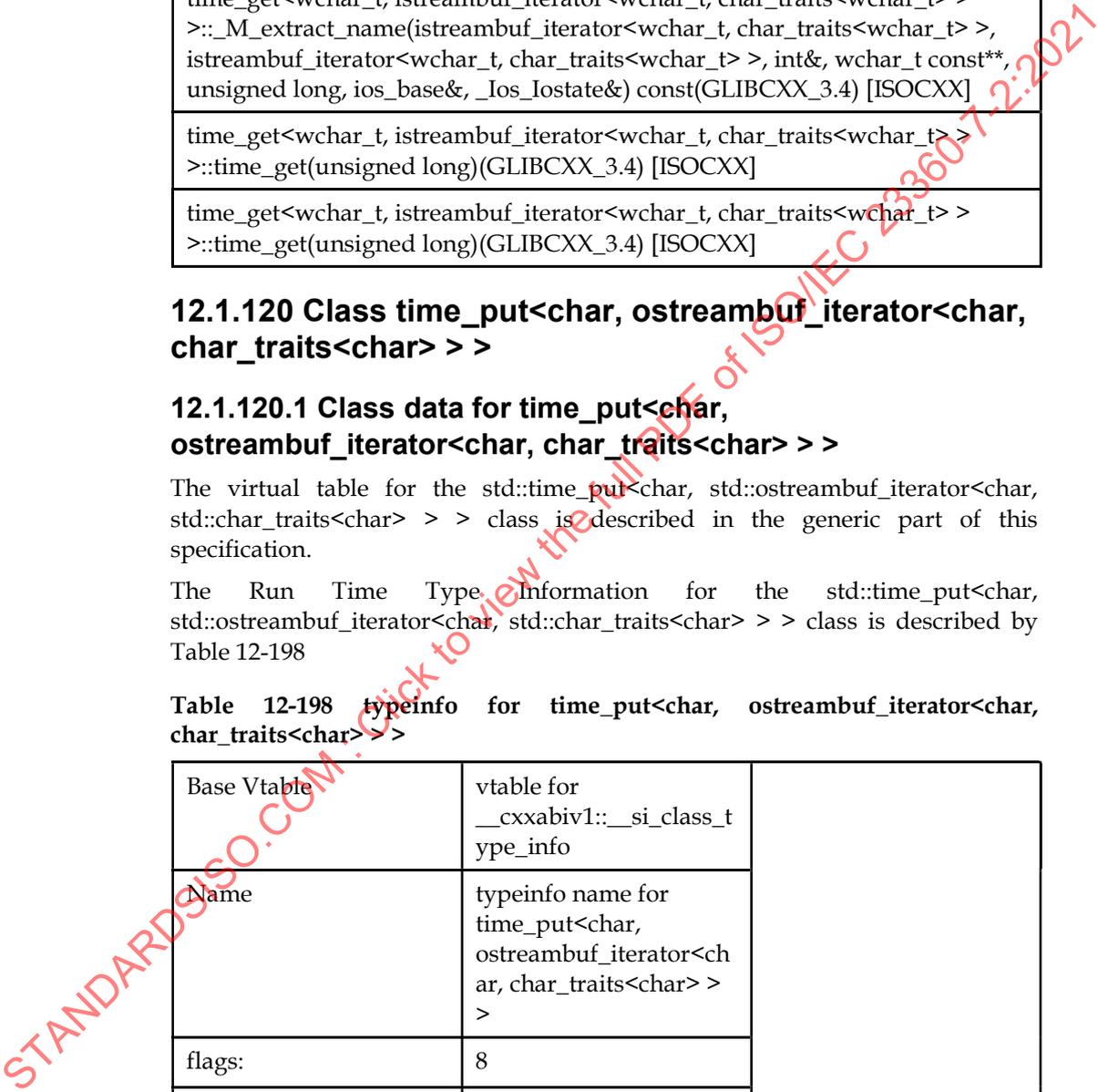
**12.1.120.1 Class data for time\_put<char, ostreambuf\_iterator<char, char\_traits<char> > >**

The virtual table for the std::time\_put<char, std::ostreambuf\_iterator<char, std::char\_traits<char> > > class is described in the generic part of this specification.

The Run Time Type Information for the std::time\_put<char, std::ostreambuf\_iterator<char, std::char\_traits<char> > > class is described by Table 12-198

**Table 12-198 typeid for time\_put<char, ostreambuf\_iterator<char, char\_traits<char> > >**

Base Vtable	vtable for __cxxabiv1::__si_class_type_info	
Name	typeid name for time_put<char, ostreambuf_iterator<char, char_traits<char> > >	
flags:	8	
basetype:	typeid for locale::facet	2
basetype:	typeid for time_base	2



**12.1.120.2 Interfaces for Class `time_put<char, ostreambuf_iterator<char, char_traits<char>>>`**

An LSB conforming implementation shall provide the architecture specific methods for Class `std::time_put<char, std::ostreambuf_iterator<char, std::char_traits<char>>>` specified in Table 12-199, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-199 `libstdcxx` - Class `time_put<char, ostreambuf_iterator<char, char_traits<char>>>` Function Interfaces**

<code>time_put&lt;char, ostreambuf_iterator&lt;char, char_traits&lt;char&gt;&gt;&gt;</code> <code>&gt;::time_put(unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>time_put&lt;char, ostreambuf_iterator&lt;char, char_traits&lt;char&gt;&gt;&gt;</code> <code>&gt;::time_put(unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>

**12.1.121 Class `time_put<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t>>>`**

**12.1.121.1 Class data for `time_put<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t>>>`**

The virtual table for the `std::time_put<wchar_t, std::ostreambuf_iterator<wchar_t, std::char_traits<wchar_t>>>` class is described in the generic part of this specification.

The Run Time Type Information for the `std::time_put<wchar_t, std::ostreambuf_iterator<wchar_t, std::char_traits<wchar_t>>>` class is described by Table 12-200

**Table 12-200 `typeinfo` for `time_put<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t>>>`**

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>	
Name	typeinfo name for <code>time_put&lt;wchar_t, ostreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;&gt;</code>	
flags:	8	
basetype:	typeinfo for <code>locale::facet</code>	2
basetype:	typeinfo for <code>time_base</code>	2

**12.1.121.2 Interfaces for Class `time_put<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t>>>`**

An LSB conforming implementation shall provide the architecture specific methods for Class `std::time_put<wchar_t, std::ostreambuf_iterator<wchar_t, std::char_traits<wchar_t>>>` specified in Table 12-201, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-201 libstdcxx - Class `time_put<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t>>>` Function Interfaces**

<code>time_put&lt;wchar_t, ostreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;&gt;::time_put(unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>time_put&lt;wchar_t, ostreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;&gt;::time_put(unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>

**12.1.122 Class `money_punct<char, false>`****12.1.122.1 Class data for `money_punct<char, false>`**

The virtual table for the `std::money_punct<char, false>` class is described in the generic part of this specification.

**12.1.122.2 Interfaces for Class `money_punct<char, false>`**

An LSB conforming implementation shall provide the architecture specific methods for Class `std::money_punct<char, false>` specified in Table 12-202, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-202 libstdcxx - Class `money_punct<char, false>` Function Interfaces**

<code>money_punct&lt;char, false&gt;::money_punct(__locale_struct*, char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>money_punct&lt;char, false&gt;::money_punct(money_punct_cache&lt;char, false&gt;*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>money_punct&lt;char, false&gt;::money_punct(unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>money_punct&lt;char, false&gt;::money_punct(__locale_struct*, char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>money_punct&lt;char, false&gt;::money_punct(money_punct_cache&lt;char, false&gt;*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>money_punct&lt;char, false&gt;::money_punct(unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>

**12.1.123 Class `money_punct<char, true>`****12.1.123.1 Class data for `money_punct<char, true>`**

The virtual table for the `std::money_punct<char, true>` class is described in the generic part of this specification.

**12.1.123.2 Interfaces for Class `money_punct<char, true>`**

An LSB conforming implementation shall provide the architecture specific methods for Class `std::money_punct<char, true>` specified in Table 12-203, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-203 libstdcxx - Class `money_punct<char, true>` Function Interfaces**

<code>money_punct&lt;char, true&gt;::money_punct(__locale_struct*, char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>money_punct&lt;char, true&gt;::money_punct(__money_punct_cache&lt;char, true&gt;*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>money_punct&lt;char, true&gt;::money_punct(unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>money_punct&lt;char, true&gt;::money_punct(__locale_struct*, char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>money_punct&lt;char, true&gt;::money_punct(__money_punct_cache&lt;char, true&gt;*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>money_punct&lt;char, true&gt;::money_punct(unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>

**12.1.124 Class `money_punct<wchar_t, false>`****12.1.124.1 Class data for `money_punct<wchar_t, false>`**

The virtual table for the `std::money_punct<wchar_t, false>` class is described in the generic part of this specification.

**12.1.124.2 Interfaces for Class `money_punct<wchar_t, false>`**

An LSB conforming implementation shall provide the architecture specific methods for Class `std::money_punct<wchar_t, false>` specified in Table 12-204, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-204 libstdcxx - Class `money_punct<wchar_t, false>` Function Interfaces**

<code>money_punct&lt;wchar_t, false&gt;::money_punct(__locale_struct*, char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>money_punct&lt;wchar_t, false&gt;::money_punct(__money_punct_cache&lt;wchar_t, false&gt;*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>money_punct&lt;wchar_t, false&gt;::money_punct(unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>money_punct&lt;wchar_t, false&gt;::money_punct(__locale_struct*, char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>money_punct&lt;wchar_t, false&gt;::money_punct(__money_punct_cache&lt;wchar_t, false&gt;*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>money_punct&lt;wchar_t, false&gt;::money_punct(unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>

**12.1.125 Class `money_punct<wchar_t, true>`****12.1.125.1 Class data for `money_punct<wchar_t, true>`**

The virtual table for the `std::money_punct<wchar_t, true>` class is described in the generic part of this specification.

### 12.1.125.2 Interfaces for Class `money_punct<wchar_t, true>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::money_punct<wchar_t, true>` specified in Table 12-205, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-205 libstdcxx - Class `money_punct<wchar_t, true>` Function Interfaces**

<code>money_punct&lt;wchar_t, true&gt;::money_punct(__locale_struct*, char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>money_punct&lt;wchar_t, true&gt;::money_punct(__money_punct_cache&lt;wchar_t, true&gt;*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>money_punct&lt;wchar_t, true&gt;::money_punct(unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>money_punct&lt;wchar_t, true&gt;::money_punct(__locale_struct*, char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>money_punct&lt;wchar_t, true&gt;::money_punct(__money_punct_cache&lt;wchar_t, true&gt;*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>money_punct&lt;wchar_t, true&gt;::money_punct(unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>

### 12.1.126 Class `money_punct_byname<char, false>`

#### 12.1.126.1 Class data for `money_punct_byname<char, false>`

The virtual table for the `std::money_punct_byname<char, false>` class is described in the generic part of this specification.

The Run Time Type Information for the `std::money_punct_byname<char, false>` class is described by Table 12-206

**Table 12-206 typeinfo for `money_punct_byname<char, false>`**

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeinfo name for <code>money_punct_byname&lt;char, false&gt;</code>

#### 12.1.126.2 Interfaces for Class `money_punct_byname<char, false>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::money_punct_byname<char, false>` specified in Table 12-207, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-207 libstdcxx - Class `money_punct_byname<char, false>` Function Interfaces**

<code>money_punct_byname&lt;char, false&gt;::money_punct_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
--

<pre>money_punct_byname&lt;char, false&gt;::money_punct_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</pre>
--

## 12.1.127 Class money\_punct\_byname<char, true>

### 12.1.127.1 Class data for money\_punct\_byname<char, true>

The virtual table for the `std::money_punct_byname<char, true>` class is described in the generic part of this specification.

The Run Time Type Information for the `std::money_punct_byname<char, true>` class is described by Table 12-208

Table 12-208 typeinfo for money\_punct\_byname<char, true>

Base Vtable	vtable for __cxxabiv1::__si_class_type_info
Name	typeinfo name for money_punct_byname<char, true>

### 12.1.127.2 Interfaces for Class money\_punct\_byname<char, true>

An LSB conforming implementation shall provide the architecture specific methods for Class `std::money_punct_byname<char, true>` specified in Table 12-209, with the full mandatory functionality as described in the referenced underlying specification.

Table 12-209 libstdc++ - Class money\_punct\_byname<char, true> Function Interfaces

<pre>money_punct_byname&lt;char, true&gt;::money_punct_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>money_punct_byname&lt;char, true&gt;::money_punct_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</pre>

## 12.1.128 Class money\_punct\_byname<wchar\_t, false>

### 12.1.128.1 Class data for money\_punct\_byname<wchar\_t, false>

The virtual table for the `std::money_punct_byname<wchar_t, false>` class is described in the generic part of this specification.

The Run Time Type Information for the `std::money_punct_byname<wchar_t, false>` class is described by Table 12-210

Table 12-210 typeinfo for money\_punct\_byname<wchar\_t, false>

Base Vtable	vtable for __cxxabiv1::__si_class_type_info
Name	typeinfo name for money_punct_byname<wchar_t, false>

### 12.1.128.2 Interfaces for Class `money_punct_byname<wchar_t, false>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::money_punct_byname<wchar_t, false>` specified in Table 12-211, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-211 libstdcxx - Class `money_punct_byname<wchar_t, false>` Function Interfaces**

<code>money_punct_byname&lt;wchar_t, false&gt;::money_punct_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>money_punct_byname&lt;wchar_t, false&gt;::money_punct_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>

### 12.1.129 Class `money_punct_byname<wchar_t, true>`

#### 12.1.129.1 Class data for `money_punct_byname<wchar_t, true>`

The virtual table for the `std::money_punct_byname<wchar_t, true>` class is described in the generic part of this specification.

The Run Time Type Information for the `std::money_punct_byname<wchar_t, true>` class is described by Table 12-212

**Table 12-212 typeid for `money_punct_byname<wchar_t, true>`**

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeid name for <code>money_punct_byname&lt;wchar_t, true&gt;</code>

#### 12.1.129.2 Interfaces for Class `money_punct_byname<wchar_t, true>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::money_punct_byname<wchar_t, true>` specified in Table 12-213, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-213 libstdcxx - Class `money_punct_byname<wchar_t, true>` Function Interfaces**

<code>money_punct_byname&lt;wchar_t, true&gt;::money_punct_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>money_punct_byname&lt;wchar_t, true&gt;::money_punct_byname(char const*, unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>

## 12.1.130 Class money\_base

### 12.1.130.1 Class data for money\_base

The Run Time Type Information for the `std::money_base` class is described by Table 12-214

Table 12-214 `typeinfo` for `money_base`

Base Vtable	vtable for <code>__cxxabiv1::__class_type_info</code>
Name	<code>typeinfo</code> name for <code>money_base</code>

### 12.1.130.2 Interfaces for Class money\_base

No external methods are defined for `libstdcxx` - Class `std::money_base` in this part of the specification. See also the generic specification.

## 12.1.131 Class money\_get<char, istreambuf\_iterator<char, char\_traits<char>>>

### 12.1.131.1 Class data for money\_get<char, istreambuf\_iterator<char, char\_traits<char>>>

The virtual table for the `std::money_get<char, std::istreambuf_iterator<char, std::char_traits<char>>>` class is described in the generic part of this specification.

The Run Time Type Information for the `std::money_get<char, std::istreambuf_iterator<char, std::char_traits<char>>>` class is described by Table 12-215

Table 12-215 `typeinfo` for `money_get<char, istreambuf_iterator<char, char_traits<char>>>`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	<code>typeinfo</code> name for <code>money_get&lt;char, istreambuf_iterator&lt;char, char_traits&lt;char&gt;&gt;&gt;</code>

### 12.1.131.2 Interfaces for Class money\_get<char, istreambuf\_iterator<char, char\_traits<char>>>

An LSB conforming implementation shall provide the architecture specific methods for Class `std::money_get<char, std::istreambuf_iterator<char, std::char_traits<char>>>` specified in Table 12-216, with the full mandatory functionality as described in the referenced underlying specification.

Table 12-216 `libstdcxx` - Class `money_get<char, istreambuf_iterator<char, char_traits<char>>>` Function Interfaces

<pre>istreambuf_iterator&lt;char, char_traits&lt;char&gt;&gt; &gt; __gnu_cxx_ldbl128::money_get&lt;char, istreambuf_iterator&lt;char, char_traits&lt;char&gt;&gt;&gt;&gt;::_M_extract&lt;false&gt;(istreambuf_iterator&lt;char, char_traits&lt;char&gt;&gt;&gt;, istreambuf_iterator&lt;char, char_traits&lt;char&gt;&gt;&gt;,</pre>
--

<code>ios_base&amp;, _Ios_Iostate&amp;, basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;&amp;) const(GLIBCXX_LDBL_3.4) [LSB]</code>
<code>istreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; &gt; __gnu_cxx_ldbl128::money_get&lt;char, istreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; &gt;::_M_extract&lt;true&gt;(istreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt;, istreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt;, ios_base&amp;, _Ios_Iostate&amp;, basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;&amp;) const(GLIBCXX_LDBL_3.4) [LSB]</code>
<code>__gnu_cxx_ldbl128::money_get&lt;char, istreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; &gt;::get(istreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt;, istreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt;, bool, ios_base&amp;, _Ios_Iostate&amp;, basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt;&amp;) const(GLIBCXX_LDBL_3.4) [LSB]</code>
<code>__gnu_cxx_ldbl128::money_get&lt;char, istreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; &gt;::get(istreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt;, istreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt;, bool, ios_base&amp;, _Ios_Iostate&amp;, __float128&amp;) const(GLIBCXX_LDBL_3.4) [LSB]</code>
<code>__gnu_cxx_ldbl128::money_get&lt;char, istreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; &gt;::money_get(unsigned long)(GLIBCXX_LDBL_3.4) [LSB]</code>
<code>__gnu_cxx_ldbl128::money_get&lt;char, istreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; &gt;::money_get(unsigned long)(GLIBCXX_LDBL_3.4) [LSB]</code>
<code>money_get&lt;char, istreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; &gt;::money_get(unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>
<code>money_get&lt;char, istreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; &gt;::money_get(unsigned long)(GLIBCXX_3.4) [ISOCXX]</code>

An LSB conforming implementation shall provide the architecture specific data interfaces for Class `std::money_get<char, std::istreambuf_iterator<char, std::char_traits<char> > >` specified in Table 12-217, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-217 libstdcxx - Class `money_get<char, istreambuf_iterator<char, char_traits<char> > >` Data Interfaces**

<code>typeinfo for __gnu_cxx_ldbl128::money_get&lt;char, istreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; &gt;(GLIBCXX_LDBL_3.4) [CXXABI-1.86]</code>
<code>typeinfo name for __gnu_cxx_ldbl128::money_get&lt;char, istreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; &gt;(GLIBCXX_LDBL_3.4) [CXXABI-1.86]</code>

### 12.1.132 Class `money_get<wchar_t, istreambuf_iterator<wchar_t, char_traits<wchar_t>>>`

#### 12.1.132.1 Class data for `money_get<wchar_t, istreambuf_iterator<wchar_t, char_traits<wchar_t>>>`

The virtual table for the `std::money_get<wchar_t, std::istreambuf_iterator<wchar_t, std::char_traits<wchar_t>>>` class is described in the generic part of this specification.

The Run Time Type Information for the `std::money_get<wchar_t, std::istreambuf_iterator<wchar_t, std::char_traits<wchar_t>>>` class is described by Table 12-218

**Table 12-218** `typeinfo` for `money_get<wchar_t, istreambuf_iterator<wchar_t, char_traits<wchar_t>>>`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeinfo name for <code>money_get&lt;wchar_t, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;&gt;</code>

#### 12.1.132.2 Interfaces for Class `money_get<wchar_t, istreambuf_iterator<wchar_t, char_traits<wchar_t>>>`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::money_get<wchar_t, std::istreambuf_iterator<wchar_t, std::char_traits<wchar_t>>>` specified in Table 12-219, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-219** `libstdcxx` - Class `money_get<wchar_t, istreambuf_iterator<wchar_t, char_traits<wchar_t>>>` Function Interfaces

<pre>istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt; __gnu_cxx_ldbl128::money_get&lt;wchar_t, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;&gt;::_M_extract&lt;false&gt;(istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt; &gt;, ios_base&amp;, _Ios_Iostate&amp;, basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt;&amp;) const(GLIBCXX_LDBL_3.4) [LSB]</pre>
<pre>istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt; __gnu_cxx_ldbl128::money_get&lt;wchar_t, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;&gt;::_M_extract&lt;true&gt;(istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt; &gt;, ios_base&amp;, _Ios_Iostate&amp;, basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt;&amp;) const(GLIBCXX_LDBL_3.4) [LSB]</pre>
<pre>__gnu_cxx_ldbl128::money_get&lt;wchar_t, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;&gt;::get(istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt; &gt;, bool, ios_base&amp;, _Ios_Iostate&amp;, basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt;&gt;&amp;) const(GLIBCXX_LDBL_3.4) [LSB]</pre>

<pre>__gnu_cxx_ldbl128::money_get&lt;wchar_t, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt; &gt;::get(istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt;, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt;, bool, ios_base&amp;, _Ios_ostate&amp;, __float128&amp;) const(GLIBCXX_LDBL_3.4) [LSB]</pre>
<pre>__gnu_cxx_ldbl128::money_get&lt;wchar_t, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt; &gt;::do_get(istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt;, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt;, bool, ios_base&amp;, _Ios_ostate&amp;, basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt;&amp;) const(GLIBCXX_LDBL_3.4) [LSB]</pre>
<pre>__gnu_cxx_ldbl128::money_get&lt;wchar_t, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt; &gt;::do_get(istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt;, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt;, bool, ios_base&amp;, _Ios_ostate&amp;, __float128&amp;) const(GLIBCXX_LDBL_3.4) [LSB]</pre>
<pre>__gnu_cxx_ldbl128::money_get&lt;wchar_t, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt; &gt;::_do_get(istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt;, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt;, bool, ios_base&amp;, _Ios_ostate&amp;, double&amp;) const(GLIBCXX_LDBL_3.4) [LSB]</pre>
<pre>__gnu_cxx_ldbl128::money_get&lt;wchar_t, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt; &gt;::money_get(unsigned long)(GLIBCXX_LDBL_3.4) [LSB]</pre>
<pre>__gnu_cxx_ldbl128::money_get&lt;wchar_t, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt; &gt;::money_get(unsigned long)(GLIBCXX_LDBL_3.4) [LSB]</pre>
<pre>__gnu_cxx_ldbl128::money_get&lt;wchar_t, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt; &gt;::~money_get()(GLIBCXX_LDBL_3.4) [LSB]</pre>
<pre>__gnu_cxx_ldbl128::money_get&lt;wchar_t, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt; &gt;::~money_get()(GLIBCXX_LDBL_3.4) [LSB]</pre>
<pre>__gnu_cxx_ldbl128::money_get&lt;wchar_t, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt; &gt;::~money_get()(GLIBCXX_LDBL_3.4) [LSB]</pre>
<pre>money_get&lt;wchar_t, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt; &gt; &gt;::money_get(unsigned long)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>money_get&lt;wchar_t, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt; &gt; &gt;::money_get(unsigned long)(GLIBCXX_3.4) [ISOCXX]</pre>

An LSB conforming implementation shall provide the architecture specific data interfaces for Class `std::money_get<wchar_t, std::istreambuf_iterator<wchar_t, std::char_traits<wchar_t> > >` specified in Table 12-220, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-220 libstdcxx - Class `money_get<wchar_t, istreambuf_iterator<wchar_t, char_traits<wchar_t> > >` Data Interfaces**

<pre>typeid for __gnu_cxx_ldbl128::money_get&lt;wchar_t, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt; &gt;(GLIBCXX_LDBL_3.4) [CXXABI-1.86]</pre>
---

typeinfo name for <code>__gnu_cxx_ldbl128::money_get&lt;wchar_t, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;&gt;</code> (GLIBCXX_LDBL_3.4) [CXXABI-1.86]
---

vtable for <code>__gnu_cxx_ldbl128::money_get&lt;wchar_t, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt;&gt;&gt;</code> (GLIBCXX_LDBL_3.4) [CXXABI-1.86]
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### 12.1.133 Class `money_put<char, ostreambuf_iterator<char, char_traits<char>>>`

#### 12.1.133.1 Class data for `money_put<char, ostreambuf_iterator<char, char_traits<char>>>`

The virtual table for the `std::money_put<char, std::ostreambuf_iterator<char, std::char_traits<char>>>` class is described in the generic part of this specification.

The Run Time Type Information for the `std::money_put<char, std::ostreambuf_iterator<char, std::char_traits<char>>>` class is described by Table 12-221

**Table 12-221 typeinfo for `money_put<char, ostreambuf_iterator<char, char_traits<char>>>`**

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeinfo name for <code>money_put&lt;char, ostreambuf_iterator&lt;char, char_traits&lt;char&gt;&gt;&gt;</code>

#### 12.1.133.2 Interfaces for Class `money_put<char, ostreambuf_iterator<char, char_traits<char>>>`

An LSB conforming implementation shall provide the architecture specific methods for . Class `std::money_put<char, std::ostreambuf_iterator<char, std::char_traits<char>>>` specified in Table 12-222, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-222 libstdcxx - Class `money_put<char, ostreambuf_iterator<char, char_traits<char>>>` Function Interfaces**

<code>__gnu_cxx_ldbl128::money_put&lt;char, ostreambuf_iterator&lt;char, char_traits&lt;char&gt;&gt;&gt;::put(ostreambuf_iterator&lt;char, char_traits&lt;char&gt;&gt;, bool, ios_base&amp;, char, basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt; const&amp;) const</code> (GLIBCXX_LDBL_3.4) [ISOCXX]
<code>__gnu_cxx_ldbl128::money_put&lt;char, ostreambuf_iterator&lt;char, char_traits&lt;char&gt;&gt;&gt;::put(ostreambuf_iterator&lt;char, char_traits&lt;char&gt;&gt;, bool, ios_base&amp;, char, __float128) const</code> (GLIBCXX_LDBL_3.4) [ISOCXX]
<code>__gnu_cxx_ldbl128::money_put&lt;char, ostreambuf_iterator&lt;char, char_traits&lt;char&gt;&gt;&gt;::do_put(ostreambuf_iterator&lt;char, char_traits&lt;char&gt;&gt;, bool, ios_base&amp;, char, basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt;&gt; const&amp;) const</code> (GLIBCXX_LDBL_3.4) [ISOCXX]

<pre>__gnu_cxx_ldbl128::money_put&lt;char, ostreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; &gt;::do_put(ostreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt;, bool, ios_base&amp;, char, __float128) const(GLIBCXX_LDBL_3.4) [ISOCXX]</pre>
<pre>__gnu_cxx_ldbl128::money_put&lt;char, ostreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; &gt;::__do_put(ostreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt;, bool, ios_base&amp;, char, double) const(GLIBCXX_LDBL_3.4) [ISOCXX]</pre>
<pre>ostreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; __gnu_cxx_ldbl128::money_put&lt;char, ostreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; &gt;::__M_insert&lt;false&gt;(ostreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt;, ios_base&amp;, char, basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt; const&amp;) const(GLIBCXX_LDBL_3.4) [LSB]</pre>
<pre>ostreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; __gnu_cxx_ldbl128::money_put&lt;char, ostreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; &gt;::__M_insert&lt;true&gt;(ostreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt;, ios_base&amp;, char, basic_string&lt;char, char_traits&lt;char&gt;, allocator&lt;char&gt; &gt; const&amp;) const(GLIBCXX_LDBL_3.4) [LSB]</pre>
<pre>__gnu_cxx_ldbl128::money_put&lt;char, ostreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; &gt;::money_put(unsigned long)(GLIBCXX_LDBL_3.4) [LSB]</pre>
<pre>__gnu_cxx_ldbl128::money_put&lt;char, ostreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; &gt;::money_put(unsigned long)(GLIBCXX_LDBL_3.4) [LSB]</pre>
<pre>money_put&lt;char, ostreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; &gt;::money_put(unsigned long)(GLIBCXX_3.4) [ISOCXX]</pre>
<pre>money_put&lt;char, ostreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; &gt;::money_put(unsigned long)(GLIBCXX_3.4) [ISOCXX]</pre>

An LSB conforming implementation shall provide the architecture specific data interfaces for Class `std::money_put<char, std::ostreambuf_iterator<char, std::char_traits<char> > >` specified in Table 12-223, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-223 libstdcxx - Class `money_put<char, ostreambuf_iterator<char, char_traits<char> > >` Data Interfaces**

<pre>typeinfo for __gnu_cxx_ldbl128::money_put&lt;char, ostreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; &gt;(GLIBCXX_LDBL_3.4) [CXXABI-1.86]</pre>
<pre>typeinfo name for __gnu_cxx_ldbl128::money_put&lt;char, ostreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; &gt;(GLIBCXX_LDBL_3.4) [CXXABI-1.86]</pre>

**12.1.134 Class `money_put<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t> > >`**

**12.1.134.1 Class data for `money_put<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t> > >`**

The virtual table for the `std::money_put<wchar_t, std::ostreambuf_iterator<wchar_t, std::char_traits<wchar_t> > >` class is described in the generic part of this specification.

The Run Time Type Information for the `std::money_put<wchar_t, std::ostreambuf_iterator<wchar_t, std::char_traits<wchar_t> > >` class is described by Table 12-224

**Table 12-224 typeinfo for `money_put<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t> > >`**

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeid name for <code>money_put&lt;wchar_t, ostreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt; &gt;</code>

### 12.1.134.2 Interfaces for Class `money_put<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t> > >`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::money_put<wchar_t, std::ostreambuf_iterator<wchar_t, std::char_traits<wchar_t> > >` specified in Table 12-225, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-225 `libstdcxx` - Class `money_put<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t> > >` Function Interfaces**

<code>__gnu_cxx_ldbl128::money_put&lt;wchar_t, ostreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt; &gt;::put(ostreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt;, bool, ios_base&amp;, wchar_t, basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt; const&amp;)</code> const(GLIBCXX_LDBL_3.4) [ISOCXX]
<code>__gnu_cxx_ldbl128::money_put&lt;wchar_t, ostreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt; &gt;::put(ostreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt;, bool, ios_base&amp;, wchar_t, __float128)</code> const(GLIBCXX_LDBL_3.4) [ISOCXX]
<code>__gnu_cxx_ldbl128::money_put&lt;wchar_t, ostreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt; &gt;::do_put(ostreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt;, bool, ios_base&amp;, wchar_t, basic_string&lt;wchar_t, char_traits&lt;wchar_t&gt;, allocator&lt;wchar_t&gt; &gt; const&amp;)</code> const(GLIBCXX_LDBL_3.4) [ISOCXX]
<code>__gnu_cxx_ldbl128::money_put&lt;wchar_t, ostreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt; &gt;::do_put(ostreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt;, bool, ios_base&amp;, wchar_t, __float128)</code> const(GLIBCXX_LDBL_3.4) [ISOCXX]
<code>__gnu_cxx_ldbl128::money_put&lt;wchar_t, ostreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt; &gt;::_do_put(ostreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt;, bool, ios_base&amp;, wchar_t, double)</code> const(GLIBCXX_LDBL_3.4) [ISOCXX]
<code>ostreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt;</code> <code>__gnu_cxx_ldbl128::money_put&lt;wchar_t, ostreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt; &gt;::_M_insert&lt;false&gt;(ostreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt;, ios_base&amp;, wchar_t, basic_string&lt;wchar_t,</code>

char_traits<wchar_t>, allocator<wchar_t> > const&) const(GLIBCXX_LDBL_3.4) [LSB]
ostreambuf_iterator<wchar_t, char_traits<wchar_t> > __gnu_cxx_ldbl128::money_put<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t> > >::_M_insert<true>(ostreambuf_iterator<wchar_t, char_traits<wchar_t> >, ios_base&, wchar_t, basic_string<wchar_t, char_traits<wchar_t>, allocator<wchar_t> > const&) const(GLIBCXX_LDBL_3.4) [LSB]
__gnu_cxx_ldbl128::money_put<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t> > >::money_put(unsigned long)(GLIBCXX_LDBL_3.4) [LSB]
__gnu_cxx_ldbl128::money_put<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t> > >::money_put(unsigned long)(GLIBCXX_LDBL_3.4) [LSB]
__gnu_cxx_ldbl128::money_put<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t> > >::~~money_put()(GLIBCXX_LDBL_3.4) [LSB]
__gnu_cxx_ldbl128::money_put<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t> > >::~~money_put()(GLIBCXX_LDBL_3.4) [LSB]
__gnu_cxx_ldbl128::money_put<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t> > >::~~money_put()(GLIBCXX_LDBL_3.4) [LSB]
money_put<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t> > >::money_put(unsigned long)(GLIBCXX_3.4) [ISOCXX]
money_put<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t> > >::money_put(unsigned long)(GLIBCXX_3.4) [ISOCXX]

An LSB conforming implementation shall provide the architecture specific data interfaces for Class std::money\_put<wchar\_t, std::ostreambuf\_iterator<wchar\_t, std::char\_traits<wchar\_t> > > specified in Table 12-226, with the full mandatory functionality as described in the referenced underlying specification.

**Table 12-226 libstdc++ - Class money\_put<wchar\_t, ostreambuf\_iterator<wchar\_t, char\_traits<wchar\_t> > > Data Interfaces**

typedef for __gnu_cxx_ldbl128::money_put<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t> > >(GLIBCXX_LDBL_3.4) [CXXABI-1.86]
typedef name for __gnu_cxx_ldbl128::money_put<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t> > >(GLIBCXX_LDBL_3.4) [CXXABI-1.86]
vtable for __gnu_cxx_ldbl128::money_put<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t> > >(GLIBCXX_LDBL_3.4) [CXXABI-1.86]

## 12.1.135 Class locale

### 12.1.135.1 Interfaces for Class locale

An LSB conforming implementation shall provide the architecture specific methods for Class `std::locale` specified in Table 12-227, with the full mandatory functionality as described in the referenced underlying specification.

Table 12-227 `libstdcxx` - Class `locale` Function Interfaces

<code>locale::_Impl::_Impl(char const*, unsigned long)(GLIBCXX_3.4) [LSB]</code>
<code>locale::_Impl::_Impl(locale::_Impl const&amp;, unsigned long)(GLIBCXX_3.4) [LSB]</code>
<code>locale::_Impl::_Impl(unsigned long)(GLIBCXX_3.4) [LSB]</code>
<code>locale::_Impl::_Impl(char const*, unsigned long)(GLIBCXX_3.4) [LSB]</code>
<code>locale::_Impl::_Impl(locale::_Impl const&amp;, unsigned long)(GLIBCXX_3.4) [LSB]</code>
<code>locale::_Impl::_Impl(unsigned long)(GLIBCXX_3.4) [LSB]</code>

## 12.1.136 Class `locale::facet`

### 12.1.136.1 Class data for `locale::facet`

The virtual table for the `std::locale::facet` class is described in the generic part of this specification.

The Run Time Type Information for the `std::locale::facet` class is described by Table 12-228

Table 12-228 `typeinfo` for `locale::facet`

Base Vtable	vtable for <code>__cxxabiv1::__class_type_info</code>
Name	<code>typeinfo</code> name for <code>locale::facet</code>

### 12.1.136.2 Interfaces for Class `locale::facet`

No external methods are defined for `libstdcxx` - Class `std::locale::facet` in this part of the specification. See also the generic specification.

## 12.1.137 facet functions

### 12.1.137.1 Interfaces for facet functions

An LSB conforming implementation shall provide the architecture specific methods for facet functions specified in Table 12-229, with the full mandatory functionality as described in the referenced underlying specification.

Table 12-229 `libstdcxx` - facet functions Function Interfaces

<code>void __convert_to_v&lt;__float128&gt;(char const*, __float128&amp;, _Ios_Iostate&amp;, __locale_struct* const&amp;)(GLIBCXX_LDBL_3.4) [ISOCXX]</code>
---

bool has_facet<__gnu_cxx_ldbl128::num_get<char, istreambuf_iterator<char, char_traits<char> > >>(locale const&)(GLIBCXX_LDBL_3.4) [LSB]
bool has_facet<__gnu_cxx_ldbl128::num_get<wchar_t, istreambuf_iterator<wchar_t, char_traits<wchar_t> > >>(locale const&)(GLIBCXX_LDBL_3.4) [LSB]
bool has_facet<__gnu_cxx_ldbl128::num_put<char, ostreambuf_iterator<char, char_traits<char> > >>(locale const&)(GLIBCXX_LDBL_3.4) [LSB]
bool has_facet<__gnu_cxx_ldbl128::num_put<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t> > >>(locale const&)(GLIBCXX_LDBL_3.4) [LSB]
bool has_facet<__gnu_cxx_ldbl128::money_get<char, istreambuf_iterator<char, char_traits<char> > >>(locale const&)(GLIBCXX_LDBL_3.4) [LSB]
bool has_facet<__gnu_cxx_ldbl128::money_get<wchar_t, istreambuf_iterator<wchar_t, char_traits<wchar_t> > >>(locale const&)(GLIBCXX_LDBL_3.4) [LSB]
bool has_facet<__gnu_cxx_ldbl128::money_put<char, ostreambuf_iterator<char, char_traits<char> > >>(locale const&)(GLIBCXX_LDBL_3.4) [LSB]
bool has_facet<__gnu_cxx_ldbl128::money_put<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t> > >>(locale const&)(GLIBCXX_LDBL_3.4) [LSB]
__gnu_cxx_ldbl128::num_get<char, istreambuf_iterator<char, char_traits<char> > > const& use_facet<__gnu_cxx_ldbl128::num_get<char, istreambuf_iterator<char, char_traits<char> > >>(locale const&)(GLIBCXX_LDBL_3.4) [LSB]
__gnu_cxx_ldbl128::num_get<wchar_t, istreambuf_iterator<wchar_t, char_traits<wchar_t> > > const& use_facet<__gnu_cxx_ldbl128::num_get<wchar_t, istreambuf_iterator<wchar_t, char_traits<wchar_t> > >>(locale const&)(GLIBCXX_LDBL_3.4) [LSB]
__gnu_cxx_ldbl128::num_put<char, ostreambuf_iterator<char, char_traits<char> > > const& use_facet<__gnu_cxx_ldbl128::num_put<char, ostreambuf_iterator<char, char_traits<char> > >>(locale const&)(GLIBCXX_LDBL_3.4) [LSB]
__gnu_cxx_ldbl128::num_put<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t> > > const& use_facet<__gnu_cxx_ldbl128::num_put<wchar_t, ostreambuf_iterator<wchar_t, char_traits<wchar_t> > >>(locale const&)(GLIBCXX_LDBL_3.4) [LSB]
__gnu_cxx_ldbl128::money_get<char, istreambuf_iterator<char, char_traits<char> > > const& use_facet<__gnu_cxx_ldbl128::money_get<char, istreambuf_iterator<char, char_traits<char> > >>(locale const&)(GLIBCXX_LDBL_3.4) [LSB]

<pre> __gnu_cxx_ldbl128::money_get&lt;wchar_t, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt; &gt; const&amp; use_facet&lt;__gnu_cxx_ldbl128::money_get&lt;wchar_t, istreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt; &gt; &gt;(locale const&amp;)(GLIBCXX_LDBL_3.4) [LSB] </pre>
<pre> __gnu_cxx_ldbl128::money_put&lt;char, ostreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; &gt; const&amp; use_facet&lt;__gnu_cxx_ldbl128::money_put&lt;char, ostreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; &gt; &gt;(locale const&amp;)(GLIBCXX_LDBL_3.4) [LSB] </pre>
<pre> __gnu_cxx_ldbl128::money_put&lt;wchar_t, ostreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt; &gt; const&amp; use_facet&lt;__gnu_cxx_ldbl128::money_put&lt;wchar_t, ostreambuf_iterator&lt;wchar_t, char_traits&lt;wchar_t&gt; &gt; &gt; &gt;(locale const&amp;)(GLIBCXX_LDBL_3.4) [LSB] </pre>

### 12.1.138 Class `__num_base`

#### 12.1.138.1 Class data for `__num_base`

#### 12.1.138.2 Interfaces for Class `__num_base`

No external methods are defined for `libstdc++` - Class `std::__num_base` in this part of the specification. See also the generic specification.

### 12.1.139 Class `num_get<char, istreambuf_iterator<char, char_traits<char> > >`

#### 12.1.139.1 Class data for `num_get<char, istreambuf_iterator<char, char_traits<char> > >`

The virtual table for the `std::num_get<char, std::istreambuf_iterator<char, std::char_traits<char> > >` class is described in the generic part of this specification.

The Run Time Type Information for the `std::num_get<char, std::istreambuf_iterator<char, std::char_traits<char> > >` class is described by Table 12-230

**Table 12-230** `typeinfo` for `num_get<char, istreambuf_iterator<char, char_traits<char> > >`

Base Vtable	vtable for <code>__cxxabiv1::__si_class_type_info</code>
Name	typeinfo name for <code>num_get&lt;char, istreambuf_iterator&lt;char, char_traits&lt;char&gt; &gt; &gt;</code>
basetype:	typeinfo for <code>locale::facet</code>

#### 12.1.139.2 Interfaces for Class `num_get<char, istreambuf_iterator<char, char_traits<char> > >`

An LSB conforming implementation shall provide the architecture specific methods for Class `std::num_get<char, std::istreambuf_iterator<char,`