Linux Standard Base Core Specification for AMD64 3.~~0~~1

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Foreword

This is version 3.~~0~~1 of the Linux Standard Base Core Specification for AMD64. This specification is part of a family of specifications under the general title "Linux Standard Base". Developers of applications or implementations interested in using the LSB trademark should see the Free Standards Group Certification Policy for details.

Introduction

The LSB defines a binary interface for application programs that are compiled and packaged for LSB-conforming implementations on many different hardware architectures. Since a binary specification shall include information specific to the computer processor architecture for which it is intended, it is not possible for a single document to specify the interface for all possible LSB-conforming implementations. Therefore, the LSB is a family of specifications, rather than a single one.

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:

- The first number (`x`) is the major version number. All versions with the same major version number should share binary compatibility. Any addition or deletion of a new library results in a new version number. Interfaces marked as `deprecated` may be removed from the specification at a major version change.
- The second number (`y`) is the minor version number. Individual interfaces may be added if all certified implementations already had that (previously undocumented) interface. Interfaces may be marked as `deprecated` at a minor version change. Other minor changes may be permitted at the discretion of the LSB workgroup.
- 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.

1

I Introductory Elements

1 Scope

1.1 General

The Linux 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 specification ("LSB-generic" or "generic LSB") describing those parts of the interface that remain constant across all implementations of the LSB, and an architecture-specific ~~specification~~ supplement ("LSB-arch" or "archLSB") describing the parts of the interface that vary by processor architecture. Together, the LSB-generic and the architecture-specific supplement for a single hardware architecture provide a complete interface specification for compiled application programs on systems that share a common hardware architecture.

The LSB-generic document shall be used in conjunction with an architecture-specific supplement. Whenever a section of the LSB-generic specification shall be supplemented by architecture-specific information, the LSB-generic document includes a reference to the architecture supplement. Architecture supplements may also contain additional information that is not referenced in the LSB-generic document.

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 shall provide 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.

1.2 Module Specific Scope

This is the AMD64 architecture specific Core module of the Linux Standards Base (LSB). This module supplements the generic LSB Core module with those interfaces that differ between architectures.

Interfaces described in this module are mandatory except where explicitly listed otherwise. Core interfaces may be supplemented by other modules; all modules are built upon the core.

~~2 Normative References~~

~~The specifications listed below are referenced in whole or in part by the Linux Standard Base. In this specification, where only a particular section of one of these references is identified, then the normative reference is to that section alone, and the rest of the referenced document is informative.~~

2 References

2.1 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

> **Note:** Where copies of a document are available on the World Wide Web, a Uniform Resource Locator (URL) is given for informative purposes only. This may point to a more recent copy of the referenced specification, or may be out of date. Reference copies of specifications at the revision level indicated may be found at the Free Standards Group's Reference Specifications (http://refspecs.freestandards.org) site.

Table 2-1 Normative References

Name	Title	URL
AMD64 Architecture Programmer's Manual, Volume 1	AMD64 Architecture Programmer's Manual, Volume 1: Application Programming 24592 3.08	http://www.amd.com/us-en/Processors/DevelopWithAMD/
AMD64 Architecture Programmer's Manual, Volume 2	AMD64 Architecture Programmer's Manual, Volume 2: System Programming 24593 3.08	http://www.amd.com/us-en/Processors/DevelopWithAMD/
AMD64 Architecture Programmer's Manual, Volume 3	AMD64 Architecture Programmer's Manual, Volume 3: General Purpose and System Instructions 24594 3.03	http://www.amd.com/us-en/Processors/DevelopWithAMD/
AMD64 Architecture Programmer's Manual, Volume 4	AMD64 Architecture Programmer's Manual, Volume 4: 128-bit Media Instructions 26568 3.04	http://www.amd.com/us-en/Processors/DevelopWithAMD/
AMD64 Architecture Programmer's Manual, Volume 5	AMD64 Architecture Programmer's Manual, Volume 5: 64-bit Media and x87 Floating-Point Instructions 26569 3.03	http://www.amd.com/us-en/Processors/DevelopWithAMD/
~~DWARF Debugging Information Format, Revision 2.0.0~~	~~DWARF Debugging Information Format, Revision 2.0.0 (July 27,~~	~~http://refspecs.freestandards.org/dwarf/dwarf-2.0.0.pdf~~

Name	Title	URL
	~~1993)~~	
~~DWARF Debugging Information Format, Revision 3.0.0 (Draft)~~	~~DWARF Debugging Information Format, Revision 3.0.0 (Draft)~~	~~http://refspecs.freestandards.org/dwarf/~~
Filesystem Hierarchy Standard	Filesystem Hierarchy Standard (FHS) 2.3	http://www.pathname.com/fhs/
IEC 60559/IEEE 754 Floating Point	IEC 60559:1989 Binary floating-point arithmetic for microprocessor systems	http://www.ieee.org/
ISO C (1999)	ISO/IEC 9899: 1999, Programming Languages --C	
ISO POSIX (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	http://www.unix.org/version3/
~~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).~~	~~http://www.itu.int/rec/recommendation.asp?type=folders&lang=e&parent=T-REC-V.42~~

Name	Title	URL
	Error-correcting procedures for DCEs using asynchronous-to-synchronous conversionITUV	
Large File Support	Large File Support	http://www.UNIX-systems.org/version2/whatsnew/lfs20mar.html
Li18nux Globalization Specification	LI18NUX 2000 Globalization Specification, Version 1.0 with Amendment 4	http://www.li18nux.org/docs/html/LI18NUX-2000-amd4.htm
Linux Allocated Device Registry	LINUX ALLOCATED DEVICES	http://www.lanana.org/docs/device-list/devices.txt
PAM	Open Software Foundation, Request For Comments: 86.0 , October 1995, V. Samar & R.Schemers (SunSoft)	http://www.opengroup.org/tech/rfc/mirror-rfc/rfc86.0.txt
RFC 1321: The MD5 Message-Digest Algorithm	IETF RFC 1321: The MD5 Message-Digest Algorithm	http://www.ietf.org/rfc/rfc1321.txt
RFC 1833: Binding Protocols for ONC RPC Version 2	IETF RFC 1833: Binding Protocols for ONC RPC Version 2	http://www.ietf.org/rfc/rfc1833.txt
RFC 1950: ZLIB Compressed Data Format Specication	IETF RFC 1950: ZLIB Compressed Data Format Specification	http://www.ietf.org/rfc/rfc1950.txt
RFC 1951: DEFLATE Compressed Data Format Specification	IETF RFC 1951: DEFLATE Compressed Data Format Specification version 1.3	http://www.ietf.org/rfc/rfc1951.txt
RFC 1952: GZIP File Format Specification	IETF RFC 1952: GZIP file format specification version 4.3	http://www.ietf.org/rfc/rfc1952.txt
RFC 2440: OpenPGP Message Format	IETF RFC 2440: OpenPGP Message Format	http://www.ietf.org/rfc/rfc2440.txt
RFC 2821:Simple Mail Transfer Protocol	IETF RFC 2821: Simple Mail Transfer Protocol	http://www.ietf.org/rfc/rfc2821.txt
RFC 2822:Internet Message Format	IETF RFC 2822: Internet Message Format	http://www.ietf.org/rfc/rfc2822.txt
RFC 791:Internet	IETF RFC 791: Internet	http://www.ietf.org/rfc

Name	Title	URL
~~Protocol~~	~~Protocol Specification~~	~~/rfc791.txt~~
SUSv2	CAE Specification, January 1997, System Interfaces and Headers (XSH),Issue 5 (ISBN: 1-85912-181-0, C606)	http://www.opengroup.org/publications/catalog/un.htm
SUSv2 Commands and Utilities	The Single UNIX® Specification(SUS) Version 2, Commands and Utilities (XCU), Issue 5 (ISBN: 1-85912-191-8, C604)	http://www.opengroup.org/publications/catalog/un.htm
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	
System V ABI	System V Application Binary Interface, Edition 4.1	http://www.caldera.com/developers/devspecs/gabi41.pdf
System V ABI Update	System V Application Binary Interface - DRAFT - 17 December 2003	http://www.caldera.com/developers/gabi/2003-12-17/contents.html
System V Application Binary Interface AMD64 Architecture Processor Supplement	System V Application Binary Interface AMD64 Architecture Processor Supplement, Draft Version 0.95	http://www.x86-64.org/documentation/abi-0.95.pdf
~~this specification~~	~~Linux Standard Base~~	~~http://www.linuxbase.org/spec/~~
X/Open Curses	CAE Specification, May 1996, X/Open Curses, Issue 4, Version 2 (ISBN: 1-85912-171-3, C610), plus Corrigendum U018	http://www.opengroup.org/publications/catalog/un.htm

2.2 Informative References/Bibliography

In addition, the specifications listed below provide essential background information to implementors of this specification. These references are included for information only.

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Table 2-2 Other References

Name	Title	URL
DWARF Debugging Information Format, Revision 2.0.0	DWARF Debugging Information Format, Revision 2.0.0 (July 27, 1993)	http://refspecs.freestandards.org/dwarf/dwarf-2.0.0.pdf
DWARF Debugging Information Format, Revision 3.0.0 (Draft)	DWARF Debugging Information Format, Revision 3.0.0 (Draft)	http://refspecs.freestandards.org/dwarf/
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 conversionITUV	http://www.itu.int/rec/recommendation.asp?type=folders&lang=e&parent=T-REC-V.42
Li18nux Globalization Specification	LI18NUX 2000 Globalization Specification, Version 1.0 with Amendment 4	http://www.li18nux.org/docs/html/LI18NUX-2000-amd4.htm
Linux Allocated Device Registry	LINUX ALLOCATED DEVICES	http://www.lanana.org/docs/device-list/devices.txt
PAM	Open Software Foundation, Request For Comments: 86.0 , October 1995, V. Samar & R.Schemers (SunSoft)	http://www.opengroup.org/tech/rfc/mirror-rfc/rfc86.0.txt
RFC 1321: The MD5 Message-Digest Algorithm	IETF RFC 1321: The MD5 Message-Digest Algorithm	http://www.ietf.org/rfc/rfc1321.txt
RFC 1831/1832 RPC & XDR	IETF RFC 1831 & 1832	http://www.ietf.org/
RFC 1833: Binding Protocols for ONC RPC Version 2	IETF RFC 1833: Binding Protocols for ONC RPC Version 2	http://www.ietf.org/rfc/rfc1833.txt
RFC 1950: ZLIB Compressed Data Format Specication	IETF RFC 1950: ZLIB Compressed Data Format Specification	http://www.ietf.org/rfc/rfc1950.txt

Name	Title	URL
RFC 1951: DEFLATE Compressed Data Format Specification	IETF RFC 1951: DEFLATE Compressed Data Format Specification version 1.3	http://www.ietf.org/rfc/rfc1951.txt
RFC 1952: GZIP File Format Specification	IETF RFC 1952: GZIP file format specification version 4.3	http://www.ietf.org/rfc/rfc1952.txt
RFC 2440: OpenPGP Message Format	IETF RFC 2440: OpenPGP Message Format	http://www.ietf.org/rfc/rfc2440.txt
RFC 2821:Simple Mail Transfer Protocol	IETF RFC 2821: Simple Mail Transfer Protocol	http://www.ietf.org/rfc/rfc2821.txt
RFC 2822:Internet Message Format	IETF RFC 2822: Internet Message Format	http://www.ietf.org/rfc/rfc2822.txt
RFC 791:Internet Protocol	IETF RFC 791: Internet Protocol Specification	http://www.ietf.org/rfc/rfc791.txt
RPM Package Format	RPM Package Format V3.0	http://www.rpm.org/max-rpm/s1-rpm-file-format-rpm-file-format.html
zlib Manual	zlib 1.2 Manual	http://www.gzip.org/zlib/

3 Requirements

3.1 Relevant Libraries

The libraries listed in Table 3-1 shall be available on x86-64 Linux Standard Base systems, with the specified runtime names. These names override or supplement the names specified in the generic LSB 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
libm	libm.so.6
libdl	libdl.so.2
libcrypt	libcrypt.so.1
libz	libz.so.1
libncurses	libncurses.so.5
libutil	libutil.so.1
libc	libc.so.6
libpthread	libpthread.so.0
proginterp	/lib64/ld-lsb-x86-64.so.3
libgcc_s	libgcc_s.so.1

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 and its relevant architecture specific supplement.

> **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:

- ~~The implementation shall implement fully the architecture described in the hardware manual for the target processor architecture.~~
- A processor architecture represents a family of related processors which may not have identical feature sets. The architecture specific supplement to this specification for a given target processor architecture describes 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 document.

- The implementation shall provide libraries containing the interfaces specified by this document, 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 document.
- The map of virtual memory provided by the implementation shall conform to the requirements of this document.
- 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 document.
- 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 document in the format defined here and in other referenced documents. All commands and utilities shall behave as required by this document. The implementation shall also provide all mandatory components of an application's runtime environment that are included or referenced in this document.
- 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 is necessarily architecture specific, and must conform to both the generic LSB Core specification and its relevant architecture specific supplement.

A conforming application shall satisfy the following requirements:

- Its executable files ~~are~~ shall be either shell scripts or object files in the format defined for the Object File Format system interface.
- Its object files shall participate in dynamic linking as defined in the Program Loading and Linking System interface.
- It ~~employs~~shall employ only the instructions, traps, and other low-level facilities defined in the Low-Level System interface as being for use by applications.
- If it requires any optional interface defined in this document in order to be installed or to execute successfully, the requirement for that optional interface ~~is~~shall be stated in the application's documentation.
- It ~~does~~shall not use any interface or data format that is not required to be provided by a conforming implementation, unless:

- If such an interface or data format is supplied by another application through direct invocation of that application during execution, that application ~~is~~shall be in turn an LSB conforming application.
- The use of that interface or data format, as well as its source, ~~is~~shall be identified in the documentation of the application.

- It shall not use any values for a named interface that are reserved for vendor extensions.

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

4 Definitions

For the purposes of this document, the following definitions, as specified in the *ISO/IEC Directives, Part 2, 2001, 4th Edition*, apply:

can

be able to; there is a possibility of; it is possible to

cannot

be unable to; there is no possibilty of; it is not possible to

may

is permitted; is allowed; is permissible

need not

it is not required that; no...is required

shall

is to; is required to; it is required that; has to; only...is permitted; it is necessary

shall not

is not allowed [permitted] [acceptable] [permissible]; is required to be not; is required that...be not; is not to be

should

it is recommended that; ought to

should not

it is not recommended that; ought not to

5 Terminology

For the purposes of this document, the following terms apply:

archLSB

The architectural part of the LSB Specification which describes the specific parts of the interface that are platform specific. The archLSB is complementary to the gLSB.

Binary Standard

The total set of interfaces that are available to be used in the compiled binary code of a conforming application.

gLSB

The common part of the LSB Specification that describes those parts of the interface that remain constant across all hardware implementations of the LSB.

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.

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.

Source Standard

The set of interfaces that are available to be used in the source code of a conforming application.

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.

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.

Other terms and definitions used in this document shall have the same meaning as defined in Chapter 3 of the Base Definitions volume of ISO POSIX (2003).

6 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) [~~1~~]SUSv3]

refers to the interface named `forkpty()` with symbol version `GLIBC_2.0` that is defined in the ~~first of~~`SUSv3` reference.

Note: Symbol versions are defined in the ~~listed references below the table.~~architecture specific supplements only.

1

II Executable and Linking Format (ELF)

7 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 System V Application Binary Interface AMD64 Architecture Processor Supplement, and is intended to document additions made since the publication of that document.

8 Low Level System Information

8.1 Machine Interface

8.1.1 Processor Architecture

The AMD64 Architecture is specified by the following documents

- AMD64 Architecture Programmer's Manual, Volume 1
- AMD64 Architecture Programmer's Manual, Volume 2
- AMD64 Architecture Programmer's Manual, Volume 3
- AMD64 Architecture Programmer's Manual, Volume 4
- AMD64 Architecture Programmer's Manual, Volume 5
- System V Application Binary Interface AMD64 Architecture Processor Supplement

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. In particular, applications should not rely on the availability of the 3DNow!™ technology. In addition, a conforming application shall not use any instruction from Table 8-1.

> **Note:** Although this specification carries the attribution "AMD64", it is intended to apply to the entire `x86_64` set of processors, including those ~~base~~based on Intel ® Extended Memory 64 Technology (EM64T). However, this specification defers to the AMD architecture specified above.

~~An application shall not use CPU~~**Table 8-1 Non Conforming Instructions**

LAHF	SAHF
SYSCALL	SYSRET
SYSENTER	SYSEXIT
CMPXCHG16B	FFXSR

Conforming applications may use only instructions ~~that~~ which do not require elevated privileges.

~~Applications may not make~~Conforming applications shall not invoke the implementations underlying system ~~calls~~call interface directly. The interfaces in the implementation base libraries ~~must~~ 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.

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

8.1.2 Data Representation

8.1.2.1 Introduction

LSB-conforming applications shall use the data representation as defined in Section 3.1.2 of System V Application Binary Interface AMD64 Architecture Processor Supplement.

> **Note:** The System V Application Binary Interface AMD64 Architecture Processor Supplement specification is itself layered on top of the System V Application Binary Interface - Intel386™ Architecture Processor Supplement.

8.1.2.2 Byte Ordering

LSB-conforming applications shall use the byte ordering defined in Section 3.1.2 of System V Application Binary Interface AMD64 Architecture Processor Supplement.

8.1.2.3 Fundamental Types

LSB-conforming applications shall use only the fundamental types described in Section 3.1.2 of System V Application Binary Interface AMD64 Architecture Processor Supplement.

8.1.2.4 Aggregates and Unions

LSB-conforming applications shall use alignment for aggregates and unions as described in Section 3.1.2 of System V Application Binary Interface AMD64 Architecture Processor Supplement.

8.1.2.5 Bit Fields

LSB-conforming applications utilizing bit-fields shall follow the requirements of Section 3.1.2 of the System V Application Binary Interface AMD64 Architecture Processor Supplement.

8.2 Function Calling Sequence

8.2.1 Introduction

LSB-conforming applications shall use only the following features of the function calling sequence as defined in Section 3.2 of the System V Application Binary Interface AMD64 Architecture Processor Supplement.

8.2.2 Registers

LSB-conforming applications shall use only the registers described in Section 3.2.1 (Registers and the Stack Frame) of the System V Application Binary Interface AMD64 Architecture Processor Supplement.

8.2.3 Floating Point Registers

LSB-conforming applications shall use only the floating point registers described in Section 3.2.1 (Registers and the Stack Frame) of the System V Application Binary Interface AMD64 Architecture Processor Supplement.

8.2.4 Stack Frame

LSB-conforming applications shall use stack frames as described in Section 3.2.2 of the System V Application Binary Interface AMD64 Architecture Processor Supplement.

8.2.5 Arguments

LSB-conforming applications shall pass parameters to functions as described in Section 3.2.3 of the System V Application Binary Interface AMD64 Architecture Processor Supplement.

8.2.6 Return Values

Values are returned from functions as described in Section 3.3.2 of the System V Application Binary Interface AMD64 Architecture Processor Supplement.

8.3 Operating System Interface

LSB-conforming applications shall use only the following features of the Operating System Interfaces as defined in Section 3.3 of the System V Application Binary Interface AMD64 Architecture Processor Supplement.

8.3.1 Exception Interface

Synchronous and floating point or coprocessor exceptions shall behave as described in Section 3.3.1 of the System V Application Binary Interface AMD64 Architecture Processor Supplement.

8.3.2 Virtual Address Space

LSB-Conforming applications shall use only the virtual address space described in Section 3.3.2 and 3.3.4 of the System V Application Binary Interface AMD64 Architecture Processor Supplement. Virtual memory page sizes shall be subject to the limitations described in Section 3.3.3 of the System V Application Binary Interface AMD64 Architecture Processor Supplement.

8.4 Process Initialization

LSB-conforming applications shall use only the following features of the Process Initialization as defined in Section 3.4 of the System V Application Binary Interface AMD64 Architecture Processor Supplement.

8.4.1 Special Registers

During process initialization, the special registers shall be initalized as described in Section 3.4.1 of the System V Application Binary Interface AMD64 Architecture Processor Supplement.

8.4.2 Process Stack (on entry)

The process stack shall be initialized as described in Section 3.4.1 of the System V Application Binary Interface AMD64 Architecture Processor Supplement.

8.4.3 Auxiliary Vector

The auxiliary vector shall be initialized as described in Section 3.4.2 of the System V Application Binary Interface AMD64 Architecture Processor Supplement.

8.5 Coding Examples

LSB-conforming applications may use the coding examples given in Section 3.5 of the System V Application Binary Interface AMD64 Architecture Processor Supplement to guide implemention of fundamental operations in the following areas.

8.5.1 Code Model Overview/Architecture Constraints

Section 3.5.1 of the System V Application Binary Interface AMD64 Architecture Processor Supplement describes a number of code models. LSB-Conforming applications may use any of these models except the Kernel and Large code models.

8.5.2 Position-Independent Function Prologue

LSB-conforming applications may follow the position-independent function prologue example in Section 3.5.3 of the System V Application Binary Interface AMD64 Architecture Processor Supplement.

8.5.3 Data Objects

LSB-conforming applications may follow the data objects examples in Section 3.5.4 of the System V Application Binary Interface AMD64 Architecture Processor Supplement.

8.5.4 Function Calls

LSB-conforming applications may follow the function call examples in Section 3.5.5 of the System V Application Binary Interface AMD64 Architecture Processor Supplement. See Chapter 3 of System V Application Binary Interface AMD64 Architecture Processor Supplement.

8.5.5 Branching

LSB-conforming applications may follow the branching examples in Section 3.5.6 of the System V Application Binary Interface AMD64 Architecture Processor Supplement.

8.6 C Stack Frame

8.6.1 Variable Argument List

LSB-Conforming applications shall only use variable arguments to functions in the manner described in Section 3.5.7 of the System V Application Binary Interface AMD64 Architecture Processor Supplement.

8.7 Debug Information

LSB-Conforming applications may include DWARF debugging information. The DWARF Release Number and Register Number Mapping shall be as described in Section 3.6 of the System V Application Binary Interface AMD64 Architecture Processor Supplement.

9 Object Format

9.1 Introduction

LSB-conforming implementations shall support the Executable and Linking Format (ELF) object file , as defined by the System V ABI , System V ABI Update , System V Application Binary Interface AMD64 Architecture Processor Supplement and as supplemented by the generic LSB specification and ~~this specification~~This Specification.

9.2 ELF Header

9.2.1 Machine Information

LSB-conforming applications shall identify the Machine Information as defined in Section 4.1.1 of the System V Application Binary Interface AMD64 Architecture Processor Supplement.

9.3 Sections

9.3.1 Introduction

In addition to the requirements for ELF sections described in the generic LSB Core specification, conforming implementations shall support architecture specific sections as described below.

Note: The System V Application Binary Interface AMD64 Architecture Processor Supplement specifies some architecture specific section flags and section types that are not required by LSB-conforming systems.

9.3.2 Special Sections

The following architecture-specific sections are defined in the System V Application Binary Interface AMD64 Architecture Processor Supplement.

Table 9-1 ELF Special Sections

Name	Type	Attributes
.got	SHT_PROGBITS	SHF_ALLOC+SHF_WRITE
.plt	SHT_PROGBITS	SHF_ALLOC+SHF_EXECINSTR

.got

This section holds the global offset table

.plt

This section holds the procedure linkage table.

Note: Since LSB-conforming implementations are not required to support the large code model, it is not necessary for them to provide support for the additional special sections for the large code model described in the System V Application Binary Interface AMD64 Architecture Processor Supplement.

Also, the System V Application Binary Interface AMD64 Architecture Processor Supplement specifies a section `.eh_frame`, with a type of `SHT_AMD64_UNWIND`. This section is described in the generic LSB-Core specification, but with type `SHT_PROGBITS`. This specification does not require support for the `SHT_AMD64_UNWIND` section type.

9.3.3 Additional Special Sections

The following additional sections are defined here.

Table 9-2 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

9.4 Symbol Table

LSB-conforming applications shall use Symbol Tables as defined in Section 4.3 of the System V Application Binary Interface AMD64 Architecture Processor Supplement.

9.5 Relocation

LSB-conforming implementation shall support the required relocation types defined in Section 4.4.1 of the System V Application Binary Interface AMD64 Architecture Processor Supplement.

Note: Since LSB-conforming implementations are not required to support the large code model, it is not necessary for them to provide support for the additional relocation types for the large code model described in the System V Application Binary Interface AMD64 Architecture Processor Supplement.

10 Program Loading and Dynamic Linking

10.1 Introduction

LSB-conforming implementations shall support the object file information and system actions that create running programs as specified in the System V ABI , System V ABI Update , System V Application Binary Interface AMD64 Architecture Processor Supplement and as supplemented by the generic LSB specification and ~~this specification~~This Specification.

10.2 Program Header

LSB-conforming implementations are not required to support the additional types and flags for this architecture as defined in Section 5.1 of the System V Application Binary Interface AMD64 Architecture Processor Supplement.

> **Note:** The System V Application Binary Interface AMD64 Architecture Processor Supplement specification is itself layered on top of the System V Application Binary Interface - Intel386™ Architecture Processor Supplement. As such, the requirements of that specification are still requirements of this specification.

10.3 Program Loading

LSB-conforming implementations shall map file pages to virtual memory pages as described in Section 5.1 of the System V Application Binary Interface AMD64 Architecture Processor Supplement.

10.4 Dynamic Linking

10.4.1 Introduction

LSB-conforming implementations shall provide dynamic linking as specified in Section 5.2 of the System V Application Binary Interface AMD64 Architecture Processor Supplement, except as described in the following sections.

> **Note:** Since LSB-conforming implementations are not required to support the large model, support for dynamic linking of large model code is not required.

10.4.2 Dynamic Section

Dynamic section entries give information to the dynamic linker. The following dynamic entry types shall be supported:

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

DT_RELACOUNT

The number of relative relocations in .rela.dyn

10.4.3 Global Offset Table

LSB-conforming implementations shall support a Global Offset Table as described in Section 5.2 of the System V Application Binary Interface AMD64 Architecture Processor Supplement.

10.4.4 Function Addresses

Function addresses shall behave as described in Section 5.2 of the System V Application Binary Interface AMD64 Architecture Processor Supplement.

10.4.5 Procedure Linkage Table

LSB-conforming implementations shall support a Procedure Linkage Table as described in Section 5.2 of the System V Application Binary Interface AMD64 Architecture Processor Supplement.

10.4.6 Initialization and Termination Functions

LSB-conforming implementations shall support initialization and termination functions as specified in Section 5.2.2 of the System V Application Binary Interface AMD64 Architecture Processor Supplement.

III Base Libraries

11 Libraries

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

Interfaces that are unique to the AMD64 platform are defined here. This section should be used in conjunction with the corresponding section in the Linux Standard Base Specification.

11.1 Program Interpreter/Dynamic Linker

The ~~LSB specifies the~~ Program Interpreter ~~to~~shall be `/lib64/ld-lsb-x86-64.so.3`.

11.2 Interfaces for libc

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

Table 11-1 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] ~~this specification~~This Specification
[SUSv2] SUSv2
[SUSv3] ISO POSIX (2003)
[SVID.3] SVID Issue 3
[SVID.4] SVID Issue 4

11.2.1 RPC

11.2.1.1 Interfaces for RPC

An LSB conforming implementation shall provide the architecture specific functions for RPC specified in Table 11-2, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-2 libc - RPC Function Interfaces

~~authnone_create(GLIBC_2.2.5) [1]~~	~~svc_getreqset(GLIBC_2.2.5) [2]~~	~~svcudp_create(GLIBC_2.2.5) [3]~~	~~xdr_int(GLIBC_2.2.5) [2]~~	~~xdr_u_long(GLIBC_2.2.5) [2]~~
~~clnt_create(GLIBC_2.2.5) [1]~~	~~svc_register(GLIBC_2.2.5) [3]~~	~~xdr_accepted_reply(GLIBC_2.2.5) [2]~~	~~xdr_long(GLIBC_2.2.5) [2]~~	~~xdr_u_short(GLIBC_2.2.5) [2]~~
~~clnt_pcreateerror(GLIBC_2.2.5) [1]~~	~~svc_run(GLIBC_2.2.5) [3]~~	~~xdr_array(GLIBC_2.2.5) [2]~~	~~xdr_opaque(GLIBC_2.2.5) [2]~~	~~xdr_union(GLIBC_2.2.5) [2]~~
~~clnt_perrno(G~~	~~svc_sendrepl~~	~~xdr_bool(GLI~~	~~xdr_opaque_a~~	~~xdr_vector(G~~

LIBC_2.2.5) [1]	y(GLIBC_2.2.5) [3]	BC_2.2.5) [2]	uth(GLIBC_2.2.5) [2]	LIBC_2.2.5) [2]
clnt_perror(GLIBC_2.2.5) [1]	svcerr_auth(GLIBC_2.2.5) [2]	xdr_bytes(GLIBC_2.2.5) [2]	xdr_pointer(GLIBC_2.2.5) [2]	xdr_void(GLIBC_2.2.5) [2]
clnt_spcreateerror(GLIBC_2.2.5) [1]	svcerr_decode(GLIBC_2.2.5) [2]	xdr_callhdr(GLIBC_2.2.5) [2]	xdr_reference(GLIBC_2.2.5) [2]	xdr_wrapstring(GLIBC_2.2.5) [2]
clnt_sperrno(GLIBC_2.2.5) [1]	svcerr_noproc(GLIBC_2.2.5) [2]	xdr_callmsg(GLIBC_2.2.5) [2]	xdr_rejected_reply(GLIBC_2.2.5) [2]	xdrmem_create(GLIBC_2.2.5) [2]
clnt_sperror(GLIBC_2.2.5) [1]	svcerr_noprog(GLIBC_2.2.5) [2]	xdr_char(GLIBC_2.2.5) [2]	xdr_replymsg(GLIBC_2.2.5) [2]	xdrrec_create(GLIBC_2.2.5) [2]
key_decryptsession(GLIBC_2.2.5) [2]	svcerr_progvers(GLIBC_2.2.5) [2]	xdr_double(GLIBC_2.2.5) [2]	xdr_short(GLIBC_2.2.5) [2]	xdrrec_eof(GLIBC_2.2.5) [2]
pmap_getport(GLIBC_2.2.5) [3]	svcerr_systemerr(GLIBC_2.2.5) [2]	xdr_enum(GLIBC_2.2.5) [2]	xdr_string(GLIBC_2.2.5) [2]	
pmap_set(GLIBC_2.2.5) [3]	svcerr_weakauth(GLIBC_2.2.5) [2]	xdr_float(GLIBC_2.2.5) [2]	xdr_u_char(GLIBC_2.2.5) [2]	
pmap_unset(GLIBC_2.2.5) [3]	svctcp_create(GLIBC_2.2.5) [3]	xdr_free(GLIBC_2.2.5) [2]	xdr_u_int(GLIBC_2.2.5) [3]	

Referenced Specification(s)

[1]. SVID Issue 4

[2]. SVID Issue 3

[3]. this specification

authnone_create(GLIBC_2.2.5) [SVID.4]	clnt_create(GLIBC_2.2.5) [SVID.4]	clnt_pcreateerror(GLIBC_2.2.5) [SVID.4]	clnt_perrno(GLIBC_2.2.5) [SVID.4]
clnt_perror(GLIBC_2.2.5) [SVID.4]	clnt_spcreateerror(GLIBC_2.2.5) [SVID.4]	clnt_sperrno(GLIBC_2.2.5) [SVID.4]	clnt_sperror(GLIBC_2.2.5) [SVID.4]
key_decryptsession(GLIBC_2.2.5) [SVID.3]	pmap_getport(GLIBC_2.2.5) [LSB]	pmap_set(GLIBC_2.2.5) [LSB]	pmap_unset(GLIBC_2.2.5) [LSB]
svc_getreqset(GLIBC_2.2.5) [SVID.3]	svc_register(GLIBC_2.2.5) [LSB]	svc_run(GLIBC_2.2.5) [LSB]	svc_sendreply(GLIBC_2.2.5) [LSB]
svcerr_auth(GLIBC_2.2.5) [SVID.3]	svcerr_decode(GLIBC_2.2.5)	svcerr_noproc(GLIBC_2.2.5)	svcerr_noprog(GLIBC_2.2.5)

	[SVID.3]	[SVID.3]	[SVID.3]
svcerr_progvers(GLIBC_2.2.5) [SVID.3]	svcerr_systemerr(GLIBC_2.2.5) [SVID.3]	svcerr_weakauth(GLIBC_2.2.5) [SVID.3]	svctcp_create(GLIBC_2.2.5) [LSB]
svcudp_create(GLIBC_2.2.5) [LSB]	xdr_accepted_reply(GLIBC_2.2.5) [SVID.3]	xdr_array(GLIBC_2.2.5) [SVID.3]	xdr_bool(GLIBC_2.2.5) [SVID.3]
xdr_bytes(GLIBC_2.2.5) [SVID.3]	xdr_callhdr(GLIBC_2.2.5) [SVID.3]	xdr_callmsg(GLIBC_2.2.5) [SVID.3]	xdr_char(GLIBC_2.2.5) [SVID.3]
xdr_double(GLIBC_2.2.5) [SVID.3]	xdr_enum(GLIBC_2.2.5) [SVID.3]	xdr_float(GLIBC_2.2.5) [SVID.3]	xdr_free(GLIBC_2.2.5) [SVID.3]
xdr_int(GLIBC_2.2.5) [SVID.3]	xdr_long(GLIBC_2.2.5) [SVID.3]	xdr_opaque(GLIBC_2.2.5) [SVID.3]	xdr_opaque_auth(GLIBC_2.2.5) [SVID.3]
xdr_pointer(GLIBC_2.2.5) [SVID.3]	xdr_reference(GLIBC_2.2.5) [SVID.3]	xdr_rejected_reply(GLIBC_2.2.5) [SVID.3]	xdr_replymsg(GLIBC_2.2.5) [SVID.3]
xdr_short(GLIBC_2.2.5) [SVID.3]	xdr_string(GLIBC_2.2.5) [SVID.3]	xdr_u_char(GLIBC_2.2.5) [SVID.3]	xdr_u_int(GLIBC_2.2.5) [LSB]
xdr_u_long(GLIBC_2.2.5) [SVID.3]	xdr_u_short(GLIBC_2.2.5) [SVID.3]	xdr_union(GLIBC_2.2.5) [SVID.3]	xdr_vector(GLIBC_2.2.5) [SVID.3]
xdr_void(GLIBC_2.2.5) [SVID.3]	xdr_wrapstring(GLIBC_2.2.5) [SVID.3]	xdrmem_create(GLIBC_2.2.5) [SVID.3]	xdrrec_create(GLIBC_2.2.5) [SVID.3]
xdrrec_eof(GLIBC_2.2.5) [SVID.3]			

11.2.2 System Calls

11.2.2.1 Interfaces for System Calls

An LSB conforming implementation shall provide the architecture specific functions for System Calls specified in Table 11-3, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-3 libc - System Calls Function Interfaces

~~__fxstat(GLIBC_2.2.5) [1]~~	~~fchmod(GLIBC_2.2.5) [2]~~	~~getwd(GLIBC_2.2.5) [2]~~	~~read(GLIBC_2.2.5) [2]~~	~~setrlimit(GLIBC_2.2.5) [2]~~
~~__getpgid(GLIBC_2.2.5) [1]~~	~~fchown(GLIBC_2.2.5) [2]~~	~~initgroups(GLIBC_2.2.5) [1]~~	~~readdir(GLIBC_2.2.5) [2]~~	~~setrlimit64(GLIBC_2.2.5) [3]~~
~~__lxstat(GLIBC_2.2.5) [1]~~	~~fcntl(GLIBC_2.2.5) [1]~~	~~ioctl(GLIBC_2.2.5) [1]~~	~~readdir_r(GLIBC_2.2.5) [2]~~	~~setsid(GLIBC_2.2.5) [2]~~
~~__xmknod(GLIBC_2.2.5)~~	~~fdatasync(GLIBC_2.2.5) [2]~~	~~kill(GLIBC_2.2.5) [1]~~	~~readlink(GLIBC_2.2.5) [2]~~	~~setuid(GLIBC_2.2.5) [2]~~

[1]				
__xstat(GLIBC_2.2.5) [1]	flock(GLIBC_2.2.5) [1]	killpg(GLIBC_2.2.5) [2]	readv(GLIBC_2.2.5) [2]	sleep(GLIBC_2.2.5) [2]
access(GLIBC_2.2.5) [2]	fork(GLIBC_2.2.5) [2]	lchown(GLIBC_2.2.5) [2]	rename(GLIBC_2.2.5) [2]	statvfs(GLIBC_2.2.5) [2]
acct(GLIBC_2.2.5) [1]	fstatvfs(GLIBC_2.2.5) [2]	link(GLIBC_2.2.5) [1]	rmdir(GLIBC_2.2.5) [2]	stime(GLIBC_2.2.5) [1]
alarm(GLIBC_2.2.5) [2]	fsync(GLIBC_2.2.5) [2]	lockf(GLIBC_2.2.5) [2]	sbrk(GLIBC_2.2.5) [4]	symlink(GLIBC_2.2.5) [2]
brk(GLIBC_2.2.5) [4]	ftime(GLIBC_2.2.5) [2]	lseek(GLIBC_2.2.5) [2]	sched_get_priority_max(GLIBC_2.2.5) [2]	sync(GLIBC_2.2.5) [2]
chdir(GLIBC_2.2.5) [2]	ftruncate(GLIBC_2.2.5) [2]	mkdir(GLIBC_2.2.5) [2]	sched_get_priority_min(GLIBC_2.2.5) [2]	sysconf(GLIBC_2.2.5) [2]
chmod(GLIBC_2.2.5) [2]	getcontext(GLIBC_2.2.5) [2]	mkfifo(GLIBC_2.2.5) [2]	sched_getparam(GLIBC_2.2.5) [2]	time(GLIBC_2.2.5) [2]
chown(GLIBC_2.2.5) [2]	getegid(GLIBC_2.2.5) [2]	mlock(GLIBC_2.2.5) [2]	sched_getscheduler(GLIBC_2.2.5) [2]	times(GLIBC_2.2.5) [2]
chroot(GLIBC_2.2.5) [4]	geteuid(GLIBC_2.2.5) [2]	mlockall(GLIBC_2.2.5) [2]	sched_rr_get_interval(GLIBC_2.2.5) [2]	truncate(GLIBC_2.2.5) [2]
clock(GLIBC_2.2.5) [2]	getgid(GLIBC_2.2.5) [2]	mmap(GLIBC_2.2.5) [2]	sched_setparam(GLIBC_2.2.5) [2]	ulimit(GLIBC_2.2.5) [2]
close(GLIBC_2.2.5) [2]	getgroups(GLIBC_2.2.5) [2]	mprotect(GLIBC_2.2.5) [2]	sched_setscheduler(GLIBC_2.2.5) [2]	umask(GLIBC_2.2.5) [2]
closedir(GLIBC_2.2.5) [2]	getitimer(GLIBC_2.2.5) [2]	msync(GLIBC_2.2.5) [2]	sched_yield(GLIBC_2.2.5) [2]	uname(GLIBC_2.2.5) [2]
creat(GLIBC_2.2.5) [2]	getloadavg(GLIBC_2.2.5) [1]	munlock(GLIBC_2.2.5) [2]	select(GLIBC_2.2.5) [2]	unlink(GLIBC_2.2.5) [1]
dup(GLIBC_2.2.5) [2]	getpagesize(GLIBC_2.2.5) [4]	munlockall(GLIBC_2.2.5) [2]	setcontext(GLIBC_2.2.5) [2]	utime(GLIBC_2.2.5) [2]
dup2(GLIBC_2.2.5) [2]	getpgid(GLIBC_2.2.5) [2]	munmap(GLIBC_2.2.5) [2]	setegid(GLIBC_2.2.5) [2]	utimes(GLIBC_2.2.5) [2]
execl(GLIBC_2.2.5) [2]	getpgrp(GLIBC_2.2.5) [2]	nanosleep(GLIBC_2.2.5) [2]	seteuid(GLIBC_2.2.5) [2]	vfork(GLIBC_2.2.5) [2]

execle(GLIBC_2.2.5) [2]	getpid(GLIBC_2.2.5) [2]	nice(GLIBC_2.2.5) [2]	setgid(GLIBC_2.2.5) [2]	wait(GLIBC_2.2.5) [2]
execlp(GLIBC_2.2.5) [2]	getppid(GLIBC_2.2.5) [2]	open(GLIBC_2.2.5) [2]	setitimer(GLIBC_2.2.5) [2]	wait4(GLIBC_2.2.5) [1]
execv(GLIBC_2.2.5) [2]	getpriority(GLIBC_2.2.5) [2]	opendir(GLIBC_2.2.5) [2]	setpgid(GLIBC_2.2.5) [2]	waitpid(GLIBC_2.2.5) [1]
execve(GLIBC_2.2.5) [2]	getrlimit(GLIBC_2.2.5) [2]	pathconf(GLIBC_2.2.5) [2]	setpgrp(GLIBC_2.2.5) [2]	write(GLIBC_2.2.5) [2]
execvp(GLIBC_2.2.5) [2]	getrusage(GLIBC_2.2.5) [2]	pause(GLIBC_2.2.5) [2]	setpriority(GLIBC_2.2.5) [2]	writev(GLIBC_2.2.5) [2]
exit(GLIBC_2.2.5) [2]	getsid(GLIBC_2.2.5) [2]	pipe(GLIBC_2.2.5) [2]	setregid(GLIBC_2.2.5) [2]	
fchdir(GLIBC_2.2.5) [2]	getuid(GLIBC_2.2.5) [2]	poll(GLIBC_2.2.5) [2]	setreuid(GLIBC_2.2.5) [2]	

Referenced Specification(s)

[1]. this specification

[2]. ISO POSIX (2003)

[3]. Large File Support

[4]. SUSv2

__fxstat(GLIBC_2.2.5) [LSB]	__getpgid(GLIBC_2.2.5) [LSB]	__lxstat(GLIBC_2.2.5) [LSB]	__xmknod(GLIBC_2.2.5) [LSB]
__xstat(GLIBC_2.2.5) [LSB]	access(GLIBC_2.2.5) [SUSv3]	acct(GLIBC_2.2.5) [LSB]	alarm(GLIBC_2.2.5) [SUSv3]
brk(GLIBC_2.2.5) [SUSv2]	chdir(GLIBC_2.2.5) [SUSv3]	chmod(GLIBC_2.2.5) [SUSv3]	chown(GLIBC_2.2.5) [SUSv3]
chroot(GLIBC_2.2.5) [SUSv2]	clock(GLIBC_2.2.5) [SUSv3]	close(GLIBC_2.2.5) [SUSv3]	closedir(GLIBC_2.2.5) [SUSv3]
creat(GLIBC_2.2.5) [SUSv3]	dup(GLIBC_2.2.5) [SUSv3]	dup2(GLIBC_2.2.5) [SUSv3]	execl(GLIBC_2.2.5) [SUSv3]
execle(GLIBC_2.2.5) [SUSv3]	execlp(GLIBC_2.2.5) [SUSv3]	execv(GLIBC_2.2.5) [SUSv3]	execve(GLIBC_2.2.5) [SUSv3]
execvp(GLIBC_2.2.5) [SUSv3]	exit(GLIBC_2.2.5) [SUSv3]	fchdir(GLIBC_2.2.5) [SUSv3]	fchmod(GLIBC_2.2.5) [SUSv3]
fchown(GLIBC_2.2.5) [SUSv3]	fcntl(GLIBC_2.2.5) [LSB]	fdatasync(GLIBC_2.2.5) [SUSv3]	flock(GLIBC_2.2.5) [LSB]
fork(GLIBC_2.2.5) [SUSv3]	fstatvfs(GLIBC_2.2.5) [SUSv3]	fsync(GLIBC_2.2.5) [SUSv3]	ftime(GLIBC_2.2.5) [SUSv3]
ftruncate(GLIBC_2.2.5) [SUSv3]	getcontext(GLIBC_2.2.5) [SUSv3]	getegid(GLIBC_2.2.5) [SUSv3]	geteuid(GLIBC_2.2.5) [SUSv3]

getgid(GLIBC_2.2.5) [SUSv3]	getgroups(GLIBC_2.2.5) [SUSv3]	getitimer(GLIBC_2.2.5) [SUSv3]	getloadavg(GLIBC_2.2.5) [LSB]
getpagesize(GLIBC_2.2.5) [SUSv2]	getpgid(GLIBC_2.2.5) [SUSv3]	getpgrp(GLIBC_2.2.5) [SUSv3]	getpid(GLIBC_2.2.5) [SUSv3]
getppid(GLIBC_2.2.5) [SUSv3]	getpriority(GLIBC_2.2.5) [SUSv3]	getrlimit(GLIBC_2.2.5) [SUSv3]	getrusage(GLIBC_2.2.5) [SUSv3]
getsid(GLIBC_2.2.5) [SUSv3]	getuid(GLIBC_2.2.5) [SUSv3]	getwd(GLIBC_2.2.5) [SUSv3]	initgroups(GLIBC_2.2.5) [LSB]
ioctl(GLIBC_2.2.5) [LSB]	kill(GLIBC_2.2.5) [LSB]	killpg(GLIBC_2.2.5) [SUSv3]	lchown(GLIBC_2.2.5) [SUSv3]
link(GLIBC_2.2.5) [LSB]	lockf(GLIBC_2.2.5) [SUSv3]	lseek(GLIBC_2.2.5) [SUSv3]	mkdir(GLIBC_2.2.5) [SUSv3]
mkfifo(GLIBC_2.2.5) [SUSv3]	mlock(GLIBC_2.2.5) [SUSv3]	mlockall(GLIBC_2.2.5) [SUSv3]	mmap(GLIBC_2.2.5) [SUSv3]
mprotect(GLIBC_2.2.5) [SUSv3]	msync(GLIBC_2.2.5) [SUSv3]	munlock(GLIBC_2.2.5) [SUSv3]	munlockall(GLIBC_2.2.5) [SUSv3]
munmap(GLIBC_2.2.5) [SUSv3]	nanosleep(GLIBC_2.2.5) [SUSv3]	nice(GLIBC_2.2.5) [SUSv3]	open(GLIBC_2.2.5) [SUSv3]
opendir(GLIBC_2.2.5) [SUSv3]	pathconf(GLIBC_2.2.5) [SUSv3]	pause(GLIBC_2.2.5) [SUSv3]	pipe(GLIBC_2.2.5) [SUSv3]
poll(GLIBC_2.2.5) [SUSv3]	read(GLIBC_2.2.5) [SUSv3]	readdir(GLIBC_2.2.5) [SUSv3]	readdir_r(GLIBC_2.2.5) [SUSv3]
readlink(GLIBC_2.2.5) [SUSv3]	readv(GLIBC_2.2.5) [SUSv3]	rename(GLIBC_2.2.5) [SUSv3]	rmdir(GLIBC_2.2.5) [SUSv3]
sbrk(GLIBC_2.2.5) [SUSv2]	sched_get_priority_max(GLIBC_2.2.5) [SUSv3]	sched_get_priority_min(GLIBC_2.2.5) [SUSv3]	sched_getparam(GLIBC_2.2.5) [SUSv3]
sched_getscheduler(GLIBC_2.2.5) [SUSv3]	sched_rr_get_interval(GLIBC_2.2.5) [SUSv3]	sched_setparam(GLIBC_2.2.5) [SUSv3]	sched_setscheduler(GLIBC_2.2.5) [SUSv3]
sched_yield(GLIBC_2.2.5) [SUSv3]	select(GLIBC_2.2.5) [SUSv3]	setcontext(GLIBC_2.2.5) [SUSv3]	setegid(GLIBC_2.2.5) [SUSv3]
seteuid(GLIBC_2.2.5) [SUSv3]	setgid(GLIBC_2.2.5) [SUSv3]	setitimer(GLIBC_2.2.5) [SUSv3]	setpgid(GLIBC_2.2.5) [SUSv3]
setpgrp(GLIBC_2.2.5) [SUSv3]	setpriority(GLIBC_2.2.5) [SUSv3]	setregid(GLIBC_2.2.5) [SUSv3]	setreuid(GLIBC_2.2.5) [SUSv3]
setrlimit(GLIBC_2.2.5) [SUSv3]	setrlimit64(GLIBC_2.2.5) [LFS]	setsid(GLIBC_2.2.5) [SUSv3]	setuid(GLIBC_2.2.5) [SUSv3]
sleep(GLIBC_2.2.5) [SUSv3]	statvfs(GLIBC_2.2.5) [SUSv3]	stime(GLIBC_2.2.5) [LSB]	symlink(GLIBC_2.2.5) [SUSv3]
sync(GLIBC_2.2.5	sysconf(GLIBC_2.	time(GLIBC_2.2.5)	times(GLIBC_2.2.

) [SUSv3]	2.5) [SUSv3]	[SUSv3]	5) [SUSv3]
truncate(GLIBC_2.2.5) [SUSv3]	ulimit(GLIBC_2.2.5) [SUSv3]	umask(GLIBC_2.2.5) [SUSv3]	uname(GLIBC_2.2.5) [SUSv3]
unlink(GLIBC_2.2.5) [LSB]	utime(GLIBC_2.2.5) [SUSv3]	utimes(GLIBC_2.2.5) [SUSv3]	vfork(GLIBC_2.2.5) [SUSv3]
wait(GLIBC_2.2.5) [SUSv3]	wait4(GLIBC_2.2.5) [LSB]	waitpid(GLIBC_2.2.5) [LSB]	write(GLIBC_2.2.5) [SUSv3]
writev(GLIBC_2.2.5) [SUSv3]			

11.2.3 Standard I/O

11.2.3.1 Interfaces for Standard I/O

An LSB conforming implementation shall provide the architecture specific functions for Standard I/O specified in Table 11-4, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-4 libc - Standard I/O Function Interfaces

~~_IO_feof(GLIBC_2.2.5) [1]~~	~~fgetpos(GLIBC_2.2.5) [2]~~	~~fsetpos(GLIBC_2.2.5) [2]~~	~~putchar(GLIBC_2.2.5) [2]~~	~~sscanf(GLIBC_2.2.5) [1]~~
~~_IO_getc(GLIBC_2.2.5) [1]~~	~~fgets(GLIBC_2.2.5) [2]~~	~~ftell(GLIBC_2.2.5) [2]~~	~~putchar_unlocked(GLIBC_2.2.5) [2]~~	~~telldir(GLIBC_2.2.5) [2]~~
~~_IO_putc(GLIBC_2.2.5) [1]~~	~~fgetwc_unlocked(GLIBC_2.2.5) [1]~~	~~ftello(GLIBC_2.2.5) [2]~~	~~puts(GLIBC_2.2.5) [2]~~	~~tempnam(GLIBC_2.2.5) [2]~~
~~_IO_puts(GLIBC_2.2.5) [1]~~	~~fileno(GLIBC_2.2.5) [2]~~	~~fwrite(GLIBC_2.2.5) [2]~~	~~putw(GLIBC_2.2.5) [3]~~	~~ungetc(GLIBC_2.2.5) [2]~~
~~asprintf(GLIBC_2.2.5) [1]~~	~~flockfile(GLIBC_2.2.5) [2]~~	~~getc(GLIBC_2.2.5) [2]~~	~~remove(GLIBC_2.2.5) [2]~~	~~vasprintf(GLIBC_2.2.5) [1]~~
~~clearerr(GLIBC_2.2.5) [2]~~	~~fopen(GLIBC_2.2.5) [2]~~	~~getc_unlocked(GLIBC_2.2.5) [2]~~	~~rewind(GLIBC_2.2.5) [2]~~	~~vdprintf(GLIBC_2.2.5) [1]~~
~~ctermid(GLIBC_2.2.5) [2]~~	~~fprintf(GLIBC_2.2.5) [2]~~	~~getchar(GLIBC_2.2.5) [2]~~	~~rewinddir(GLIBC_2.2.5) [2]~~	~~vfprintf(GLIBC_2.2.5) [2]~~
~~fclose(GLIBC_2.2.5) [2]~~	~~fputc(GLIBC_2.2.5) [2]~~	~~getchar_unlocked(GLIBC_2.2.5) [2]~~	~~scanf(GLIBC_2.2.5) [1]~~	~~vprintf(GLIBC_2.2.5) [2]~~
~~fdopen(GLIBC_2.2.5) [2]~~	~~fputs(GLIBC_2.2.5) [2]~~	~~getw(GLIBC_2.2.5) [3]~~	~~seekdir(GLIBC_2.2.5) [2]~~	~~vsnprintf(GLIBC_2.2.5) [2]~~
~~feof(GLIBC_2.2.5) [2]~~	~~fread(GLIBC_2.2.5) [2]~~	~~pclose(GLIBC_2.2.5) [2]~~	~~setbuf(GLIBC_2.2.5) [2]~~	~~vsprintf(GLIBC_2.2.5) [2]~~
~~ferror(GLIBC~~	~~freopen(GLIB~~	~~popen(GLIBC~~	~~setbuffer(GLI~~	

~~_2.2.5) [2]~~	~~C_2.2.5) [2]~~	~~_2.2.5) [2]~~	~~BC_2.2.5) [1]~~	
~~fflush(GLIBC_2.2.5) [2]~~	~~fscanf(GLIBC_2.2.5) [1]~~	~~printf(GLIBC_2.2.5) [2]~~	~~setvbuf(GLIBC_2.2.5) [2]~~	
~~fflush_unlocked(GLIBC_2.2.5) [1]~~	~~fseek(GLIBC_2.2.5) [2]~~	~~putc(GLIBC_2.2.5) [2]~~	~~snprintf(GLIBC_2.2.5) [2]~~	
~~fgetc(GLIBC_2.2.5) [2]~~	~~fseeko(GLIBC_2.2.5) [2]~~	~~putc_unlocked(GLIBC_2.2.5) [2]~~	~~sprintf(GLIBC_2.2.5) [2]~~	

~~*Referenced Specification(s)*~~

~~**[1].**~~

_IO_feof(GLIBC_2.2.5) [LSB]	_IO_getc(GLIBC_2.2.5) [LSB]	_IO_putc(GLIBC_2.2.5) [LSB]	_IO_puts(GLIBC_2.2.5) [LSB]
asprintf(GLIBC_2.2.5) [LSB]	clearerr(GLIBC_2.2.5) [SUSv3]	ctermid(GLIBC_2.2.5) [SUSv3]	fclose(GLIBC_2.2.5) [SUSv3]
fdopen(GLIBC_2.2.5) [SUSv3]	feof(GLIBC_2.2.5) [SUSv3]	ferror(GLIBC_2.2.5) [SUSv3]	fflush(GLIBC_2.2.5) [SUSv3]
fflush_unlocked(GLIBC_2.2.5) [LSB]	fgetc(GLIBC_2.2.5) [SUSv3]	fgetpos(GLIBC_2.2.5) [SUSv3]	fgets(GLIBC_2.2.5) [SUSv3]
fgetwc_unlocked(GLIBC_2.2.5) [LSB]	fileno(GLIBC_2.2.5) [SUSv3]	flockfile(GLIBC_2.2.5) [SUSv3]	fopen(GLIBC_2.2.5) [SUSv3]
fprintf(GLIBC_2.2.5) [SUSv3]	fputc(GLIBC_2.2.5) [SUSv3]	fputs(GLIBC_2.2.5) [SUSv3]	fread(GLIBC_2.2.5) [SUSv3]
freopen(GLIBC_2.2.5) [SUSv3]	fscanf(GLIBC_2.2.5) [LSB]	fseek(GLIBC_2.2.5) [SUSv3]	fseeko(GLIBC_2.2.5) [SUSv3]
fsetpos(GLIBC_2.2.5) [SUSv3]	ftell(GLIBC_2.2.5) [SUSv3]	ftello(GLIBC_2.2.5) [SUSv3]	fwrite(GLIBC_2.2.5) [SUSv3]
getc(GLIBC_2.2.5) [SUSv3]	getc_unlocked(GLIBC_2.2.5) [SUSv3]	getchar(GLIBC_2.2.5) [SUSv3]	getchar_unlocked(GLIBC_2.2.5) [SUSv3]
getw(GLIBC_2.2.5) [SUSv2]	pclose(GLIBC_2.2.5) [SUSv3]	popen(GLIBC_2.2.5) [SUSv3]	printf(GLIBC_2.2.5) [SUSv3]
putc(GLIBC_2.2.5) [SUSv3]	putc_unlocked(GLIBC_2.2.5) [SUSv3]	putchar(GLIBC_2.2.5) [SUSv3]	putchar_unlocked(GLIBC_2.2.5) [SUSv3]
puts(GLIBC_2.2.5) [SUSv3]	putw(GLIBC_2.2.5) [SUSv2]	remove(GLIBC_2.2.5) [SUSv3]	rewind(GLIBC_2.2.5) [SUSv3]
rewinddir(GLIBC_2.2.5) [SUSv3]	scanf(GLIBC_2.2.5) [LSB]	seekdir(GLIBC_2.2.5) [SUSv3]	setbuf(GLIBC_2.2.5) [SUSv3]
setbuffer(GLIBC_	setvbuf(GLIBC_2.	snprintf(GLIBC_2.	sprintf(GLIBC_2.2

2.2.5) [LSB]	2.5) [SUSv3]	2.5) [SUSv3]	.5) [SUSv3]
sscanf(GLIBC_2.2.5) [LSB]	telldir(GLIBC_2.2.5) [SUSv3]	tempnam(GLIBC_2.2.5) [SUSv3]	ungetc(GLIBC_2.2.5) [SUSv3]
vasprintf(GLIBC_2.2.5) [LSB]	vdprintf(GLIBC_2.2.5) [LSB]	vfprintf(GLIBC_2.2.5) [SUSv3]	vprintf(GLIBC_2.2.5) [SUSv3]
vsnprintf(GLIBC_2.2.5) [SUSv3]	vsprintf(GLIBC_2.2.5) [SUSv3]		

An LSB conforming implementation shall provide the architecture specific data interfaces for Standard I/O specified in ~~this specification~~Table 11-5

~~**[2].** ISO POSIX (2003)~~

~~**[3].** SUSv2~~

~~An LSB conforming implementation shall provide the architecture specific data interfaces for Standard I/O specified in Table 11-5~~, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-5 libc - Standard I/O Data Interfaces

~~stderr(GLIBC_2.2.5) [1]~~	~~stdin(GLIBC_2.2.5) [1]~~	~~stdout(GLIBC_2.2.5) [1]~~		

~~*Referenced Specification(s)*~~

~~**[1].** ISO POSIX (2003)~~

stderr(GLIBC_2.2.5) [SUSv3]	stdin(GLIBC_2.2.5) [SUSv3]	stdout(GLIBC_2.2.5) [SUSv3]	

11.2.4 Signal Handling

11.2.4.1 Interfaces for Signal Handling

An LSB conforming implementation shall provide the architecture specific functions for Signal Handling specified in Table 11-6, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-6 libc - Signal Handling Function Interfaces

~~__libc_current_sigrtmax(GLIBC_2.2.5) [1]~~	~~sigaction(GLIBC_2.2.5) [2]~~	~~sighold(GLIBC_2.2.5) [2]~~	~~sigorset(GLIBC_2.2.5) [1]~~	~~sigset(GLIBC_2.2.5) [2]~~
~~__libc_current_sigrtmin(GLIBC_2.2.5) [1]~~	~~sigaddset(GLIBC_2.2.5) [2]~~	~~sigignore(GLIBC_2.2.5) [2]~~	~~sigpause(GLIBC_2.2.5) [2]~~	~~sigsuspend(GLIBC_2.2.5) [2]~~
~~__sigsetjmp(GLIBC_2.2.5) [1]~~	~~sigaltstack(GLIBC_2.2.5) [2]~~	~~siginterrupt(GLIBC_2.2.5) [2]~~	~~sigpending(GLIBC_2.2.5) [2]~~	~~sigtimedwait(GLIBC_2.2.5) [2]~~
~~__sysv_signal(GLIBC_2.2.5) [1]~~	~~sigandset(GLIBC_2.2.5) [1]~~	~~sigisemptyset(GLIBC_2.2.5) [1]~~	~~sigprocmask(GLIBC_2.2.5) [2]~~	~~sigwait(GLIBC_2.2.5) [2]~~

~~bsd_signal(GLIBC_2.2.5) [2]~~	~~sigdelset(GLIBC_2.2.5) [2]~~	~~sigismember(GLIBC_2.2.5) [2]~~	~~sigqueue(GLIBC_2.2.5) [2]~~	~~sigwaitinfo(GLIBC_2.2.5) [2]~~
~~psignal(GLIBC_2.2.5) [1]~~	~~sigemptyset(GLIBC_2.2.5) [2]~~	~~siglongjmp(GLIBC_2.2.5) [2]~~	~~sigrelse(GLIBC_2.2.5) [2]~~	
~~raise(GLIBC_2.2.5) [2]~~	~~sigfillset(GLIBC_2.2.5) [2]~~	~~signal(GLIBC_2.2.5) [2]~~	~~sigreturn(GLIBC_2.2.5) [1]~~	

~~*Referenced Specification(s)*~~

~~**[1].**~~

__libc_current_sigrtmax(GLIBC_2.2.5) [LSB]	__libc_current_sigrtmin(GLIBC_2.2.5) [LSB]	__sigsetjmp(GLIBC_2.2.5) [LSB]	__sysv_signal(GLIBC_2.2.5) [LSB]
bsd_signal(GLIBC_2.2.5) [SUSv3]	psignal(GLIBC_2.2.5) [LSB]	raise(GLIBC_2.2.5) [SUSv3]	sigaction(GLIBC_2.2.5) [SUSv3]
sigaddset(GLIBC_2.2.5) [SUSv3]	sigaltstack(GLIBC_2.2.5) [SUSv3]	sigandset(GLIBC_2.2.5) [LSB]	sigdelset(GLIBC_2.2.5) [SUSv3]
sigemptyset(GLIBC_2.2.5) [SUSv3]	sigfillset(GLIBC_2.2.5) [SUSv3]	sighold(GLIBC_2.2.5) [SUSv3]	sigignore(GLIBC_2.2.5) [SUSv3]
siginterrupt(GLIBC_2.2.5) [SUSv3]	sigisemptyset(GLIBC_2.2.5) [LSB]	sigismember(GLIBC_2.2.5) [SUSv3]	siglongjmp(GLIBC_2.2.5) [SUSv3]
signal(GLIBC_2.2.5) [SUSv3]	sigorset(GLIBC_2.2.5) [LSB]	sigpause(GLIBC_2.2.5) [SUSv3]	sigpending(GLIBC_2.2.5) [SUSv3]
sigprocmask(GLIBC_2.2.5) [SUSv3]	sigqueue(GLIBC_2.2.5) [SUSv3]	sigrelse(GLIBC_2.2.5) [SUSv3]	sigreturn(GLIBC_2.2.5) [LSB]
sigset(GLIBC_2.2.5) [SUSv3]	sigsuspend(GLIBC_2.2.5) [SUSv3]	sigtimedwait(GLIBC_2.2.5) [SUSv3]	sigwait(GLIBC_2.2.5) [SUSv3]
sigwaitinfo(GLIBC_2.2.5) [SUSv3]			

An LSB conforming implementation shall provide the architecture specific data interfaces for Signal Handling specified in ~~this specification~~Table 11-7

~~**[2].** ISO POSIX (2003)~~

~~An LSB conforming implementation shall provide the architecture specific data interfaces for Signal Handling specified in Table 11-7~~, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-7 libc - Signal Handling Data Interfaces

~~_sys_siglist(GLIBC_2.3.3) [1]~~				

~~*Referenced Specification(s)*~~

[1]. this specification

_sys_siglist(GLIBC_2.3.3) [LSB]			

11.2.5 Localization Functions

11.2.5.1 Interfaces for Localization Functions

An LSB conforming implementation shall provide the architecture specific functions for Localization Functions specified in Table 11-8, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-8 libc - Localization Functions Function Interfaces

bind_textdomain_codeset(GLIBC_2.2.5) [1]	catopen(GLIBC_2.2.5) [2]	dngettext(GLIBC_2.2.5) [1]	iconv_open(GLIBC_2.2.5) [2]	setlocale(GLIBC_2.2.5) [2]
bindtextdomain(GLIBC_2.2.5) [1]	dcgettext(GLIBC_2.2.5) [1]	gettext(GLIBC_2.2.5) [1]	localeconv(GLIBC_2.2.5) [2]	textdomain(GLIBC_2.2.5) [1]
catclose(GLIBC_2.2.5) [2]	dcngettext(GLIBC_2.2.5) [1]	iconv(GLIBC_2.2.5) [2]	ngettext(GLIBC_2.2.5) [1]	
catgets(GLIBC_2.2.5) [2]	dgettext(GLIBC_2.2.5) [1]	iconv_close(GLIBC_2.2.5) [2]	nl_langinfo(GLIBC_2.2.5) [2]	

Referenced Specification(s)

[1].

bind_textdomain_codeset(GLIBC_2.2.5) [LSB]	bindtextdomain(GLIBC_2.2.5) [LSB]	catclose(GLIBC_2.2.5) [SUSv3]	catgets(GLIBC_2.2.5) [SUSv3]
catopen(GLIBC_2.2.5) [SUSv3]	dcgettext(GLIBC_2.2.5) [LSB]	dcngettext(GLIBC_2.2.5) [LSB]	dgettext(GLIBC_2.2.5) [LSB]
dngettext(GLIBC_2.2.5) [LSB]	gettext(GLIBC_2.2.5) [LSB]	iconv(GLIBC_2.2.5) [SUSv3]	iconv_close(GLIBC_2.2.5) [SUSv3]
iconv_open(GLIBC_2.2.5) [SUSv3]	localeconv(GLIBC_2.2.5) [SUSv3]	ngettext(GLIBC_2.2.5) [LSB]	nl_langinfo(GLIBC_2.2.5) [SUSv3]
setlocale(GLIBC_2.2.5) [SUSv3]	textdomain(GLIBC_2.2.5) [LSB]		

An LSB conforming implementation shall provide the architecture specific data interfaces for Localization Functions specified in this specificationTable 11-9

[2]. ISO POSIX (2003)

An LSB conforming implementation shall provide the architecture specific data interfaces for Localization Functions specified in Table 11-9, with the full mandatory functionality as described in the referenced underlying specification.

93 **Table 11-9 libc - Localization Functions Data Interfaces**

~~__nl_msg_cat_cntr(GLIBC_2.2.5) [1]~~				

94

95 ~~*Referenced Specification(s)*~~

96 ~~**[1].** this specification~~

_nl_msg_cat_cntr(GLIBC_2.2.5) [LSB]			

97

11.2.6 Socket Interface

98 ### 11.2.6.1 Interfaces for Socket Interface

99 An LSB conforming implementation shall provide the architecture specific functions
100 for Socket Interface specified in Table 11-10, with the full mandatory functionality as
101 described in the referenced underlying specification.

102 **Table 11-10 libc - Socket Interface Function Interfaces**

~~__h_errno_location(GLIBC_2.2.5) [1]~~	~~gethostname(GLIBC_2.2.5) [2]~~	~~if_nameindex(GLIBC_2.2.5) [2]~~	~~send(GLIBC_2.2.5) [2]~~	~~socket(GLIBC_2.2.5) [2]~~
~~accept(GLIBC_2.2.5) [2]~~	~~getpeername(GLIBC_2.2.5) [2]~~	~~if_nametoindex(GLIBC_2.2.5) [2]~~	~~sendmsg(GLIBC_2.2.5) [2]~~	~~socketpair(GLIBC_2.2.5) [2]~~
~~bind(GLIBC_2.2.5) [2]~~	~~getsockname(GLIBC_2.2.5) [2]~~	~~listen(GLIBC_2.2.5) [2]~~	~~sendto(GLIBC_2.2.5) [2]~~	
~~bindresvport(GLIBC_2.2.5) [1]~~	~~getsockopt(GLIBC_2.2.5) [1]~~	~~recv(GLIBC_2.2.5) [2]~~	~~setsockopt(GLIBC_2.2.5) [1]~~	
~~connect(GLIBC_2.2.5) [2]~~	~~if_freenameindex(GLIBC_2.2.5) [2]~~	~~recvfrom(GLIBC_2.2.5) [2]~~	~~shutdown(GLIBC_2.2.5) [2]~~	
~~gethostid(GLIBC_2.2.5) [2]~~	~~if_indextoname(GLIBC_2.2.5) [2]~~	~~recvmsg(GLIBC_2.2.5) [2]~~	~~sockatmark(GLIBC_2.2.5) [2]~~	
__h_errno_location(GLIBC_2.2.5) [LSB]	accept(GLIBC_2.2.5) [SUSv3]	bind(GLIBC_2.2.5) [SUSv3]	bindresvport(GLIBC_2.2.5) [LSB]	
connect(GLIBC_2.2.5) [SUSv3]	gethostid(GLIBC_2.2.5) [SUSv3]	gethostname(GLIBC_2.2.5) [SUSv3]	getpeername(GLIBC_2.2.5) [SUSv3]	
getsockname(GLIBC_2.2.5) [SUSv3]	getsockopt(GLIBC_2.2.5) [LSB]	if_freenameindex(GLIBC_2.2.5) [SUSv3]	if_indextoname(GLIBC_2.2.5) [SUSv3]	

if_nameindex(GLIBC_2.2.5) [SUSv3]	if_nametoindex(GLIBC_2.2.5) [SUSv3]	listen(GLIBC_2.2.5) [SUSv3]	recv(GLIBC_2.2.5) [SUSv3]
recvfrom(GLIBC_2.2.5) [SUSv3]	recvmsg(GLIBC_2.2.5) [SUSv3]	send(GLIBC_2.2.5) [SUSv3]	sendmsg(GLIBC_2.2.5) [SUSv3]
sendto(GLIBC_2.2.5) [SUSv3]	setsockopt(GLIBC_2.2.5) [LSB]	shutdown(GLIBC_2.2.5) [SUSv3]	sockatmark(GLIBC_2.2.5) [SUSv3]
socket(GLIBC_2.2.5) [SUSv3]	socketpair(GLIBC_2.2.5) [SUSv3]		

~~*Referenced Specification(s)*~~

~~**[1].** this specification~~

~~**[2].** ISO POSIX (2003)~~

11.2.7 Wide Characters

11.2.7.1 Interfaces for Wide Characters

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

Table 11-11 libc - Wide Characters Function Interfaces

~~__wcstod_internal(GLIBC_2.2.5) [1]~~	~~mbsinit(GLIBC_2.2.5) [2]~~	~~vwscanf(GLIBC_2.2.5) [1]~~	~~wcsnlen(GLIBC_2.2.5) [1]~~	~~wcstoumax(GLIBC_2.2.5) [2]~~
~~__wcstof_internal(GLIBC_2.2.5) [1]~~	~~mbsnrtowcs(GLIBC_2.2.5) [1]~~	~~wcpcpy(GLIBC_2.2.5) [1]~~	~~wcsnrtombs(GLIBC_2.2.5) [1]~~	~~wcstouq(GLIBC_2.2.5) [1]~~
~~__wcstol_internal(GLIBC_2.2.5) [1]~~	~~mbsrtowcs(GLIBC_2.2.5) [2]~~	~~wcpncpy(GLIBC_2.2.5) [1]~~	~~wcspbrk(GLIBC_2.2.5) [2]~~	~~wcswcs(GLIBC_2.2.5) [2]~~
~~__wcstold_internal(GLIBC_2.2.5) [1]~~	~~mbstowcs(GLIBC_2.2.5) [2]~~	~~wcrtomb(GLIBC_2.2.5) [2]~~	~~wcsrchr(GLIBC_2.2.5) [2]~~	~~wcswidth(GLIBC_2.2.5) [2]~~
~~__wcstoul_internal(GLIBC_2.2.5) [1]~~	~~mbtowc(GLIBC_2.2.5) [2]~~	~~wcscasecmp(GLIBC_2.2.5) [1]~~	~~wcsrtombs(GLIBC_2.2.5) [2]~~	~~wcsxfrm(GLIBC_2.2.5) [2]~~
~~btowc(GLIBC_2.2.5) [2]~~	~~putwc(GLIBC_2.2.5) [2]~~	~~wcscat(GLIBC_2.2.5) [2]~~	~~wcsspn(GLIBC_2.2.5) [2]~~	~~wctob(GLIBC_2.2.5) [2]~~
~~fgetwc(GLIBC_2.2.5) [2]~~	~~putwchar(GLIBC_2.2.5) [2]~~	~~wcschr(GLIBC_2.2.5) [2]~~	~~wcsstr(GLIBC_2.2.5) [2]~~	~~wctomb(GLIBC_2.2.5) [2]~~
~~fgetws(GLIBC_2.2.5) [2]~~	~~swprintf(GLIBC_2.2.5) [2]~~	~~wcscmp(GLIBC_2.2.5) [2]~~	~~wcstod(GLIBC_2.2.5) [2]~~	~~wctrans(GLIBC_2.2.5) [2]~~
~~fputwc(GLIB~~	~~swscanf(GLIB~~	~~wcscoll(GLIB~~	~~wcstof(GLIBC~~	~~wctype(GLIB~~

C_2.2.5) [2]	C_2.2.5) [1]	C_2.2.5) [2]	_2.2.5) [2]	C_2.2.5) [2]
fputws(GLIBC_2.2.5) [2]	towctrans(GLIBC_2.2.5) [2]	wcscpy(GLIBC_2.2.5) [2]	wcstoimax(GLIBC_2.2.5) [2]	wcwidth(GLIBC_2.2.5) [2]
fwide(GLIBC_2.2.5) [2]	towlower(GLIBC_2.2.5) [2]	wcscspn(GLIBC_2.2.5) [2]	wcstok(GLIBC_2.2.5) [2]	wmemchr(GLIBC_2.2.5) [2]
fwprintf(GLIBC_2.2.5) [2]	towupper(GLIBC_2.2.5) [2]	wcsdup(GLIBC_2.2.5) [1]	wcstol(GLIBC_2.2.5) [2]	wmemcmp(GLIBC_2.2.5) [2]
fwscanf(GLIBC_2.2.5) [1]	ungetwc(GLIBC_2.2.5) [2]	wcsftime(GLIBC_2.2.5) [2]	wcstold(GLIBC_2.2.5) [2]	wmemcpy(GLIBC_2.2.5) [2]
getwc(GLIBC_2.2.5) [2]	vfwprintf(GLIBC_2.2.5) [2]	wcslen(GLIBC_2.2.5) [2]	wcstoll(GLIBC_2.2.5) [2]	wmemmove(GLIBC_2.2.5) [2]
getwchar(GLIBC_2.2.5) [2]	vfwscanf(GLIBC_2.2.5) [1]	wcsncasecmp(GLIBC_2.2.5) [1]	wcstombs(GLIBC_2.2.5) [2]	wmemset(GLIBC_2.2.5) [2]
mblen(GLIBC_2.2.5) [2]	vswprintf(GLIBC_2.2.5) [2]	wcsncat(GLIBC_2.2.5) [2]	wcstoq(GLIBC_2.2.5) [1]	wprintf(GLIBC_2.2.5) [2]
mbrlen(GLIBC_2.2.5) [2]	vswscanf(GLIBC_2.2.5) [1]	wcsncmp(GLIBC_2.2.5) [2]	wcstoul(GLIBC_2.2.5) [2]	wscanf(GLIBC_2.2.5) [1]
mbrtowc(GLIBC_2.2.5) [2]	vwprintf(GLIBC_2.2.5) [2]	wcsncpy(GLIBC_2.2.5) [2]	wcstoull(GLIBC_2.2.5) [2]	

Referenced Specification(s)

[1]. this specification

[2]. ISO POSIX (2003)

__wcstod_internal (GLIBC_2.2.5) [LSB]	__wcstof_internal(GLIBC_2.2.5) [LSB]	__wcstol_internal(GLIBC_2.2.5) [LSB]	__wcstold_interna l(GLIBC_2.2.5) [LSB]
__wcstoul_interna l(GLIBC_2.2.5) [LSB]	btowc(GLIBC_2.2. 5) [SUSv3]	fgetwc(GLIBC_2.2 .5) [SUSv3]	fgetws(GLIBC_2.2 .5) [SUSv3]
fputwc(GLIBC_2. 2.5) [SUSv3]	fputws(GLIBC_2. 2.5) [SUSv3]	fwide(GLIBC_2.2. 5) [SUSv3]	fwprintf(GLIBC_2 .2.5) [SUSv3]
fwscanf(GLIBC_2. 2.5) [LSB]	getwc(GLIBC_2.2. 5) [SUSv3]	getwchar(GLIBC_ 2.2.5) [SUSv3]	mblen(GLIBC_2.2. 5) [SUSv3]
mbrlen(GLIBC_2. 2.5) [SUSv3]	mbrtowc(GLIBC_ 2.2.5) [SUSv3]	mbsinit(GLIBC_2. 2.5) [SUSv3]	mbsnrtowcs(GLIB C_2.2.5) [LSB]
mbsrtowcs(GLIBC _2.2.5) [SUSv3]	mbstowcs(GLIBC _2.2.5) [SUSv3]	mbtowc(GLIBC_2. 2.5) [SUSv3]	putwc(GLIBC_2.2. 5) [SUSv3]
putwchar(GLIBC_	swprintf(GLIBC_2	swscanf(GLIBC_2.	towctrans(GLIBC

2.2.5) [SUSv3]	.2.5) [SUSv3]	2.5) [LSB]	_2.2.5) [SUSv3]
towlower(GLIBC_2.2.5) [SUSv3]	towupper(GLIBC_2.2.5) [SUSv3]	ungetwc(GLIBC_2.2.5) [SUSv3]	vfwprintf(GLIBC_2.2.5) [SUSv3]
vfwscanf(GLIBC_2.2.5) [LSB]	vswprintf(GLIBC_2.2.5) [SUSv3]	vswscanf(GLIBC_2.2.5) [LSB]	vwprintf(GLIBC_2.2.5) [SUSv3]
vwscanf(GLIBC_2.2.5) [LSB]	wcpcpy(GLIBC_2.2.5) [LSB]	wcpncpy(GLIBC_2.2.5) [LSB]	wcrtomb(GLIBC_2.2.5) [SUSv3]
wcscasecmp(GLIBC_2.2.5) [LSB]	wcscat(GLIBC_2.2.5) [SUSv3]	wcschr(GLIBC_2.2.5) [SUSv3]	wcscmp(GLIBC_2.2.5) [SUSv3]
wcscoll(GLIBC_2.2.5) [SUSv3]	wcscpy(GLIBC_2.2.5) [SUSv3]	wcscspn(GLIBC_2.2.5) [SUSv3]	wcsdup(GLIBC_2.2.5) [LSB]
wcsftime(GLIBC_2.2.5) [SUSv3]	wcslen(GLIBC_2.2.5) [SUSv3]	wcsncasecmp(GLIBC_2.2.5) [LSB]	wcsncat(GLIBC_2.2.5) [SUSv3]
wcsncmp(GLIBC_2.2.5) [SUSv3]	wcsncpy(GLIBC_2.2.5) [SUSv3]	wcsnlen(GLIBC_2.2.5) [LSB]	wcsnrtombs(GLIBC_2.2.5) [LSB]
wcspbrk(GLIBC_2.2.5) [SUSv3]	wcsrchr(GLIBC_2.2.5) [SUSv3]	wcsrtombs(GLIBC_2.2.5) [SUSv3]	wcsspn(GLIBC_2.2.5) [SUSv3]
wcsstr(GLIBC_2.2.5) [SUSv3]	wcstod(GLIBC_2.2.5) [SUSv3]	wcstof(GLIBC_2.2.5) [SUSv3]	wcstoimax(GLIBC_2.2.5) [SUSv3]
wcstok(GLIBC_2.2.5) [SUSv3]	wcstol(GLIBC_2.2.5) [SUSv3]	wcstold(GLIBC_2.2.5) [SUSv3]	wcstoll(GLIBC_2.2.5) [SUSv3]
wcstombs(GLIBC_2.2.5) [SUSv3]	wcstoq(GLIBC_2.2.5) [LSB]	wcstoul(GLIBC_2.2.5) [SUSv3]	wcstoull(GLIBC_2.2.5) [SUSv3]
wcstoumax(GLIBC_2.2.5) [SUSv3]	wcstouq(GLIBC_2.2.5) [LSB]	wcswcs(GLIBC_2.2.5) [SUSv3]	wcswidth(GLIBC_2.2.5) [SUSv3]
wcsxfrm(GLIBC_2.2.5) [SUSv3]	wctob(GLIBC_2.2.5) [SUSv3]	wctomb(GLIBC_2.2.5) [SUSv3]	wctrans(GLIBC_2.2.5) [SUSv3]
wctype(GLIBC_2.2.5) [SUSv3]	wcwidth(GLIBC_2.2.5) [SUSv3]	wmemchr(GLIBC_2.2.5) [SUSv3]	wmemcmp(GLIBC_2.2.5) [SUSv3]
wmemcpy(GLIBC_2.2.5) [SUSv3]	wmemmove(GLIBC_2.2.5) [SUSv3]	wmemset(GLIBC_2.2.5) [SUSv3]	wprintf(GLIBC_2.2.5) [SUSv3]
wscanf(GLIBC_2.2.5) [LSB]			

11.2.8 String Functions

11.2.8.1 Interfaces for String Functions

An LSB conforming implementation shall provide the architecture specific functions for String Functions specified in Table 11-12, with the full mandatory functionality as described in the referenced underlying specification.

121 **Table 11-12 libc - String Functions Function Interfaces**

~~__mempcpy(GLIBC_2.2.5) [1]~~	~~bzero(GLIBC_2.2.5) [2]~~	~~strcasestr(GLIBC_2.2.5) [1]~~	~~strncat(GLIBC_2.2.5) [2]~~	~~strtok(GLIBC_2.2.5) [2]~~
~~__rawmemchr(GLIBC_2.2.5) [1]~~	~~ffs(GLIBC_2.2.5) [2]~~	~~strcat(GLIBC_2.2.5) [2]~~	~~strncmp(GLIBC_2.2.5) [2]~~	~~strtok_r(GLIBC_2.2.5) [2]~~
~~__stpcpy(GLIBC_2.2.5) [1]~~	~~index(GLIBC_2.2.5) [2]~~	~~strchr(GLIBC_2.2.5) [2]~~	~~strncpy(GLIBC_2.2.5) [2]~~	~~strtold(GLIBC_2.2.5) [2]~~
~~__strdup(GLIBC_2.2.5) [1]~~	~~memccpy(GLIBC_2.2.5) [2]~~	~~strcmp(GLIBC_2.2.5) [2]~~	~~strndup(GLIBC_2.2.5) [1]~~	~~strtoll(GLIBC_2.2.5) [2]~~
~~__strtod_internal(GLIBC_2.2.5) [1]~~	~~memchr(GLIBC_2.2.5) [2]~~	~~strcoll(GLIBC_2.2.5) [2]~~	~~strnlen(GLIBC_2.2.5) [1]~~	~~strtoq(GLIBC_2.2.5) [1]~~
~~__strtof_internal(GLIBC_2.2.5) [1]~~	~~memcmp(GLIBC_2.2.5) [2]~~	~~strcpy(GLIBC_2.2.5) [2]~~	~~strpbrk(GLIBC_2.2.5) [2]~~	~~strtoull(GLIBC_2.2.5) [2]~~
~~__strtok_r(GLIBC_2.2.5) [1]~~	~~memcpy(GLIBC_2.2.5) [2]~~	~~strcspn(GLIBC_2.2.5) [2]~~	~~strptime(GLIBC_2.2.5) [1]~~	~~strtoumax(GLIBC_2.2.5) [2]~~
~~__strtol_internal(GLIBC_2.2.5) [1]~~	~~memmove(GLIBC_2.2.5) [2]~~	~~strdup(GLIBC_2.2.5) [2]~~	~~strrchr(GLIBC_2.2.5) [2]~~	~~strtouq(GLIBC_2.2.5) [1]~~
~~__strtold_internal(GLIBC_2.2.5) [1]~~	~~memrchr(GLIBC_2.2.5) [1]~~	~~strerror(GLIBC_2.2.5) [2]~~	~~strsep(GLIBC_2.2.5) [1]~~	~~strxfrm(GLIBC_2.2.5) [2]~~
~~__strtoll_internal(GLIBC_2.2.5) [1]~~	~~memset(GLIBC_2.2.5) [2]~~	~~strerror_r(GLIBC_2.2.5) [1]~~	~~strsignal(GLIBC_2.2.5) [1]~~	~~swab(GLIBC_2.2.5) [2]~~
~~__strtoul_internal(GLIBC_2.2.5) [1]~~	~~rindex(GLIBC_2.2.5) [2]~~	~~strfmon(GLIBC_2.2.5) [2]~~	~~strspn(GLIBC_2.2.5) [2]~~	
~~__strtoull_internal(GLIBC_2.2.5) [1]~~	~~stpcpy(GLIBC_2.2.5) [1]~~	~~strftime(GLIBC_2.2.5) [2]~~	~~strstr(GLIBC_2.2.5) [2]~~	
~~bcmp(GLIBC_2.2.5) [2]~~	~~stpncpy(GLIBC_2.2.5) [1]~~	~~strlen(GLIBC_2.2.5) [2]~~	~~strtof(GLIBC_2.2.5) [2]~~	
~~bcopy(GLIBC_2.2.5) [2]~~	~~strcasecmp(GLIBC_2.2.5) [2]~~	~~strncasecmp(GLIBC_2.2.5) [2]~~	~~strtoimax(GLIBC_2.2.5) [2]~~	
__mempcpy(GLIBC_2.2.5) [LSB]	__rawmemchr(GLIBC_2.2.5) [LSB]	__stpcpy(GLIBC_2.2.5) [LSB]	__strdup(GLIBC_2.2.5) [LSB]	
__strtod_internal(GLIBC_2.2.5)	__strtof_internal(GLIBC_2.2.5)	__strtok_r(GLIBC_2.2.5) [LSB]	__strtol_internal(GLIBC_2.2.5)	

[LSB]	[LSB]		[LSB]
__strtold_internal(GLIBC_2.2.5) [LSB]	__strtoll_internal(GLIBC_2.2.5) [LSB]	__strtoul_internal(GLIBC_2.2.5) [LSB]	__strtoull_internal(GLIBC_2.2.5) [LSB]
bcmp(GLIBC_2.2.5) [SUSv3]	bcopy(GLIBC_2.2.5) [SUSv3]	bzero(GLIBC_2.2.5) [SUSv3]	ffs(GLIBC_2.2.5) [SUSv3]
index(GLIBC_2.2.5) [SUSv3]	memccpy(GLIBC_2.2.5) [SUSv3]	memchr(GLIBC_2.2.5) [SUSv3]	memcmp(GLIBC_2.2.5) [SUSv3]
memcpy(GLIBC_2.2.5) [SUSv3]	memmove(GLIBC_2.2.5) [SUSv3]	memrchr(GLIBC_2.2.5) [LSB]	memset(GLIBC_2.2.5) [SUSv3]
rindex(GLIBC_2.2.5) [SUSv3]	stpcpy(GLIBC_2.2.5) [LSB]	stpncpy(GLIBC_2.2.5) [LSB]	strcasecmp(GLIBC_2.2.5) [SUSv3]
strcasestr(GLIBC_2.2.5) [LSB]	strcat(GLIBC_2.2.5) [SUSv3]	strchr(GLIBC_2.2.5) [SUSv3]	strcmp(GLIBC_2.2.5) [SUSv3]
strcoll(GLIBC_2.2.5) [SUSv3]	strcpy(GLIBC_2.2.5) [SUSv3]	strcspn(GLIBC_2.2.5) [SUSv3]	strdup(GLIBC_2.2.5) [SUSv3]
strerror(GLIBC_2.2.5) [SUSv3]	strerror_r(GLIBC_2.2.5) [LSB]	strfmon(GLIBC_2.2.5) [SUSv3]	strftime(GLIBC_2.2.5) [SUSv3]
strlen(GLIBC_2.2.5) [SUSv3]	strncasecmp(GLIBC_2.2.5) [SUSv3]	strncat(GLIBC_2.2.5) [SUSv3]	strncmp(GLIBC_2.2.5) [SUSv3]
strncpy(GLIBC_2.2.5) [SUSv3]	strndup(GLIBC_2.2.5) [LSB]	strnlen(GLIBC_2.2.5) [LSB]	strpbrk(GLIBC_2.2.5) [SUSv3]
strptime(GLIBC_2.2.5) [LSB]	strrchr(GLIBC_2.2.5) [SUSv3]	strsep(GLIBC_2.2.5) [LSB]	strsignal(GLIBC_2.2.5) [LSB]
strspn(GLIBC_2.2.5) [SUSv3]	strstr(GLIBC_2.2.5) [SUSv3]	strtof(GLIBC_2.2.5) [SUSv3]	strtoimax(GLIBC_2.2.5) [SUSv3]
strtok(GLIBC_2.2.5) [SUSv3]	strtok_r(GLIBC_2.2.5) [SUSv3]	strtold(GLIBC_2.2.5) [SUSv3]	strtoll(GLIBC_2.2.5) [SUSv3]
strtoq(GLIBC_2.2.5) [LSB]	strtoull(GLIBC_2.2.5) [SUSv3]	strtoumax(GLIBC_2.2.5) [SUSv3]	strtouq(GLIBC_2.2.5) [LSB]
strxfrm(GLIBC_2.2.5) [SUSv3]	swab(GLIBC_2.2.5) [SUSv3]		

~~*Referenced Specification(s)*~~

~~**[1].** this specification~~

~~**[2].** ISO POSIX (2003)~~

11.2.9 IPC Functions

11.2.9.1 Interfaces for IPC Functions

An LSB conforming implementation shall provide the architecture specific functions for IPC Functions specified in Table 11-13, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-13 libc - IPC Functions Function Interfaces

ftok(GLIBC_2.2.5) [1]	msgrcv(GLIBC_2.2.5) [1]	semget(GLIBC_2.2.5) [1]	shmctl(GLIBC_2.2.5) [1]	
msgctl(GLIBC_2.2.5) [1]	msgsnd(GLIBC_2.2.5) [1]	semop(GLIBC_2.2.5) [1]	shmdt(GLIBC_2.2.5) [1]	
msgget(GLIBC_2.2.5) [1]	semctl(GLIBC_2.2.5) [1]	shmat(GLIBC_2.2.5) [1]	shmget(GLIBC_2.2.5) [1]	

Referenced Specification(s)

[1]. ISO POSIX (2003)

ftok(GLIBC_2.2.5) [SUSv3]	msgctl(GLIBC_2.2.5) [SUSv3]	msgget(GLIBC_2.2.5) [SUSv3]	msgrcv(GLIBC_2.2.5) [SUSv3]
msgsnd(GLIBC_2.2.5) [SUSv3]	semctl(GLIBC_2.2.5) [SUSv3]	semget(GLIBC_2.2.5) [SUSv3]	semop(GLIBC_2.2.5) [SUSv3]
shmat(GLIBC_2.2.5) [SUSv3]	shmctl(GLIBC_2.2.5) [SUSv3]	shmdt(GLIBC_2.2.5) [SUSv3]	shmget(GLIBC_2.2.5) [SUSv3]

11.2.10 Regular Expressions

11.2.10.1 Interfaces for Regular Expressions

An LSB conforming implementation shall provide the architecture specific functions for Regular Expressions specified in Table 11-14, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-14 libc - Regular Expressions Function Interfaces

regcomp(GLIBC_2.2.5) [1]	regerror(GLIBC_2.2.5) [1]	regexec(GLIBC_2.3.4) [2]	regfree(GLIBC_2.2.5) [1]	

Referenced Specification(s)

[1]. ISO POSIX (2003)

[2]. this specification

regcomp(GLIBC_2.2.5) [SUSv3]	regerror(GLIBC_2.2.5) [SUSv3]	regexec(GLIBC_2.3.4) [LSB]	regfree(GLIBC_2.2.5) [SUSv3]

11.2.11 Character Type Functions

11.2.11.1 Interfaces for Character Type Functions

An LSB conforming implementation shall provide the architecture specific functions for Character Type Functions specified in Table 11-15, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-15 libc - Character Type Functions Function Interfaces

__ctype_get_mb_cur_max(GLIBC_2.2.5)	isdigit(GLIBC_2.2.5) [2]	iswalnum(GLIBC_2.2.5) [2]	iswlower(GLIBC_2.2.5) [2]	toascii(GLIBC_2.2.5) [2]

[1]				
_tolower(GLIBC_2.2.5) [2]	isgraph(GLIBC_2.2.5) [2]	iswalpha(GLIBC_2.2.5) [2]	iswprint(GLIBC_2.2.5) [2]	tolower(GLIBC_2.2.5) [2]
_toupper(GLIBC_2.2.5) [2]	islower(GLIBC_2.2.5) [2]	iswblank(GLIBC_2.2.5) [2]	iswpunct(GLIBC_2.2.5) [2]	toupper(GLIBC_2.2.5) [2]
isalnum(GLIBC_2.2.5) [2]	isprint(GLIBC_2.2.5) [2]	iswcntrl(GLIBC_2.2.5) [2]	iswspace(GLIBC_2.2.5) [2]	
isalpha(GLIBC_2.2.5) [2]	ispunct(GLIBC_2.2.5) [2]	iswctype(GLIBC_2.2.5) [2]	iswupper(GLIBC_2.2.5) [2]	
isascii(GLIBC_2.2.5) [2]	isspace(GLIBC_2.2.5) [2]	iswdigit(GLIBC_2.2.5) [2]	iswxdigit(GLIBC_2.2.5) [2]	
iscntrl(GLIBC_2.2.5) [2]	isupper(GLIBC_2.2.5) [2]	iswgraph(GLIBC_2.2.5) [2]	isxdigit(GLIBC_2.2.5) [2]	

Referenced Specification(s)

[1]. this specification

[2]. ISO POSIX (2003)

__ctype_get_mb_cur_max(GLIBC_2.2.5) [LSB]	_tolower(GLIBC_2.2.5) [SUSv3]	_toupper(GLIBC_2.2.5) [SUSv3]	isalnum(GLIBC_2.2.5) [SUSv3]
isalpha(GLIBC_2.2.5) [SUSv3]	isascii(GLIBC_2.2.5) [SUSv3]	iscntrl(GLIBC_2.2.5) [SUSv3]	isdigit(GLIBC_2.2.5) [SUSv3]
isgraph(GLIBC_2.2.5) [SUSv3]	islower(GLIBC_2.2.5) [SUSv3]	isprint(GLIBC_2.2.5) [SUSv3]	ispunct(GLIBC_2.2.5) [SUSv3]
isspace(GLIBC_2.2.5) [SUSv3]	isupper(GLIBC_2.2.5) [SUSv3]	iswalnum(GLIBC_2.2.5) [SUSv3]	iswalpha(GLIBC_2.2.5) [SUSv3]
iswblank(GLIBC_2.2.5) [SUSv3]	iswcntrl(GLIBC_2.2.5) [SUSv3]	iswctype(GLIBC_2.2.5) [SUSv3]	iswdigit(GLIBC_2.2.5) [SUSv3]
iswgraph(GLIBC_2.2.5) [SUSv3]	iswlower(GLIBC_2.2.5) [SUSv3]	iswprint(GLIBC_2.2.5) [SUSv3]	iswpunct(GLIBC_2.2.5) [SUSv3]
iswspace(GLIBC_2.2.5) [SUSv3]	iswupper(GLIBC_2.2.5) [SUSv3]	iswxdigit(GLIBC_2.2.5) [SUSv3]	isxdigit(GLIBC_2.2.5) [SUSv3]
toascii(GLIBC_2.2.5) [SUSv3]	tolower(GLIBC_2.2.5) [SUSv3]	toupper(GLIBC_2.2.5) [SUSv3]	

11.2.12 Time Manipulation

11.2.12.1 Interfaces for Time Manipulation

An LSB conforming implementation shall provide the architecture specific functions for Time Manipulation specified in Table 11-16, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-16 libc - Time Manipulation Function Interfaces

~~adjtime(GLIBC_2.2.5) [1]~~	~~ctime(GLIBC_2.2.5) [2]~~	~~gmtime(GLIBC_2.2.5) [2]~~	~~localtime_r(GLIBC_2.2.5) [2]~~	~~ualarm(GLIBC_2.2.5) [2]~~
~~asctime(GLIBC_2.2.5) [2]~~	~~ctime_r(GLIBC_2.2.5) [2]~~	~~gmtime_r(GLIBC_2.2.5) [2]~~	~~mktime(GLIBC_2.2.5) [2]~~	
~~asctime_r(GLIBC_2.2.5) [2]~~	~~difftime(GLIBC_2.2.5) [2]~~	~~localtime(GLIBC_2.2.5) [2]~~	~~tzset(GLIBC_2.2.5) [2]~~	

~~*Referenced Specification(s)*~~

~~**[1].**~~

adjtime(GLIBC_2.2.5) [LSB]	asctime(GLIBC_2.2.5) [SUSv3]	asctime_r(GLIBC_2.2.5) [SUSv3]	ctime(GLIBC_2.2.5) [SUSv3]
ctime_r(GLIBC_2.2.5) [SUSv3]	difftime(GLIBC_2.2.5) [SUSv3]	gmtime(GLIBC_2.2.5) [SUSv3]	gmtime_r(GLIBC_2.2.5) [SUSv3]
localtime(GLIBC_2.2.5) [SUSv3]	localtime_r(GLIBC_2.2.5) [SUSv3]	mktime(GLIBC_2.2.5) [SUSv3]	tzset(GLIBC_2.2.5) [SUSv3]
ualarm(GLIBC_2.2.5) [SUSv3]			

An LSB conforming implementation shall provide the architecture specific data interfaces for Time Manipulation specified in ~~this specification~~Table 11-17

~~**[2].** ISO POSIX (2003)~~

~~An LSB conforming implementation shall provide the architecture specific data interfaces for Time Manipulation specified in Table 11-17~~, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-17 libc - Time Manipulation Data Interfaces

~~__daylight(GLIBC_2.2.5) [1]~~	~~__tzname(GLIBC_2.2.5) [1]~~	~~timezone(GLIBC_2.2.5) [2]~~		
~~__timezone(GLIBC_2.2.5) [1]~~	~~daylight(GLIBC_2.2.5) [2]~~	~~tzname(GLIBC_2.2.5) [2]~~		

~~*Referenced Specification(s)*~~

~~**[1].** this specification~~

~~**[2].** ISO POSIX (2003)~~

__daylight(GLIBC_2.2.5) [LSB]	__timezone(GLIBC_2.2.5) [LSB]	__tzname(GLIBC_2.2.5) [LSB]	daylight(GLIBC_2.2.5) [SUSv3]
timezone(GLIBC_2.2.5) [SUSv3]	tzname(GLIBC_2.2.5) [SUSv3]		

11.2.13 Terminal Interface Functions

11.2.13.1 Interfaces for Terminal Interface Functions

An LSB conforming implementation shall provide the architecture specific functions for Terminal Interface Functions specified in Table 11-18, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-18 libc - Terminal Interface Functions Function Interfaces

~~cfgetispeed(GLIBC_2.2.5) [1]~~	~~cfsetispeed(GLIBC_2.2.5) [1]~~	~~tcdrain(GLIBC_2.2.5) [1]~~	~~tcgetattr(GLIBC_2.2.5) [1]~~	~~tcsendbreak(GLIBC_2.2.5) [1]~~
~~cfgetospeed(GLIBC_2.2.5) [1]~~	~~cfsetospeed(GLIBC_2.2.5) [1]~~	~~tcflow(GLIBC_2.2.5) [1]~~	~~tcgetpgrp(GLIBC_2.2.5) [1]~~	~~tcsetattr(GLIBC_2.2.5) [1]~~
~~cfmakeraw(GLIBC_2.2.5) [2]~~	~~cfsetspeed(GLIBC_2.2.5) [2]~~	~~tcflush(GLIBC_2.2.5) [1]~~	~~tcgetsid(GLIBC_2.2.5) [1]~~	~~tcsetpgrp(GLIBC_2.2.5) [1]~~

~~*Referenced Specification(s)*~~

~~**[1].** ISO POSIX (2003)~~

~~**[2].** this specification~~

cfgetispeed(GLIBC_2.2.5) [SUSv3]	cfgetospeed(GLIBC_2.2.5) [SUSv3]	cfmakeraw(GLIBC_2.2.5) [LSB]	cfsetispeed(GLIBC_2.2.5) [SUSv3]
cfsetospeed(GLIBC_2.2.5) [SUSv3]	cfsetspeed(GLIBC_2.2.5) [LSB]	tcdrain(GLIBC_2.2.5) [SUSv3]	tcflow(GLIBC_2.2.5) [SUSv3]
tcflush(GLIBC_2.2.5) [SUSv3]	tcgetattr(GLIBC_2.2.5) [SUSv3]	tcgetpgrp(GLIBC_2.2.5) [SUSv3]	tcgetsid(GLIBC_2.2.5) [SUSv3]
tcsendbreak(GLIBC_2.2.5) [SUSv3]	tcsetattr(GLIBC_2.2.5) [SUSv3]	tcsetpgrp(GLIBC_2.2.5) [SUSv3]	

11.2.14 System Database Interface

11.2.14.1 Interfaces for System Database Interface

An LSB conforming implementation shall provide the architecture specific functions for System Database Interface specified in Table 11-19, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-19 libc - System Database Interface Function Interfaces

~~endgrent(GLIBC_2.2.5) [1]~~	~~getgrgid_r(GLIBC_2.2.5) [1]~~	~~getprotoent(GLIBC_2.2.5) [1]~~	~~getservent(GLIBC_2.2.5) [1]~~	~~setgroups(GLIBC_2.2.5) [2]~~
~~endprotoent(GLIBC_2.2.5) [1]~~	~~getgrnam(GLIBC_2.2.5) [1]~~	~~getpwent(GLIBC_2.2.5) [1]~~	~~getutent(GLIBC_2.2.5) [2]~~	~~setprotoent(GLIBC_2.2.5) [1]~~
~~endpwent(GL~~	~~getgrnam_r(G~~	~~getpwnam(G~~	~~getutent_r(GL~~	~~setpwent(GLI~~

IBC_2.2.5) [1]	LIBC_2.2.5) [1]	LIBC_2.2.5) [1]	IBC_2.2.5) [2]	BC_2.2.5) [1]
endservent(GLIBC_2.2.5) [1]	getgrouplist(GLIBC_2.2.5) [2]	getpwnam_r(GLIBC_2.2.5) [1]	getutxent(GLIBC_2.2.5) [1]	setservent(GLIBC_2.2.5) [1]
endutent(GLIBC_2.2.5) [3]	gethostbyaddr(GLIBC_2.2.5) [1]	getpwuid(GLIBC_2.2.5) [1]	getutxid(GLIBC_2.2.5) [1]	setutent(GLIBC_2.2.5) [2]
endutxent(GLIBC_2.2.5) [1]	gethostbyname(GLIBC_2.2.5) [1]	getpwuid_r(GLIBC_2.2.5) [1]	getutxline(GLIBC_2.2.5) [1]	setutxent(GLIBC_2.2.5) [1]
getgrent(GLIBC_2.2.5) [1]	getprotobyname(GLIBC_2.2.5) [1]	getservbyname(GLIBC_2.2.5) [1]	pututxline(GLIBC_2.2.5) [1]	utmpname(GLIBC_2.2.5) [2]
getgrgid(GLIBC_2.2.5) [1]	getprotobynumber(GLIBC_2.2.5) [1]	getservbyport(GLIBC_2.2.5) [1]	setgrent(GLIBC_2.2.5) [1]	

Referenced Specification(s)

[1]. ISO POSIX (2003)

[2]. this specification

[3]. SUSv2

endgrent(GLIBC_2.2.5) [SUSv3]	endprotoent(GLIBC_2.2.5) [SUSv3]	endpwent(GLIBC_2.2.5) [SUSv3]	endservent(GLIBC_2.2.5) [SUSv3]
endutent(GLIBC_2.2.5) [SUSv2]	endutxent(GLIBC_2.2.5) [SUSv3]	getgrent(GLIBC_2.2.5) [SUSv3]	getgrgid(GLIBC_2.2.5) [SUSv3]
getgrgid_r(GLIBC_2.2.5) [SUSv3]	getgrnam(GLIBC_2.2.5) [SUSv3]	getgrnam_r(GLIBC_2.2.5) [SUSv3]	getgrouplist(GLIBC_2.2.5) [LSB]
gethostbyaddr(GLIBC_2.2.5) [SUSv3]	gethostbyname(GLIBC_2.2.5) [SUSv3]	getprotobyname(GLIBC_2.2.5) [SUSv3]	getprotobynumber(GLIBC_2.2.5) [SUSv3]
getprotoent(GLIBC_2.2.5) [SUSv3]	getpwent(GLIBC_2.2.5) [SUSv3]	getpwnam(GLIBC_2.2.5) [SUSv3]	getpwnam_r(GLIBC_2.2.5) [SUSv3]
getpwuid(GLIBC_2.2.5) [SUSv3]	getpwuid_r(GLIBC_2.2.5) [SUSv3]	getservbyname(GLIBC_2.2.5) [SUSv3]	getservbyport(GLIBC_2.2.5) [SUSv3]
getservent(GLIBC_2.2.5) [SUSv3]	getutent(GLIBC_2.2.5) [LSB]	getutent_r(GLIBC_2.2.5) [LSB]	getutxent(GLIBC_2.2.5) [SUSv3]
getutxid(GLIBC_2.2.5) [SUSv3]	getutxline(GLIBC_2.2.5) [SUSv3]	pututxline(GLIBC_2.2.5) [SUSv3]	setgrent(GLIBC_2.2.5) [SUSv3]
setgroups(GLIBC_2.2.5) [LSB]	setprotoent(GLIBC_2.2.5) [SUSv3]	setpwent(GLIBC_2.2.5) [SUSv3]	setservent(GLIBC_2.2.5) [SUSv3]
setutent(GLIBC_2.	setutxent(GLIBC_	utmpname(GLIB	

2.5) [LSB]	2.2.5) [SUSv3]	C_2.2.5) [LSB]	

11.2.15 Language Support

11.2.15.1 Interfaces for Language Support

An LSB conforming implementation shall provide the architecture specific functions for Language Support specified in Table 11-20, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-20 libc - Language Support Function Interfaces

~~__libc_start_main(GLIBC_2.2.5) [1]~~				

~~*Referenced Specification(s)*~~

~~**[1].** this specification~~

__libc_start_main(GLIBC_2.2.5) [LSB]			

11.2.16 Large File Support

11.2.16.1 Interfaces for Large File Support

An LSB conforming implementation shall provide the architecture specific functions for Large File Support specified in Table 11-21, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-21 libc - Large File Support Function Interfaces

~~__fxstat64(GLIBC_2.2.5) [1]~~	~~fopen64(GLIBC_2.2.5) [2]~~	~~ftello64(GLIBC_2.2.5) [2]~~	~~mkstemp64(GLIBC_2.2.5) [2]~~	~~tmpfile64(GLIBC_2.2.5) [2]~~
~~__lxstat64(GLIBC_2.2.5) [1]~~	~~freopen64(GLIBC_2.2.5) [2]~~	~~ftruncate64(GLIBC_2.2.5) [2]~~	~~mmap64(GLIBC_2.2.5) [2]~~	~~truncate64(GLIBC_2.2.5) [2]~~
~~__xstat64(GLIBC_2.2.5) [1]~~	~~fseeko64(GLIBC_2.2.5) [2]~~	~~ftw64(GLIBC_2.2.5) [2]~~	~~nftw64(GLIBC_2.3.3) [2]~~	
~~creat64(GLIBC_2.2.5) [2]~~	~~fsetpos64(GLIBC_2.2.5) [2]~~	~~getrlimit64(GLIBC_2.2.5) [2]~~	~~readdir64(GLIBC_2.2.5) [2]~~	
~~fgetpos64(GLIBC_2.2.5) [2]~~	~~fstatvfs64(GLIBC_2.2.5) [2]~~	~~lockf64(GLIBC_2.2.5) [2]~~	~~statvfs64(GLIBC_2.2.5) [2]~~	

~~*Referenced Specification(s)*~~

~~**[1].** this specification~~

~~**[2].** Large File Support~~

__fxstat64(GLIBC	__lxstat64(GLIBC	__xstat64(GLIBC_	creat64(GLIBC_2.

_2.2.5) [LSB]	_2.2.5) [LSB]	2.2.5) [LSB]	2.5) [LFS]
fgetpos64(GLIBC_2.2.5) [LFS]	fopen64(GLIBC_2.2.5) [LFS]	freopen64(GLIBC_2.2.5) [LFS]	fseeko64(GLIBC_2.2.5) [LFS]
fsetpos64(GLIBC_2.2.5) [LFS]	fstatvfs64(GLIBC_2.2.5) [LFS]	ftello64(GLIBC_2.2.5) [LFS]	ftruncate64(GLIBC_2.2.5) [LFS]
ftw64(GLIBC_2.2.5) [LFS]	getrlimit64(GLIBC_2.2.5) [LFS]	lockf64(GLIBC_2.2.5) [LFS]	mkstemp64(GLIBC_2.2.5) [LFS]
mmap64(GLIBC_2.2.5) [LFS]	nftw64(GLIBC_2.3.3) [LFS]	readdir64(GLIBC_2.2.5) [LFS]	statvfs64(GLIBC_2.2.5) [LFS]
tmpfile64(GLIBC_2.2.5) [LFS]	truncate64(GLIBC_2.2.5) [LFS]		

11.2.17 Standard Library

11.2.17.1 Interfaces for Standard Library

An LSB conforming implementation shall provide the architecture specific functions for Standard Library specified in Table 11-22, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-22 libc - Standard Library Function Interfaces

~~_Exit(GLIBC_2.2.5) [1]~~	~~dirname(GLIBC_2.2.5) [1]~~	~~gettimeofday(GLIBC_2.2.5) [1]~~	~~lrand48(GLIBC_2.2.5) [1]~~	~~srand(GLIBC_2.2.5) [1]~~
~~__assert_fail(GLIBC_2.2.5) [2]~~	~~div(GLIBC_2.2.5) [1]~~	~~glob(GLIBC_2.2.5) [1]~~	~~lsearch(GLIBC_2.2.5) [1]~~	~~srand48(GLIBC_2.2.5) [1]~~
~~__cxa_atexit(GLIBC_2.2.5) [2]~~	~~drand48(GLIBC_2.2.5) [1]~~	~~glob64(GLIBC_2.2.5) [2]~~	~~makecontext(GLIBC_2.2.5) [1]~~	~~srandom(GLIBC_2.2.5) [1]~~
~~__errno_location(GLIBC_2.2.5) [2]~~	~~ecvt(GLIBC_2.2.5) [1]~~	~~globfree(GLIBC_2.2.5) [1]~~	~~malloc(GLIBC_2.2.5) [1]~~	~~strtod(GLIBC_2.2.5) [1]~~
~~__fpending(GLIBC_2.2.5) [2]~~	~~erand48(GLIBC_2.2.5) [1]~~	~~globfree64(GLIBC_2.2.5) [2]~~	~~memmem(GLIBC_2.2.5) [2]~~	~~strtol(GLIBC_2.2.5) [1]~~
~~__getpagesize(GLIBC_2.2.5) [2]~~	~~err(GLIBC_2.2.5) [2]~~	~~grantpt(GLIBC_2.2.5) [1]~~	~~mkstemp(GLIBC_2.2.5) [1]~~	~~strtoul(GLIBC_2.2.5) [1]~~
~~__isinf(GLIBC_2.2.5) [2]~~	~~error(GLIBC_2.2.5) [2]~~	~~hcreate(GLIBC_2.2.5) [1]~~	~~mktemp(GLIBC_2.2.5) [1]~~	~~swapcontext(GLIBC_2.2.5) [1]~~
~~__isinff(GLIBC_2.2.5) [2]~~	~~errx(GLIBC_2.2.5) [2]~~	~~hdestroy(GLIBC_2.2.5) [1]~~	~~mrand48(GLIBC_2.2.5) [1]~~	~~syslog(GLIBC_2.2.5) [1]~~
~~__isinfl(GLIBC~~	~~fcvt(GLIBC_2.~~	~~hsearch(GLIB~~	~~nftw(GLIBC_~~	~~system(GLIB~~

C_2.2.5) [2]	2.5) [1]	C_2.2.5) [1]	2.3.3) [1]	C_2.2.5) [2]
__isnan(GLIBC_2.2.5) [2]	fmtmsg(GLIBC_2.2.5) [1]	htonl(GLIBC_2.2.5) [1]	nrand48(GLIBC_2.2.5) [1]	tdelete(GLIBC_2.2.5) [1]
__isnanf(GLIBC_2.2.5) [2]	fnmatch(GLIBC_2.2.5) [1]	htons(GLIBC_2.2.5) [1]	ntohl(GLIBC_2.2.5) [1]	tfind(GLIBC_2.2.5) [1]
__isnanl(GLIBC_2.2.5) [2]	fpathconf(GLIBC_2.2.5) [1]	imaxabs(GLIBC_2.2.5) [1]	ntohs(GLIBC_2.2.5) [1]	tmpfile(GLIBC_2.2.5) [1]
__sysconf(GLIBC_2.2.5) [2]	free(GLIBC_2.2.5) [1]	imaxdiv(GLIBC_2.2.5) [1]	openlog(GLIBC_2.2.5) [1]	tmpnam(GLIBC_2.2.5) [1]
_exit(GLIBC_2.2.5) [1]	freeaddrinfo(GLIBC_2.2.5) [1]	inet_addr(GLIBC_2.2.5) [1]	perror(GLIBC_2.2.5) [1]	tsearch(GLIBC_2.2.5) [1]
_longjmp(GLIBC_2.2.5) [1]	ftrylockfile(GLIBC_2.2.5) [1]	inet_ntoa(GLIBC_2.2.5) [1]	posix_memalign(GLIBC_2.2.5) [1]	ttyname(GLIBC_2.2.5) [1]
_setjmp(GLIBC_2.2.5) [1]	ftw(GLIBC_2.2.5) [1]	inet_ntop(GLIBC_2.2.5) [1]	posix_openpt(GLIBC_2.2.5) [1]	ttyname_r(GLIBC_2.2.5) [1]
a64l(GLIBC_2.2.5) [1]	funlockfile(GLIBC_2.2.5) [1]	inet_pton(GLIBC_2.2.5) [1]	ptsname(GLIBC_2.2.5) [1]	twalk(GLIBC_2.2.5) [1]
abort(GLIBC_2.2.5) [1]	gai_strerror(GLIBC_2.2.5) [1]	initstate(GLIBC_2.2.5) [1]	putenv(GLIBC_2.2.5) [1]	unlockpt(GLIBC_2.2.5) [1]
abs(GLIBC_2.2.5) [1]	gcvt(GLIBC_2.2.5) [1]	insque(GLIBC_2.2.5) [1]	qsort(GLIBC_2.2.5) [1]	unsetenv(GLIBC_2.2.5) [1]
atof(GLIBC_2.2.5) [1]	getaddrinfo(GLIBC_2.2.5) [1]	isatty(GLIBC_2.2.5) [1]	rand(GLIBC_2.2.5) [1]	usleep(GLIBC_2.2.5) [1]
atoi(GLIBC_2.2.5) [1]	getcwd(GLIBC_2.2.5) [1]	isblank(GLIBC_2.2.5) [1]	rand_r(GLIBC_2.2.5) [1]	verrx(GLIBC_2.2.5) [2]
atol(GLIBC_2.2.5) [1]	getdate(GLIBC_2.2.5) [1]	jrand48(GLIBC_2.2.5) [1]	random(GLIBC_2.2.5) [1]	vfscanf(GLIBC_2.2.5) [2]
atoll(GLIBC_2.2.5) [1]	getenv(GLIBC_2.2.5) [1]	l64a(GLIBC_2.2.5) [1]	realloc(GLIBC_2.2.5) [1]	vscanf(GLIBC_2.2.5) [2]
basename(GLIBC_2.2.5) [1]	getlogin(GLIBC_2.2.5) [1]	labs(GLIBC_2.2.5) [1]	realpath(GLIBC_2.3) [1]	vsscanf(GLIBC_2.2.5) [2]
bsearch(GLIBC_2.2.5) [1]	getlogin_r(GLIBC_2.2.5) [1]	lcong48(GLIBC_2.2.5) [1]	remque(GLIBC_2.2.5) [1]	vsyslog(GLIBC_2.2.5) [2]
calloc(GLIBC_2.2.5) [1]	getnameinfo(GLIBC_2.2.5) [1]	ldiv(GLIBC_2.2.5) [1]	seed48(GLIBC_2.2.5) [1]	warn(GLIBC_2.2.5) [2]

closelog(GLIBC_2.2.5) [1]	getopt(GLIBC_2.2.5) [2]	lfind(GLIBC_2.2.5) [1]	setenv(GLIBC_2.2.5) [1]	warnx(GLIBC_2.2.5) [2]
confstr(GLIBC_2.2.5) [1]	getopt_long(GLIBC_2.2.5) [2]	llabs(GLIBC_2.2.5) [1]	sethostname(GLIBC_2.2.5) [2]	wordexp(GLIBC_2.2.5) [1]
cuserid(GLIBC_2.2.5) [3]	getopt_long_only(GLIBC_2.2.5) [2]	lldiv(GLIBC_2.2.5) [1]	setlogmask(GLIBC_2.2.5) [1]	wordfree(GLIBC_2.2.5) [1]
daemon(GLIBC_2.2.5) [2]	getsubopt(GLIBC_2.2.5) [1]	longjmp(GLIBC_2.2.5) [1]	setstate(GLIBC_2.2.5) [1]	

Referenced Specification(s)

[1].

_Exit(GLIBC_2.2.5) [SUSv3]	__assert_fail(GLIBC_2.2.5) [LSB]	__cxa_atexit(GLIBC_2.2.5) [LSB]	__errno_location(GLIBC_2.2.5) [LSB]
__fpending(GLIBC_2.2.5) [LSB]	__getpagesize(GLIBC_2.2.5) [LSB]	__isinf(GLIBC_2.2.5) [LSB]	__isinff(GLIBC_2.2.5) [LSB]
__isinfl(GLIBC_2.2.5) [LSB]	__isnan(GLIBC_2.2.5) [LSB]	__isnanf(GLIBC_2.2.5) [LSB]	__isnanl(GLIBC_2.2.5) [LSB]
__sysconf(GLIBC_2.2.5) [LSB]	_exit(GLIBC_2.2.5) [SUSv3]	_longjmp(GLIBC_2.2.5) [SUSv3]	_setjmp(GLIBC_2.2.5) [SUSv3]
a64l(GLIBC_2.2.5) [SUSv3]	abort(GLIBC_2.2.5) [SUSv3]	abs(GLIBC_2.2.5) [SUSv3]	atof(GLIBC_2.2.5) [SUSv3]
atoi(GLIBC_2.2.5) [SUSv3]	atol(GLIBC_2.2.5) [SUSv3]	atoll(GLIBC_2.2.5) [SUSv3]	basename(GLIBC_2.2.5) [SUSv3]
bsearch(GLIBC_2.2.5) [SUSv3]	calloc(GLIBC_2.2.5) [SUSv3]	closelog(GLIBC_2.2.5) [SUSv3]	confstr(GLIBC_2.2.5) [SUSv3]
cuserid(GLIBC_2.2.5) [SUSv2]	daemon(GLIBC_2.2.5) [LSB]	dirname(GLIBC_2.2.5) [SUSv3]	div(GLIBC_2.2.5) [SUSv3]
drand48(GLIBC_2.2.5) [SUSv3]	ecvt(GLIBC_2.2.5) [SUSv3]	erand48(GLIBC_2.2.5) [SUSv3]	err(GLIBC_2.2.5) [LSB]
error(GLIBC_2.2.5) [LSB]	errx(GLIBC_2.2.5) [LSB]	fcvt(GLIBC_2.2.5) [SUSv3]	fmtmsg(GLIBC_2.2.5) [SUSv3]
fnmatch(GLIBC_2.2.5) [SUSv3]	fpathconf(GLIBC_2.2.5) [SUSv3]	free(GLIBC_2.2.5) [SUSv3]	freeaddrinfo(GLIBC_2.2.5) [SUSv3]
ftrylockfile(GLIBC_2.2.5) [SUSv3]	ftw(GLIBC_2.2.5) [SUSv3]	funlockfile(GLIBC_2.2.5) [SUSv3]	gai_strerror(GLIBC_2.2.5) [SUSv3]
gcvt(GLIBC_2.2.5) [SUSv3]	getaddrinfo(GLIBC_2.2.5) [SUSv3]	getcwd(GLIBC_2.2.5) [SUSv3]	getdate(GLIBC_2.2.5) [SUSv3]
getenv(GLIBC_2.2.5) [SUSv3]	getlogin(GLIBC_2.2.5) [SUSv3]	getlogin_r(GLIBC_2.2.5) [SUSv3]	getnameinfo(GLIBC_2.2.5) [SUSv3]

getopt(GLIBC_2.2.5) [LSB]	getopt_long(GLIBC_2.2.5) [LSB]	getopt_long_only(GLIBC_2.2.5) [LSB]	getsubopt(GLIBC_2.2.5) [SUSv3]
gettimeofday(GLIBC_2.2.5) [SUSv3]	glob(GLIBC_2.2.5) [SUSv3]	glob64(GLIBC_2.2.5) [LSB]	globfree(GLIBC_2.2.5) [SUSv3]
globfree64(GLIBC_2.2.5) [LSB]	grantpt(GLIBC_2.2.5) [SUSv3]	hcreate(GLIBC_2.2.5) [SUSv3]	hdestroy(GLIBC_2.2.5) [SUSv3]
hsearch(GLIBC_2.2.5) [SUSv3]	htonl(GLIBC_2.2.5) [SUSv3]	htons(GLIBC_2.2.5) [SUSv3]	imaxabs(GLIBC_2.2.5) [SUSv3]
imaxdiv(GLIBC_2.2.5) [SUSv3]	inet_addr(GLIBC_2.2.5) [SUSv3]	inet_ntoa(GLIBC_2.2.5) [SUSv3]	inet_ntop(GLIBC_2.2.5) [SUSv3]
inet_pton(GLIBC_2.2.5) [SUSv3]	initstate(GLIBC_2.2.5) [SUSv3]	insque(GLIBC_2.2.5) [SUSv3]	isatty(GLIBC_2.2.5) [SUSv3]
isblank(GLIBC_2.2.5) [SUSv3]	jrand48(GLIBC_2.2.5) [SUSv3]	l64a(GLIBC_2.2.5) [SUSv3]	labs(GLIBC_2.2.5) [SUSv3]
lcong48(GLIBC_2.2.5) [SUSv3]	ldiv(GLIBC_2.2.5) [SUSv3]	lfind(GLIBC_2.2.5) [SUSv3]	llabs(GLIBC_2.2.5) [SUSv3]
lldiv(GLIBC_2.2.5) [SUSv3]	longjmp(GLIBC_2.2.5) [SUSv3]	lrand48(GLIBC_2.2.5) [SUSv3]	lsearch(GLIBC_2.2.5) [SUSv3]
makecontext(GLIBC_2.2.5) [SUSv3]	malloc(GLIBC_2.2.5) [SUSv3]	memmem(GLIBC_2.2.5) [LSB]	mkstemp(GLIBC_2.2.5) [SUSv3]
mktemp(GLIBC_2.2.5) [SUSv3]	mrand48(GLIBC_2.2.5) [SUSv3]	nftw(GLIBC_2.3.3) [SUSv3]	nrand48(GLIBC_2.2.5) [SUSv3]
ntohl(GLIBC_2.2.5) [SUSv3]	ntohs(GLIBC_2.2.5) [SUSv3]	openlog(GLIBC_2.2.5) [SUSv3]	perror(GLIBC_2.2.5) [SUSv3]
posix_memalign(GLIBC_2.2.5) [SUSv3]	posix_openpt(GLIBC_2.2.5) [SUSv3]	ptsname(GLIBC_2.2.5) [SUSv3]	putenv(GLIBC_2.2.5) [SUSv3]
qsort(GLIBC_2.2.5) [SUSv3]	rand(GLIBC_2.2.5) [SUSv3]	rand_r(GLIBC_2.2.5) [SUSv3]	random(GLIBC_2.2.5) [SUSv3]
realloc(GLIBC_2.2.5) [SUSv3]	realpath(GLIBC_2.3) [SUSv3]	remque(GLIBC_2.2.5) [SUSv3]	seed48(GLIBC_2.2.5) [SUSv3]
setenv(GLIBC_2.2.5) [SUSv3]	sethostname(GLIBC_2.2.5) [LSB]	setlogmask(GLIBC_2.2.5) [SUSv3]	setstate(GLIBC_2.2.5) [SUSv3]
srand(GLIBC_2.2.5) [SUSv3]	srand48(GLIBC_2.2.5) [SUSv3]	srandom(GLIBC_2.2.5) [SUSv3]	strtod(GLIBC_2.2.5) [SUSv3]
strtol(GLIBC_2.2.5) [SUSv3]	strtoul(GLIBC_2.2.5) [SUSv3]	swapcontext(GLIBC_2.2.5) [SUSv3]	syslog(GLIBC_2.2.5) [SUSv3]
system(GLIBC_2.2.5) [LSB]	tdelete(GLIBC_2.2.5) [SUSv3]	tfind(GLIBC_2.2.5) [SUSv3]	tmpfile(GLIBC_2.2.5) [SUSv3]
tmpnam(GLIBC_2	tsearch(GLIBC_2.	ttyname(GLIBC_2	ttyname_r(GLIBC

.2.5) [SUSv3]	2.5) [SUSv3]	.2.5) [SUSv3]	_2.2.5) [SUSv3]
twalk(GLIBC_2.2.5) [SUSv3]	unlockpt(GLIBC_2.2.5) [SUSv3]	unsetenv(GLIBC_2.2.5) [SUSv3]	usleep(GLIBC_2.2.5) [SUSv3]
verrx(GLIBC_2.2.5) [LSB]	vfscanf(GLIBC_2.2.5) [LSB]	vscanf(GLIBC_2.2.5) [LSB]	vsscanf(GLIBC_2.2.5) [LSB]
vsyslog(GLIBC_2.2.5) [LSB]	warn(GLIBC_2.2.5) [LSB]	warnx(GLIBC_2.2.5) [LSB]	wordexp(GLIBC_2.2.5) [SUSv3]
wordfree(GLIBC_2.2.5) [SUSv3]			

An LSB conforming implementation shall provide the architecture specific data interfaces for Standard Library specified in ~~ISO POSIX (2003)~~Table 11-23

~~**[2].** this specification~~

~~**[3].** SUSv2~~

~~An LSB conforming implementation shall provide the architecture specific data interfaces for Standard Library specified in Table 11-23~~, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-23 libc - Standard Library Data Interfaces

~~__environ(GLIBC_2.2.5) [1]~~	~~_sys_errlist(GLIBC_2.3) [1]~~	~~getdate_err(GLIBC_2.2.5) [2]~~	~~opterr(GLIBC_2.2.5) [2]~~	~~optopt(GLIBC_2.2.5) [2]~~
~~_environ(GLIBC_2.2.5) [1]~~	~~environ(GLIBC_2.2.5) [2]~~	~~optarg(GLIBC_2.2.5) [2]~~	~~optind(GLIBC_2.2.5) [2]~~	

~~*Referenced Specification(s)*~~

~~**[1].** this specification~~

~~**[2].** ISO POSIX (2003)~~

__environ(GLIBC_2.2.5) [LSB]	_environ(GLIBC_2.2.5) [LSB]	_sys_errlist(GLIBC_2.3) [LSB]	environ(GLIBC_2.2.5) [SUSv3]
getdate_err(GLIBC_2.2.5) [SUSv3]	optarg(GLIBC_2.2.5) [SUSv3]	opterr(GLIBC_2.2.5) [SUSv3]	optind(GLIBC_2.2.5) [SUSv3]
optopt(GLIBC_2.2.5) [SUSv3]			

11.3 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.

~~These definitions are intended to supplement those provided in~~ Where an interface is defined as requiring a particular system header file all of the ~~referenced underlying~~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 ~~ISO/IEC 9899~~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.

11.3.1 arpa/inet.h

```
extern uint32_t htonl(uint32_t);
extern uint16_t htons(uint16_t);
extern in_addr_t inet_addr(const char *);
extern char *inet_ntoa(struct in_addr);
extern const char *inet_ntop(int, const void *, char *, socklen_t);
extern int inet_pton(int, const char *, void *);
extern uint32_t ntohl(uint32_t);
extern uint16_t ntohs(uint16_t);
```

11.3.2 assert.h

```
extern void __assert_fail(const char *, const char *, unsigned int,
                          const char *);
```

11.3.3 ctype.h

```
extern int _tolower(int);
extern int _toupper(int);
extern int isalnum(int);
extern int isalpha(int);
extern int isascii(int);
extern int iscntrl(int);
extern int isdigit(int);
extern int isgraph(int);
extern int islower(int);
extern int isprint(int);
extern int ispunct(int);
extern int isspace(int);
extern int isupper(int);
extern int isxdigit(int);
extern int toascii(int);
extern int tolower(int);
extern int toupper(int);
extern int isblank(int);
extern const unsigned short **__ctype_b_loc(void);
extern const int32_t **__ctype_toupper_loc(void);
extern const int32_t **__ctype_tolower_loc(void);
```

11.3.4 dirent.h

```
extern void rewinddir(DIR *);
extern void seekdir(DIR *, long int);
extern long int telldir(DIR *);
extern int closedir(DIR *);
extern DIR *opendir(const char *);
extern struct dirent *readdir(DIR *);
```

```
extern struct dirent64 *readdir64(DIR *);
extern int readdir_r(DIR *, struct dirent *, struct dirent **);
```

11.3.5 err.h

```

extern void err(int, const char *, ...);
extern void errx(int, const char *, ...);
extern void warn(const char *, ...);
extern void warnx(const char *, ...);
extern void error(int, int, const char *, ...);
```

11.3.6 errno.h

```

#define EDEADLOCK       EDEADLK

extern int *__errno_location(void);
```

11.3.~~2~~7 fcntl.h

```

#define F_GETLK64       5
#define F_SETLK64       6
#define F_SETLKW64      7

extern int lockf64(int, int, off64_t);
extern int fcntl(int, int, ...);
```

11.3.8 fmtmsg.h

```

extern int fmtmsg(long int, const char *, int, const char *, const char
*,
                  const char *);
```

11.3.9 fnmatch.h

```

extern int fnmatch(const char *, const char *, int);
```

11.3.10 ftw.h

```

extern int ftw(const char *, __ftw_func_t, int);
extern int ftw64(const char *, __ftw64_func_t, int);
extern int nftw(const char *, __nftw_func_t, int, int);
extern int nftw64(const char *, __nftw64_func_t, int, int);
```

11.3.11 getopt.h

```

extern int getopt_long(int, char *const, const char *,
                       const struct option *, int *);
extern int getopt_long_only(int, char *const, const char *,
                            const struct option *, int *);
```

11.3.12 glob.h

```

extern int glob(const char *, int,
                int (*__errfunc) (const char *p1, int p2)
```

```
                , glob_t *);
extern int glob64(const char *, int,
                int (*__errfunc) (const char *p1, int p2)
                , glob64_t *);
extern void globfree(glob_t *);
extern void globfree64(glob64_t *);
```

11.3.13 grp.h

```

extern void endgrent(void);
extern struct group *getgrent(void);
extern struct group *getgrgid(gid_t);
extern struct group *getgrnam(char *);
extern int initgroups(const char *, gid_t);
extern void setgrent(void);
extern int setgroups(size_t, const gid_t *);
extern int getgrgid_r(gid_t, struct group *, char *, size_t,
                      struct group **);
extern int getgrnam_r(const char *, struct group *, char *, size_t,
                      struct group **);
extern int getgrouplist(const char *, gid_t, gid_t *, int *);
```

11.3.14 iconv.h

```

extern size_t iconv(iconv_t, char **, size_t *, char **, size_t *);
extern int iconv_close(iconv_t);
extern iconv_t iconv_open(char *, char *);
```

11.3.15 inttypes.h

```

typedef long int intmax_t;
typedef unsigned long int uintptr_t;
typedef unsigned long int uintmax_t;
typedef unsigned long int uint64_t;
```

~~11.3.4 limits.h~~

```

#define LONG_MAX        0x7FFFFFFFFFFFFFFFL
#define ULONG_MAX       0xFFFFFFFFFFFFFFFFUL

#define CHAR_MAX        127
#define CHAR_MIN        SCHAR_MIN

#define PTHREAD_STACK_MIN       16384
```

~~11.3.5 setjmp.h~~

```

typedef long int __jmp_buf[8];
```

~~11.3.6 signal.h~~

```

#define SIGEV_PAD_SIZE  ((SIGEV_MAX_SIZE/sizeof(int)) - 4)

#define SI_PAD_SIZE     ((SI_MAX_SIZE/sizeof(int)) - 4)

struct sigaction
```

```
{
  union
  {
    sighandler_t _sa_handler;
    void (*_sa_sigaction) (int, siginfo_t *, void *);
  }
  __sigaction_handler;
  sigset_t sa_mask;
  int sa_flags;
  void (*sa_restorer) (void);
}
;
#define MINSIGSTKSZ    2048
#define SIGSTKSZ       8192

struct _fpxreg
{
  unsigned short significand[4];
  unsigned short exponent;
  unsigned short padding[3];
}
;
struct _xmmreg
{
  uint32_t element[4];
}
;

struct _fpstate
{
  uint16_t cwd;
  uint16_t swd;
  uint16_t ftw;
  uint16_t fop;
  uint64_t rip;
  uint64_t rdp;
  uint32_t mxcsr;
  uint32_t mxcr_mask;
  struct _fpxreg _st[8];
  struct _xmmreg _xmm[16];
  uint32_t padding[24];
}
;

struct sigcontext
{
  unsigned long int r8;
  unsigned long int r9;
  unsigned long int r10;
  unsigned long int r11;
  unsigned long int r12;
  unsigned long int r13;
  unsigned long int r14;
  unsigned long int r15;
  unsigned long int rdi;
  unsigned long int rsi;
  unsigned long int rbp;
  unsigned long int rbx;
  unsigned long int rdx;
  unsigned long int rax;
  unsigned long int rcx;
  unsigned long int rsp;
  unsigned long int rip;
  unsigned long int eflags;
```

```
  unsigned short cs;
  unsigned short gs;
  unsigned short fs;
  unsigned short __pad0;
  unsigned long int err;
  unsigned long int trapno;
  unsigned long int oldmask;
  unsigned long int cr2;
  struct _fpstate *fpstate;
  unsigned long int __reserved1[8];
}
;
```

11.3.7 stddef.h

```

typedef long int ptrdiff_t;
typedef unsigned long int size_t;
```

11.3.8 stdio.h

```

#define __IO_FILE_SIZE  216
```

11.3.9 sys/ioctl.h

```

#define TIOCGWINSZ      0x5413
#define FIONREAD        0x541B
#define TIOCNOTTY       21538
```

11.3.10 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;
}
;
```

11.3.11 sys/mman.h

```

#define MCL_CURRENT     1
#define MCL_FUTURE      2
```

11.3.12 sys/msg.h

```

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

```

```
struct msqid_ds
{
  struct ipc_perm msg_perm;
  time_t msg_stime;
  time_t msg_rtime;
  time_t msg_ctime;
  unsigned long int __msg_cbytes;
  msgqnum_t msg_qnum;
  msglen_t msg_qbytes;
  pid_t msg_lspid;
  pid_t msg_lrpid;
  unsigned long int __unused4;
  unsigned long int __unused5;
}
;
```

11.3.13 sys/sem.h

```
extern intmax_t strtoimax(const char *, char **, int);
extern uintmax_t strtoumax(const char *, char **, int);
extern intmax_t wcstoimax(const wchar_t *, wchar_t * *, int);
extern uintmax_t wcstoumax(const wchar_t *, wchar_t * *, int);
extern intmax_t imaxabs(intmax_t);
extern imaxdiv_t imaxdiv(intmax_t, intmax_t);
```

11.3.16 langinfo.h

```

extern char *nl_langinfo(nl_item);
```

11.3.17 libgen.h

```

extern char *basename(const char *);
extern char *dirname(char *);
```

11.3.18 libintl.h

```

extern char *bindtextdomain(const char *, const char *);
extern char *dcgettext(const char *, const char *, int);
extern char *dgettext(const char *, const char *);
extern char *gettext(const char *);
extern char *textdomain(const char *);
extern char *bind_textdomain_codeset(const char *, const char *);
extern char *dcngettext(const char *, const char *, const char *,
                        unsigned long int, int);
extern char *dngettext(const char *, const char *, const char *,
                       unsigned long int);
extern char *ngettext(const char *, const char *, unsigned long int);
```

11.3.19 limits.h

```

#define LONG_MAX        0x7FFFFFFFFFFFFFFFL
#define ULONG_MAX       0xFFFFFFFFFFFFFFFFUL

#define CHAR_MAX        127
#define CHAR_MIN        SCHAR_MIN

#define PTHREAD_STACK_MIN       16384
```

11.3.20 locale.h

```
extern struct lconv *localeconv(void);
extern char *setlocale(int, const char *);
extern locale_t uselocale(locale_t);
extern void freelocale(locale_t);
extern locale_t duplocale(locale_t);
extern locale_t newlocale(int, const char *, locale_t);
```

11.3.21 monetary.h

```
struct semid_ds
{
  struct ipc_perm sem_perm;
  time_t sem_otime;
  unsigned long int __unused1;
  time_t sem_ctime;
  unsigned long int __unused2;
  unsigned long int sem_nsems;
  unsigned long int __unused3;
  unsigned long int __unused4;
}
;
```

11.3.14 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;
  time_t shm_dtime;
  time_t shm_ctime;
  pid_t shm_cpid;
  pid_t shm_lpid;
  shmatt_t shm_nattch;
  unsigned long int __unused4;
  unsigned long int __unused5;
}
;
```

11.3.15 sys/socket.h

```
typedef uint64_t __ss_aligntype;

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

11.3.16 sys/stat.h

```
#define _STAT_VER       1
```

```
struct stat
{
  dev_t st_dev;
  ino_t st_ino;
  nlink_t st_nlink;
  mode_t st_mode;
  uid_t st_uid;
  gid_t st_gid;
  int pad0;
  dev_t st_rdev;
  off_t st_size;
  blksize_t st_blksize;
  blkcnt_t st_blocks;
  struct timespec st_atim;
  struct timespec st_mtim;
  struct timespec st_ctim;
  unsigned long int __unused[3];
}
;
struct stat64
{
  dev_t st_dev;
  ino64_t st_ino;
  nlink_t st_nlink;
  mode_t st_mode;
  uid_t st_uid;
  gid_t st_gid;
  int pad0;
  dev_t st_rdev;
  off_t st_size;
  blksize_t st_blksize;
  blkcnt64_t st_blocks;
  struct timespec st_atim;
  struct timespec st_mtim;
  struct timespec st_ctim;
  unsigned long int __unused[3];
}
;
```

11.3.17 sys/statvfs.h

```
extern ssize_t strfmon(char *, size_t, const char *, ...);
```

11.3.22 net/if.h

```

extern void if_freenameindex(struct if_nameindex *);
extern char *if_indextoname(unsigned int, char *);
extern struct if_nameindex *if_nameindex(void);
extern unsigned int if_nametoindex(const char *);
```

11.3.23 netdb.h

```

extern void endprotoent(void);
extern void endservent(void);
extern void freeaddrinfo(struct addrinfo *);
extern const char *gai_strerror(int);
extern int getaddrinfo(const char *, const char *, const struct addrinfo
*,
                       struct addrinfo **);
extern struct hostent *gethostbyaddr(const void *, socklen_t, int);
extern struct hostent *gethostbyname(const char *);
extern struct protoent *getprotobyname(const char *);
```

```
extern struct protoent *getprotobynumber(int);
extern struct protoent *getprotoent(void);
extern struct servent *getservbyname(const char *, const char *);
extern struct servent *getservbyport(int, const char *);
extern struct servent *getservent(void);
extern void setprotoent(int);
extern void setservent(int);
extern int *__h_errno_location(void);
```

11.3.24 netinet/in.h

```
extern int bindresvport(int, struct sockaddr_in *);
```

11.3.25 netinet/ip.h

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

11.3.26 netinet/tcp.h

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

11.3.27 netinet/udp.h

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

11.3.28 nl_types.h

```
extern int catclose(nl_catd);
extern char *catgets(nl_catd, int, int, const char *);
extern nl_catd catopen(const char *, int);
```

11.3.29 poll.h

```
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;
  unsigned long int f_flag;
  unsigned long int f_namemax;
  int __f_spare[6];
```

```
};
;
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;
  unsigned long int f_flag;
  unsigned long int f_namemax;
  int __f_spare[6];
};
;
```

11.3.18 sys/types.h

```

typedef long int int64_t;

typedef int64_t ssize_t;

#define __FDSET_LONGS  16
```

11.3.19 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
```

11.3.20 ucontext.h

```
extern int poll(struct pollfd *, nfds_t, int);
```

11.3.30 pty.h

```
extern int openpty(int *, int *, char *, struct termios *,
                   struct winsize *);
extern int forkpty(int *, char *, struct termios *, struct winsize *);
```

11.3.31 pwd.h

```
extern void endpwent(void);
extern struct passwd *getpwent(void);
extern struct passwd *getpwnam(char *);
extern struct passwd *getpwuid(uid_t);
extern void setpwent(void);
extern int getpwnam_r(char *, struct passwd *, char *, size_t,
                      struct passwd **);
extern int getpwuid_r(uid_t, struct passwd *, char *, size_t,
                      struct passwd **);
```

11.3.32 regex.h

```
extern int regcomp(regex_t *, const char *, int);
extern size_t regerror(int, const regex_t *, char *, size_t);
extern int regexec(const regex_t *, const char *, size_t, regmatch_t,
int);
extern void regfree(regex_t *);
```

11.3.33 rpc/auth.h

```
extern struct AUTH *authnone_create(void);
```

```
786         extern int key_decryptsession(char *, union des_block *);
787         extern bool_t xdr_opaque_auth(XDR *, struct opaque_auth *);
```

11.3.34 rpc/clnt.h

```
788
789         extern struct CLIENT *clnt_create(const char *, const u_long, const
790         u_long,
791                                           const char *);
792         extern void clnt_pcreateerror(const char *);
793         extern void clnt_perrno(enum clnt_stat);
794         extern void clnt_perror(struct CLIENT *, const char *);
795         extern char *clnt_spcreateerror(const char *);
796         extern char *clnt_sperrno(enum clnt_stat);
797         extern char *clnt_sperror(struct CLIENT *, const char *);
```

11.3.35 rpc/pmap_clnt.h

```
798
799         extern u_short pmap_getport(struct sockaddr_in *, const u_long,
800                                     const u_long, u_int);
801         extern bool_t pmap_set(const u_long, const u_long, int, u_short);
802         extern bool_t pmap_unset(u_long, u_long);
```

11.3.36 rpc/rpc_msg.h

```
803
804         extern bool_t xdr_callhdr(XDR *, struct rpc_msg *);
```

11.3.37 rpc/svc.h

```
805
806         extern void svc_getreqset(fd_set *);
807         extern bool_t svc_register(SVCXPRT *, rpcprog_t, rpcvers_t,
808                                    __dispatch_fn_t, rpcprot_t);
809         extern void svc_run(void);
810         extern bool_t svc_sendreply(SVCXPRT *, xdrproc_t, caddr_t);
811         extern void svcerr_auth(SVCXPRT *, enum auth_stat);
812         extern void svcerr_decode(SVCXPRT *);
813         extern void svcerr_noproc(SVCXPRT *);
814         extern void svcerr_noprog(SVCXPRT *);
815         extern void svcerr_progvers(SVCXPRT *, rpcvers_t, rpcvers_t);
816         extern void svcerr_systemerr(SVCXPRT *);
817         extern void svcerr_weakauth(SVCXPRT *);
818         extern SVCXPRT *svctcp_create(int, u_int, u_int);
819         extern SVCXPRT *svcudp_create(int);
```

11.3.38 rpc/types.h

```
820
821         struct _libc_fpxreg
822         {
823           unsigned short significand[4];
824           unsigned short exponent;
825           unsigned short padding[3];
826         }
827         ;
828
829         typedef long int greg_t;
830         #define NGREG   23
831
832         typedef greg_t gregset_t[23];
833
```

```
struct _libc_xmmreg
{
  uint32_t element[4];
}
;
struct _libc_fpstate
{
  uint16_t cwd;
  uint16_t swd;
  uint16_t ftw;
  uint16_t fop;
  uint64_t rip;
  uint64_t rdp;
  uint32_t mxcsr;
  uint32_t mxcr_mask;
  struct _libc_fpxreg _st[8];
  struct _libc_xmmreg _xmm[16];
  uint32_t padding[24];
}
;
typedef struct _libc_fpstate *fpregset_t;

typedef struct
{
  gregset_t gregs;
  fpregset_t fpregs;
  unsigned long int __reserved1[8];
}
mcontext_t;
/*
 * This header is architecture neutral
 * Please refer to the generic specification for details
 */
```

11.3.39 rpc/xdr.h

```

extern bool_t xdr_array(XDR *, caddr_t *, u_int *, u_int, u_int,
                        xdrproc_t);
extern bool_t xdr_bool(XDR *, bool_t *);
extern bool_t xdr_bytes(XDR *, char **, u_int *, u_int);
extern bool_t xdr_char(XDR *, char *);
extern bool_t xdr_double(XDR *, double *);
extern bool_t xdr_enum(XDR *, enum_t *);
extern bool_t xdr_float(XDR *, float *);
extern void xdr_free(xdrproc_t, char *);
extern bool_t xdr_int(XDR *, int *);
extern bool_t xdr_long(XDR *, long int *);
extern bool_t xdr_opaque(XDR *, caddr_t, u_int);
extern bool_t xdr_pointer(XDR *, char **, u_int, xdrproc_t);
extern bool_t xdr_reference(XDR *, caddr_t *, u_int, xdrproc_t);
extern bool_t xdr_short(XDR *, short *);
extern bool_t xdr_string(XDR *, char **, u_int);
extern bool_t xdr_u_char(XDR *, u_char *);
extern bool_t xdr_u_int(XDR *, u_int *);
extern bool_t xdr_u_long(XDR *, u_long *);
extern bool_t xdr_u_short(XDR *, u_short *);
extern bool_t xdr_union(XDR *, enum_t *, char *,
                        const struct xdr_discrim *, xdrproc_t);
extern bool_t xdr_vector(XDR *, char *, u_int, u_int, xdrproc_t);
extern bool_t xdr_void(void);
extern bool_t xdr_wrapstring(XDR *, char **);
extern void xdrmem_create(XDR *, caddr_t, u_int, enum xdr_op);
extern void xdrrec_create(XDR *, u_int, u_int, caddr_t,
```

```
                                int (*__readit) (char *p1, char *p2, int p3)
                                , int (*__writeit) (char *p1, char *p2, int
p3)
    );
extern typedef int bool_t xdrrec_eof(XDR *);
```

11.3.40 sched.h

```

extern int sched_get_priority_max(int);
extern int sched_get_priority_min(int);
extern int sched_getparam(pid_t, struct sched_param *);
extern int sched_getscheduler(pid_t);
extern int sched_rr_get_interval(pid_t, struct timespec *);
extern int sched_setparam(pid_t, const struct sched_param *);
extern int sched_setscheduler(pid_t, int, const struct sched_param *);
extern int sched_yield(void);
```

11.3.41 search.h

```

extern int hcreate(size_t);
extern ENTRY *hsearch(ENTRY, ACTION);
extern void insque(void *, void *);
extern void *lfind(const void *, const void *, size_t *, size_t,
                   __compar_fn_t);
extern void *lsearch(const void *, void *, size_t *, size_t,
                     __compar_fn_t);
extern void remque(void *);
extern void hdestroy(void);
extern void *tdelete(const void *, void **, __compar_fn_t);
extern void *tfind(const void *, void *const *, __compar_fn_t);
extern void *tsearch(const void *, void **, __compar_fn_t);
extern void twalk(const void *, __action_fn_t);
```

11.3.42 setjmp.h

```

typedef long int __jmp_buf[8];

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

11.3.21 unistd.h

```

typedef long int intptr_t;
```

11.3.22 utmp.h

```

struct lastlog
{
  int32_t ll_time;
  char ll_line[UT_LINESIZE];
```

```
  char ll_host[UT_HOSTSIZE];
};

struct utmp
{
  short ut_type;
  pid_t ut_pid;
  char ut_line[UT_LINESIZE];
  char ut_id[4];
  char ut_user[UT_NAMESIZE];
  char ut_host[UT_HOSTSIZE];
  struct exit_status ut_exit;
  int ut_session;
  struct
  {
    int32_t tv_sec;
    int32_t tv_usec;
  }
  ut_tv;
  int32_t ut_addr_v6[4];
  char __unused[20];
};
```

11.3.23 utmpx.h

```
extern int __sigsetjmp(jmp_buf, int);
extern void longjmp(jmp_buf, int);
extern void siglongjmp(sigjmp_buf, int);
extern void _longjmp(jmp_buf, int);
extern int _setjmp(jmp_buf);
```

11.3.43 signal.h

```

#define SIGEV_PAD_SIZE  ((SIGEV_MAX_SIZE/sizeof(int))-4)

#define SI_PAD_SIZE     ((SI_MAX_SIZE/sizeof(int))-4)

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

struct utmpx
{
  short ut_type;
  pid_t ut_pid;
  char ut_line[UT_LINESIZE];
  char ut_id[4];
  char ut_user[UT_NAMESIZE];
  char ut_host[UT_HOSTSIZE];
  struct exit_status ut_exit;
  int32_t ut_session;
  struct
  {
    int32_t tv_sec;
    int32_t tv_usec;
  }
```

```
  __ut_tv;
  __int32_t ut_addr_v6[4];
  __char __unused[20];
}
;
```

11.4 Interfaces for libm

Table 11-24 defines the library name and shared object name for the libm library

Table 11-24 libm Definition

Library:	libm
SONAME:	libm.so.6

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

ISO C (1999)
this specification
SUSv2
ISO POSIX (2003)

11.4.1 Math

11.4.1.1 Interfaces for Math

An LSB conforming implementation shall provide the architecture specific functions for Math specified in Table 11-25, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-25 libm - Math Function Interfaces

__finite(GLIBC_2.2.5) [1]	ccosl(GLIBC_2.2.5) [2]	exp(GLIBC_2.2.5) [2]	j1f(GLIBC_2.2.5) [1]	pow10l(GLIBC_2.2.5) [1]
__finitef(GLIBC_2.2.5) [1]	ceil(GLIBC_2.2.5) [2]	exp2(GLIBC_2.2.5) [2]	j1l(GLIBC_2.2.5) [1]	powf(GLIBC_2.2.5) [2]
__finitel(GLIBC_2.2.5) [1]	ceilf(GLIBC_2.2.5) [2]	exp2f(GLIBC_2.2.5) [2]	jn(GLIBC_2.2.5) [2]	powl(GLIBC_2.2.5) [2]
__fpclassify(GLIBC_2.2.5) [3]	ceill(GLIBC_2.2.5) [2]	exp2l(GLIBC_2.2.5) [2]	jnf(GLIBC_2.2.5) [1]	remainder(GLIBC_2.2.5) [2]
__fpclassifyf(GLIBC_2.2.5) [3]	cexp(GLIBC_2.2.5) [2]	expf(GLIBC_2.2.5) [2]	jnl(GLIBC_2.2.5) [1]	remainderf(GLIBC_2.2.5) [2]
__fpclassifyl(GLIBC_2.2.5) [1]	cexpf(GLIBC_2.2.5) [2]	expl(GLIBC_2.2.5) [2]	ldexp(GLIBC_2.2.5) [2]	remainderl(GLIBC_2.2.5) [2]
__signbitl(GLIBC_2.2.5) [1]	cexpl(GLIBC_2.2.5) [2]	expm1(GLIBC_2.2.5) [2]	ldexpf(GLIBC_2.2.5) [2]	remquo(GLIBC_2.2.5) [2]
acos(GLIBC_2	cimag(GLIBC	expm1f(GLIB	ldexpl(GLIBC	remquof(GLI

.2.5) [2]	_2.2.5) [2]	C_2.2.5) [2]	_2.2.5) [2]	BC_2.2.5) [2]
acosf(GLIBC_2.2.5) [2]	cimagf(GLIBC_2.2.5) [2]	expm1l(GLIBC_2.2.5) [2]	lgamma(GLIBC_2.2.5) [2]	remquol(GLIBC_2.2.5) [2]
acosh(GLIBC_2.2.5) [2]	cimagl(GLIBC_2.2.5) [2]	fabs(GLIBC_2.2.5) [2]	lgamma_r(GLIBC_2.2.5) [1]	rint(GLIBC_2.2.5) [2]
acoshf(GLIBC_2.2.5) [2]	clog(GLIBC_2.2.5) [2]	fabsf(GLIBC_2.2.5) [2]	lgammaf(GLIBC_2.2.5) [2]	rintf(GLIBC_2.2.5) [2]
acoshl(GLIBC_2.2.5) [2]	clog10(GLIBC_2.2.5) [1]	fabsl(GLIBC_2.2.5) [2]	lgammaf_r(GLIBC_2.2.5) [1]	rintl(GLIBC_2.2.5) [2]
acosl(GLIBC_2.2.5) [2]	clog10f(GLIBC_2.2.5) [1]	fdim(GLIBC_2.2.5) [2]	lgammal(GLIBC_2.2.5) [2]	round(GLIBC_2.2.5) [2]
asin(GLIBC_2.2.5) [2]	clog10l(GLIBC_2.2.5) [1]	fdimf(GLIBC_2.2.5) [2]	lgammal_r(GLIBC_2.2.5) [1]	roundf(GLIBC_2.2.5) [2]
asinf(GLIBC_2.2.5) [2]	clogf(GLIBC_2.2.5) [2]	fdiml(GLIBC_2.2.5) [2]	llrint(GLIBC_2.2.5) [2]	roundl(GLIBC_2.2.5) [2]
asinh(GLIBC_2.2.5) [2]	clogl(GLIBC_2.2.5) [2]	feclearexcept(GLIBC_2.2.5) [2]	llrintf(GLIBC_2.2.5) [2]	scalb(GLIBC_2.2.5) [2]
asinhf(GLIBC_2.2.5) [2]	conj(GLIBC_2.2.5) [2]	fegetenv(GLIBC_2.2.5) [2]	llrintl(GLIBC_2.2.5) [2]	scalbf(GLIBC_2.2.5) [1]
asinhl(GLIBC_2.2.5) [2]	conjf(GLIBC_2.2.5) [2]	fegetexceptflag(GLIBC_2.2.5) [2]	llround(GLIBC_2.2.5) [2]	scalbl(GLIBC_2.2.5) [1]
asinl(GLIBC_2.2.5) [2]	conjl(GLIBC_2.2.5) [2]	fegetround(GLIBC_2.2.5) [2]	llroundf(GLIBC_2.2.5) [2]	scalbln(GLIBC_2.2.5) [2]
atan(GLIBC_2.2.5) [2]	copysign(GLIBC_2.2.5) [2]	feholdexcept(GLIBC_2.2.5) [2]	llroundl(GLIBC_2.2.5) [2]	scalblnf(GLIBC_2.2.5) [2]
atan2(GLIBC_2.2.5) [2]	copysignf(GLIBC_2.2.5) [2]	feraiseexcept(GLIBC_2.2.5) [2]	log(GLIBC_2.2.5) [2]	scalblnl(GLIBC_2.2.5) [2]
atan2f(GLIBC_2.2.5) [2]	copysignl(GLIBC_2.2.5) [2]	fesetenv(GLIBC_2.2.5) [2]	log10(GLIBC_2.2.5) [2]	scalbn(GLIBC_2.2.5) [2]
atan2l(GLIBC_2.2.5) [2]	cos(GLIBC_2.2.5) [2]	fesetexceptflag(GLIBC_2.2.5) [2]	log10f(GLIBC_2.2.5) [2]	scalbnf(GLIBC_2.2.5) [2]
atanf(GLIBC_2.2.5) [2]	cosf(GLIBC_2.2.5) [2]	fesetround(GLIBC_2.2.5) [2]	log10l(GLIBC_2.2.5) [2]	scalbnl(GLIBC_2.2.5) [2]
atanh(GLIBC	cosh(GLIBC_	fetestexcept(G	log1p(GLIBC	significand(G

_2.2.5) [2]	2.2.5) [2]	LIBC_2.2.5) [2]	_2.2.5) [2]	LIBC_2.2.5) [1]
atanhf(GLIBC_2.2.5) [2]	coshf(GLIBC_2.2.5) [2]	feupdateenv(GLIBC_2.2.5) [2]	log1pf(GLIBC_2.2.5) [2]	significandf(GLIBC_2.2.5) [1]
atanhl(GLIBC_2.2.5) [2]	coshl(GLIBC_2.2.5) [2]	finite(GLIBC_2.2.5) [4]	log1pl(GLIBC_2.2.5) [2]	significandl(GLIBC_2.2.5) [1]
atanl(GLIBC_2.2.5) [2]	cosl(GLIBC_2.2.5) [2]	finitef(GLIBC_2.2.5) [1]	log2(GLIBC_2.2.5) [2]	sin(GLIBC_2.2.5) [2]
cabs(GLIBC_2.2.5) [2]	cpow(GLIBC_2.2.5) [2]	finitel(GLIBC_2.2.5) [1]	log2f(GLIBC_2.2.5) [2]	sincos(GLIBC_2.2.5) [1]
cabsf(GLIBC_2.2.5) [2]	cpowf(GLIBC_2.2.5) [2]	floor(GLIBC_2.2.5) [2]	log2l(GLIBC_2.2.5) [2]	sincosf(GLIBC_2.2.5) [1]
cabsl(GLIBC_2.2.5) [2]	cpowl(GLIBC_2.2.5) [2]	floorf(GLIBC_2.2.5) [2]	logb(GLIBC_2.2.5) [2]	sincosl(GLIBC_2.2.5) [1]
cacos(GLIBC_2.2.5) [2]	cproj(GLIBC_2.2.5) [2]	floorl(GLIBC_2.2.5) [2]	logbf(GLIBC_2.2.5) [2]	sinf(GLIBC_2.2.5) [2]
cacosf(GLIBC_2.2.5) [2]	cprojf(GLIBC_2.2.5) [2]	fma(GLIBC_2.2.5) [2]	logbl(GLIBC_2.2.5) [2]	sinh(GLIBC_2.2.5) [2]
cacosh(GLIBC_2.2.5) [2]	cprojl(GLIBC_2.2.5) [2]	fmaf(GLIBC_2.2.5) [2]	logf(GLIBC_2.2.5) [2]	sinhf(GLIBC_2.2.5) [2]
cacoshf(GLIBC_2.2.5) [2]	creal(GLIBC_2.2.5) [2]	fmal(GLIBC_2.2.5) [2]	logl(GLIBC_2.2.5) [2]	sinhl(GLIBC_2.2.5) [2]
cacoshl(GLIBC_2.2.5) [2]	crealf(GLIBC_2.2.5) [2]	fmax(GLIBC_2.2.5) [2]	lrint(GLIBC_2.2.5) [2]	sinl(GLIBC_2.2.5) [2]
cacosl(GLIBC_2.2.5) [2]	creall(GLIBC_2.2.5) [2]	fmaxf(GLIBC_2.2.5) [2]	lrintf(GLIBC_2.2.5) [2]	sqrt(GLIBC_2.2.5) [2]
carg(GLIBC_2.2.5) [2]	csin(GLIBC_2.2.5) [2]	fmaxl(GLIBC_2.2.5) [2]	lrintl(GLIBC_2.2.5) [2]	sqrtf(GLIBC_2.2.5) [2]
cargf(GLIBC_2.2.5) [2]	csinf(GLIBC_2.2.5) [2]	fmin(GLIBC_2.2.5) [2]	lround(GLIBC_2.2.5) [2]	sqrtl(GLIBC_2.2.5) [2]
cargl(GLIBC_2.2.5) [2]	csinh(GLIBC_2.2.5) [2]	fminf(GLIBC_2.2.5) [2]	lroundf(GLIBC_2.2.5) [2]	tan(GLIBC_2.2.5) [2]
casin(GLIBC_2.2.5) [2]	csinhf(GLIBC_2.2.5) [2]	fminl(GLIBC_2.2.5) [2]	lroundl(GLIBC_2.2.5) [2]	tanf(GLIBC_2.2.5) [2]
casinf(GLIBC_2.2.5) [2]	csinhl(GLIBC_2.2.5) [2]	fmod(GLIBC_2.2.5) [2]	matherr(GLIBC_2.2.5) [1]	tanh(GLIBC_2.2.5) [2]
casinh(GLIBC_2.2.5) [2]	csinl(GLIBC_2.2.5) [2]	fmodf(GLIBC_2.2.5) [2]	modf(GLIBC_2.2.5) [2]	tanhf(GLIBC_2.2.5) [2]
casinhf(GLIBC_2.2.5) [2]	csqrt(GLIBC_2.2.5) [2]	fmodl(GLIBC_2.2.5) [2]	modff(GLIBC_2.2.5) [2]	tanhl(GLIBC_2.2.5) [2]

casinhl(GLIBC_2.2.5) [2]	csqrtf(GLIBC_2.2.5) [2]	frexp(GLIBC_2.2.5) [2]	modfl(GLIBC_2.2.5) [2]	tanl(GLIBC_2.2.5) [2]
casinl(GLIBC_2.2.5) [2]	csqrtl(GLIBC_2.2.5) [2]	frexpf(GLIBC_2.2.5) [2]	nan(GLIBC_2.2.5) [2]	tgamma(GLIBC_2.2.5) [2]
catan(GLIBC_2.2.5) [2]	ctan(GLIBC_2.2.5) [2]	frexpl(GLIBC_2.2.5) [2]	nanf(GLIBC_2.2.5) [2]	tgammaf(GLIBC_2.2.5) [2]
catanf(GLIBC_2.2.5) [2]	ctanf(GLIBC_2.2.5) [2]	gamma(GLIBC_2.2.5) [4]	nanl(GLIBC_2.2.5) [2]	tgammal(GLIBC_2.2.5) [2]
catanh(GLIBC_2.2.5) [2]	ctanh(GLIBC_2.2.5) [2]	gammaf(GLIBC_2.2.5) [1]	nearbyint(GLIBC_2.2.5) [2]	trunc(GLIBC_2.2.5) [2]
catanhf(GLIBC_2.2.5) [2]	ctanhf(GLIBC_2.2.5) [2]	gammal(GLIBC_2.2.5) [1]	nearbyintf(GLIBC_2.2.5) [2]	truncf(GLIBC_2.2.5) [2]
catanhl(GLIBC_2.2.5) [2]	ctanhl(GLIBC_2.2.5) [2]	hypot(GLIBC_2.2.5) [2]	nearbyintl(GLIBC_2.2.5) [2]	truncl(GLIBC_2.2.5) [2]
catanl(GLIBC_2.2.5) [2]	ctanl(GLIBC_2.2.5) [2]	hypotf(GLIBC_2.2.5) [2]	nextafter(GLIBC_2.2.5) [2]	y0(GLIBC_2.2.5) [2]
cbrt(GLIBC_2.2.5) [2]	dremf(GLIBC_2.2.5) [1]	hypotl(GLIBC_2.2.5) [2]	nextafterf(GLIBC_2.2.5) [2]	y0f(GLIBC_2.2.5) [1]
cbrtf(GLIBC_2.2.5) [2]	dreml(GLIBC_2.2.5) [1]	ilogb(GLIBC_2.2.5) [2]	nextafterl(GLIBC_2.2.5) [2]	y0l(GLIBC_2.2.5) [1]
cbrtl(GLIBC_2.2.5) [2]	erf(GLIBC_2.2.5) [2]	ilogbf(GLIBC_2.2.5) [2]	nexttoward(GLIBC_2.2.5) [2]	y1(GLIBC_2.2.5) [2]
ccos(GLIBC_2.2.5) [2]	erfc(GLIBC_2.2.5) [2]	ilogbl(GLIBC_2.2.5) [2]	nexttowardf(GLIBC_2.2.5) [2]	y1f(GLIBC_2.2.5) [1]
ccosf(GLIBC_2.2.5) [2]	erfcf(GLIBC_2.2.5) [2]	j0(GLIBC_2.2.5) [2]	nexttowardl(GLIBC_2.2.5) [2]	y1l(GLIBC_2.2.5) [1]
ccosh(GLIBC_2.2.5) [2]	erfcl(GLIBC_2.2.5) [2]	j0f(GLIBC_2.2.5) [1]	pow(GLIBC_2.2.5) [2]	yn(GLIBC_2.2.5) [2]
ccoshf(GLIBC_2.2.5) [2]	erff(GLIBC_2.2.5) [2]	j0l(GLIBC_2.2.5) [1]	pow10(GLIBC_2.2.5) [1]	ynf(GLIBC_2.2.5) [1]
ccoshl(GLIBC_2.2.5) [2]	erfl(GLIBC_2.2.5) [2]	j1(GLIBC_2.2.5) [2]	pow10f(GLIBC_2.2.5) [1]	ynl(GLIBC_2.2.5) [1]

```
#define MINSIGSTKSZ     2048
#define SIGSTKSZ        8192

struct _fpxreg {
    unsigned short significand[4];
    unsigned short exponent;
    unsigned short padding[3];
};
struct _xmmreg {
    uint32_t element[4];
};
```

```
struct _fpstate {
    uint16_t cwd;
    uint16_t swd;
    uint16_t ftw;
    uint16_t fop;
    uint64_t rip;
    uint64_t rdp;
    uint32_t mxcsr;
    uint32_t mxcr_mask;
    struct _fpxreg _st[8];
    struct _xmmreg _xmm[16];
    uint32_t padding[24];
};
```

~~*Referenced Specification(s)*~~

~~**[1].** ISO C (1999)~~

~~**[2].** ISO POSIX (2003)~~

~~**[3].** this specification~~

~~**[4].** SUSv2~~

~~An LSB conforming implementation shall provide the architecture specific data interfaces for Math specified in Table 11-26, with the full mandatory functionality as described in the referenced underlying specification.~~

~~**Table 11-26 libm - Math Data Interfaces**~~

~~signgam(GLIBC_2.2.5) [1]~~				

```
struct sigcontext {
    unsigned long int r8;
    unsigned long int r9;
    unsigned long int r10;
    unsigned long int r11;
    unsigned long int r12;
    unsigned long int r13;
    unsigned long int r14;
    unsigned long int r15;
    unsigned long int rdi;
    unsigned long int rsi;
    unsigned long int rbp;
    unsigned long int rbx;
    unsigned long int rdx;
    unsigned long int rax;
    unsigned long int rcx;
    unsigned long int rsp;
    unsigned long int rip;
    unsigned long int eflags;
    unsigned short cs;
    unsigned short gs;
    unsigned short fs;
    unsigned short __pad0;
    unsigned long int err;
    unsigned long int trapno;
    unsigned long int oldmask;
    unsigned long int cr2;
    struct _fpstate *fpstate;
    unsigned long int __reserved1[8];
};
```

```
1083        extern int __libc_current_sigrtmax(void);
1084        extern int __libc_current_sigrtmin(void);
1085        extern sighandler_t __sysv_signal(int, sighandler_t);
1086        extern char *const _sys_siglist(void);
1087        extern int killpg(pid_t, int);
1088        extern void psignal(int, const char *);
1089        extern int raise(int);
1090        extern int sigaddset(sigset_t *, int);
1091        extern int sigandset(sigset_t *, const sigset_t *, const sigset_t *);
1092        extern int sigdelset(sigset_t *, int);
1093        extern int sigemptyset(sigset_t *);
1094        extern int sigfillset(sigset_t *);
1095        extern int sighold(int);
1096        extern int sigignore(int);
1097        extern int siginterrupt(int, int);
1098        extern int sigisemptyset(const sigset_t *);
1099        extern int sigismember(const sigset_t *, int);
1100        extern int sigorset(sigset_t *, const sigset_t *, const sigset_t *);
1101        extern int sigpending(sigset_t *);
1102        extern int sigrelse(int);
1103        extern sighandler_t sigset(int, sighandler_t);
1104        extern int pthread_kill(pthread_t, int);
1105        extern int pthread_sigmask(int, sigset_t *, sigset_t *);
1106        extern int sigaction(int, const struct sigaction *, struct sigaction *);
1107        extern int sigwait(sigset_t *, int *);
1108        extern int kill(pid_t, int);
1109        extern int sigaltstack(const struct sigaltstack *, struct sigaltstack
1110        *);
1111        extern sighandler_t signal(int, sighandler_t);
1112        extern int sigpause(int);
1113        extern int sigprocmask(int, const sigset_t *, sigset_t *);
1114        extern int sigreturn(struct sigcontext *);
1115        extern int sigsuspend(const sigset_t *);
1116        extern int sigqueue(pid_t, int, const union sigval);
1117        extern int sigwaitinfo(const sigset_t *, siginfo_t *);
1118        extern int sigtimedwait(const sigset_t *, siginfo_t *,
1119                                const struct timespec *);
1120        extern sighandler_t bsd_signal(int, sighandler_t);
```

11.3.44 stddef.h

```
1121
1122        typedef long int ptrdiff_t;
1123        typedef unsigned long int size_t;
```

11.3.45 stdio.h

```
1124
1125        #define __IO_FILE_SIZE  216
1126
1127        extern char *const _sys_errlist(void);
1128        extern void clearerr(FILE *);
1129        extern int fclose(FILE *);
1130        extern FILE *fdopen(int, const char *);
1131        extern int fflush_unlocked(FILE *);
1132        extern int fileno(FILE *);
1133        extern FILE *fopen(const char *, const char *);
1134        extern int fprintf(FILE *, const char *, ...);
1135        extern int fputc(int, FILE *);
1136        extern FILE *freopen(const char *, const char *, FILE *);
1137        extern FILE *freopen64(const char *, const char *, FILE *);
1138        extern int fscanf(FILE *, const char *, ...);
1139        extern int fseek(FILE *, long int, int);
1140        extern int fseeko(FILE *, off_t, int);
```

```
1141          extern int fseeko64(FILE *, loff_t, int);
1142          extern off_t ftello(FILE *);
1143          extern loff_t ftello64(FILE *);
1144          extern int getchar(void);
1145          extern int getchar_unlocked(void);
1146          extern int getw(FILE *);
1147          extern int pclose(FILE *);
1148          extern void perror(const char *);
1149          extern FILE *popen(const char *, const char *);
1150          extern int printf(const char *, ...);
1151          extern int putc_unlocked(int, FILE *);
1152          extern int putchar(int);
1153          extern int putchar_unlocked(int);
1154          extern int putw(int, FILE *);
1155          extern int remove(const char *);
1156          extern void rewind(FILE *);
1157          extern int scanf(const char *, ...);
1158          extern void setbuf(FILE *, char *);
1159          extern int sprintf(char *, const char *, ...);
1160          extern int sscanf(const char *, const char *, ...);
1161          extern FILE *stderr(void);
1162          extern FILE *stdin(void);
1163          extern FILE *stdout(void);
1164          extern char *tempnam(const char *, const char *);
1165          extern FILE *tmpfile64(void);
1166          extern FILE *tmpfile(void);
1167          extern char *tmpnam(char *);
1168          extern int vfprintf(FILE *, const char *, va_list);
1169          extern int vprintf(const char *, va_list);
1170          extern int feof(FILE *);
1171          extern int ferror(FILE *);
1172          extern int fflush(FILE *);
1173          extern int fgetc(FILE *);
1174          extern int fgetpos(FILE *, fpos_t *);
1175          extern char *fgets(char *, int, FILE *);
1176          extern int fputs(const char *, FILE *);
1177          extern size_t fread(void *, size_t, size_t, FILE *);
1178          extern int fsetpos(FILE *, const fpos_t *);
1179          extern long int ftell(FILE *);
1180          extern size_t fwrite(const void *, size_t, size_t, FILE *);
1181          extern int getc(FILE *);
1182          extern int putc(int, FILE *);
1183          extern int puts(const char *);
1184          extern int setvbuf(FILE *, char *, int, size_t);
1185          extern int snprintf(char *, size_t, const char *, ...);
1186          extern int ungetc(int, FILE *);
1187          extern int vsnprintf(char *, size_t, const char *, va_list);
1188          extern int vsprintf(char *, const char *, va_list);
1189          extern void flockfile(FILE *);
1190          extern int asprintf(char **, const char *, ...);
1191          extern int fgetpos64(FILE *, fpos64_t *);
1192          extern FILE *fopen64(const char *, const char *);
1193          extern int fsetpos64(FILE *, const fpos64_t *);
1194          extern int ftrylockfile(FILE *);
1195          extern void funlockfile(FILE *);
1196          extern int getc_unlocked(FILE *);
1197          extern void setbuffer(FILE *, char *, size_t);
1198          extern int vasprintf(char **, const char *, va_list);
1199          extern int vdprintf(int, const char *, va_list);
1200          extern int vfscanf(FILE *, const char *, va_list);
1201          extern int vscanf(const char *, va_list);
1202          extern int vsscanf(const char *, const char *, va_list);
1203          extern size_t __fpending(FILE *);
```

11.3.46 stdlib.h

```
1204
1205        extern double __strtod_internal(const char *, char **, int);
1206        extern float __strtof_internal(const char *, char **, int);
1207        extern long int __strtol_internal(const char *, char **, int, int);
1208        extern long double __strtold_internal(const char *, char **, int);
1209        extern long long int __strtoll_internal(const char *, char **, int, int);
1210        extern unsigned long int __strtoul_internal(const char *, char **, int,
1211                                                    int);
1212        extern unsigned long long int __strtoull_internal(const char *, char **,
1213                                                          int, int);
1214        extern long int a64l(const char *);
1215        extern void abort(void);
1216        extern int abs(int);
1217        extern double atof(const char *);
1218        extern int atoi(char *);
1219        extern long int atol(char *);
1220        extern long long int atoll(const char *);
1221        extern void *bsearch(const void *, const void *, size_t, size_t,
1222                             __compar_fn_t);
1223        extern div_t div(int, int);
1224        extern double drand48(void);
1225        extern char *ecvt(double, int, int *, int *);
1226        extern double erand48(unsigned short);
1227        extern void exit(int);
1228        extern char *fcvt(double, int, int *, int *);
1229        extern char *gcvt(double, int, char *);
1230        extern char *getenv(const char *);
1231        extern int getsubopt(char **, char *const *, char **);
1232        extern int grantpt(int);
1233        extern long int jrand48(unsigned short);
1234        extern char *l64a(long int);
1235        extern long int labs(long int);
1236        extern void lcong48(unsigned short);
1237        extern ldiv_t ldiv(long int, long int);
1238        extern long long int llabs(long long int);
1239        extern lldiv_t lldiv(long long int, long long int);
1240        extern long int lrand48(void);
1241        extern int mblen(const char *, size_t);
1242        extern size_t mbstowcs(wchar_t *, const char *, size_t);
1243        extern int mbtowc(wchar_t *, const char *, size_t);
1244        extern char *mktemp(char *);
1245        extern long int mrand48(void);
1246        extern long int nrand48(unsigned short);
1247        extern char *ptsname(int);
1248        extern int putenv(char *);
1249        extern void qsort(void *, size_t, size_t, __compar_fn_t);
1250        extern int rand(void);
1251        extern int rand_r(unsigned int *);
1252        extern unsigned short *seed48(unsigned short);
1253        extern void srand48(long int);
1254        extern int unlockpt(int);
1255        extern size_t wcstombs(char *, const wchar_t *, size_t);
1256        extern int wctomb(char *, wchar_t);
1257        extern int system(const char *);
1258        extern void *calloc(size_t, size_t);
1259        extern void free(void *);
1260        extern char *initstate(unsigned int, char *, size_t);
1261        extern void *malloc(size_t);
1262        extern long int random(void);
1263        extern void *realloc(void *, size_t);
1264        extern char *setstate(char *);
1265        extern void srand(unsigned int);
```

```
extern void srandom(unsigned int);
extern double strtod(char *, char **);
extern float strtof(const char *, char **);
extern long int strtol(char *, char **, int);
extern long double strtold(const char *, char **);
extern long long int strtoll(const char *, char **, int);
extern long long int strtoq(const char *, char **, int);
extern unsigned long int strtoul(const char *, char **, int);
extern unsigned long long int strtoull(const char *, char **, int);
extern unsigned long long int strtouq(const char *, char **, int);
extern void _Exit(int);
extern size_t __ctype_get_mb_cur_max(void);
extern char **environ(void);
extern char *realpath(const char *, char *);
extern int setenv(const char *, const char *, int);
extern int unsetenv(const char *);
extern int getloadavg(double, int);
extern int mkstemp64(char *);
extern int posix_memalign(void **, size_t, size_t);
extern int posix_openpt(int);
```

11.3.47 string.h

Referenced Specification(s)

[1]. ISO POSIX (2003)

11.5 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.

These definitions are intended to supplement those provided in the referenced underlying specifications.

This specification uses ISO/IEC 9899 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.

11.5.1 fenv.h

```
#define FE_INVALID      0x01
#define FE_DIVBYZERO    0x04
#define FE_OVERFLOW     0x08
#define FE_UNDERFLOW    0x10
#define FE_INEXACT      0x20

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

#define FE_TONEAREST    0
#define FE_DOWNWARD     0x400
#define FE_UPWARD       0x800
#define FE_TOWARDZERO   0xc00

typedef unsigned short fexcept_t;
```

```
typedef struct
{
  unsigned short __control_word;
  unsigned short __unused1;
  unsigned short __status_word;
  unsigned short __unused2;
  unsigned short __tags;
  unsigned short __unused3;
  unsigned int __eip;
  unsigned short __cs_selector;
  unsigned int __opcode:11;
  unsigned int __unused4:5;
  unsigned int __data_offset;
  unsigned short __data_selector;
  unsigned short __unused5;
  unsigned int __mxcsr;
}
fenv_t;
#define FE_DFL_ENV      ((__const fenv_t *) -1)
```

11.5.2 math.h

```
#define fpclassify(x)   (sizeof (x) == sizeof (float) ? __fpclassifyf
(x) :sizeof (x) == sizeof (double) ? __fpclassify (x) : __fpclassifyl
(x))
#define signbit(x)      (sizeof (x) == sizeof (float)? __signbitf (x):
sizeof (x) == sizeof (double)? __signbit (x) : __signbitl (x))

#define FP_ILOGB0       -2147483648
#define FP_ILOGBNAN     -2147483648
```

11.6 Interfaces for libpthread

Table 11-27 defines the library name and shared object name for the libpthread library

Table 11-27 libpthread Definition

Library:	libpthread
SONAME:	libpthread.so.0

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

Large File Support
this specification
ISO POSIX (2003)

11.6.1 Realtime Threads

11.6.1.1 Interfaces for Realtime Threads

An LSB conforming implementation shall provide the architecture specific functions for Realtime Threads specified in Table 11-28, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-28 libpthread - Realtime Threads Function Interfaces

pthread_attr_getinheritsched(GLIBC_2.2.5) [1]	pthread_attr_getscope(GLIBC_2.2.5) [1]	pthread_attr_setschedpolicy(GLIBC_2.2.5) [1]	pthread_getschedparam(GLIBC_2.2.5) [1]	
pthread_attr_getschedpolicy(GLIBC_2.2.5) [1]	pthread_attr_setinheritsched(GLIBC_2.2.5) [1]	pthread_attr_setscope(GLIBC_2.2.5) [1]	pthread_setschedparam(GLIBC_2.2.5) [1]	

```
extern void *__mempcpy(void *, const void *, size_t);
extern char *__stpcpy(char *, const char *);
extern char *__strtok_r(char *, const char *, char **);
extern void bcopy(void *, void *, size_t);
extern void *memchr(void *, int, size_t);
extern int memcmp(void *, void *, size_t);
extern void *memcpy(void *, void *, size_t);
extern void *memmem(const void *, size_t, const void *, size_t);
extern void *memmove(void *, const void *, size_t);
extern void *memset(void *, int, size_t);
extern char *strcat(char *, const char *);
extern char *strchr(char *, int);
extern int strcmp(char *, char *);
extern int strcoll(const char *, const char *);
extern char *strcpy(char *, char *);
extern size_t strcspn(const char *, const char *);
extern char *strerror(int);
extern size_t strlen(char *);
extern char *strncat(char *, char *, size_t);
extern int strncmp(char *, char *, size_t);
extern char *strncpy(char *, char *, size_t);
extern char *strpbrk(const char *, const char *);
extern char *strrchr(char *, int);
extern char *strsignal(int);
extern size_t strspn(const char *, const char *);
extern char *strstr(char *, char *);
extern char *strtok(char *, const char *);
extern size_t strxfrm(char *, const char *, size_t);
extern int bcmp(void *, void *, size_t);
extern void bzero(void *, size_t);
extern int ffs(int);
extern char *index(char *, int);
extern void *memccpy(void *, const void *, int, size_t);
extern char *rindex(char *, int);
extern int strcasecmp(char *, char *);
extern char *strdup(char *);
extern int strncasecmp(char *, char *, size_t);
extern char *strndup(const char *, size_t);
extern size_t strnlen(const char *, size_t);
extern char *strsep(char **, const char *);
extern char *strerror_r(int, char *, size_t);
extern char *strtok_r(char *, const char *, char **);
extern char *strcasestr(const char *, const char *);
extern char *stpcpy(char *, const char *);
extern char *stpncpy(char *, const char *, size_t);
extern void *memrchr(const void *, int, size_t);
```

11.3.48 sys/file.h

```
extern int flock(int, int);
```

11.3.49 sys/ioctl.h

```
#define TIOCGWINSZ      0x5413
#define FIONREAD        0x541B
#define TIOCNOTTY       21538

extern int ioctl(int, unsigned long int, ...);
```

11.3.50 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;
};

extern key_t ftok(char *, int);
```

11.3.51 sys/mman.h

```
#define MCL_CURRENT     1
#define MCL_FUTURE      2

extern int msync(void *, size_t, int);
extern int mlock(const void *, size_t);
extern int mlockall(int);
extern void *mmap(void *, size_t, int, int, int, off_t);
extern int mprotect(void *, size_t, int);
extern int munlock(const void *, size_t);
extern int munlockall(void);
extern int munmap(void *, size_t);
extern void *mmap64(void *, size_t, int, int, int, off64_t);
extern int shm_open(const char *, int, mode_t);
extern int shm_unlink(const char *);
```

11.3.52 sys/msg.h

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

struct msqid_ds {
    struct ipc_perm msg_perm;
    time_t msg_stime;
    time_t msg_rtime;
    time_t msg_ctime;
    unsigned long int __msg_cbytes;
    msgqnum_t msg_qnum;
    msglen_t msg_qbytes;
    pid_t msg_lspid;
    pid_t msg_lrpid;
    unsigned long int __unused4;
```

```
    unsigned long int __unused5;
};
extern int msgctl(int, int, struct msqid_ds *);
extern int msgget(key_t, int);
extern int msgrcv(int, void *, size_t, long int, int);
extern int msgsnd(int, const void *, size_t, int);
```

11.3.53 sys/param.h

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

11.3.54 sys/poll.h

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

11.3.55 sys/resource.h

Referenced Specification(s)

[1]. ISO POSIX (2003)

11.6.2 Advanced Realtime Threads

11.6.2.1 Interfaces for Advanced Realtime Threads

No external functions are defined for libpthread – Advanced Realtime Threads

11.6.3 Posix Threads

11.6.3.1 Interfaces for Posix Threads

An LSB conforming implementation shall provide the architecture specific functions for Posix Threads specified in Table 11-29, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-29 libpthread - Posix Threads Function Interfaces

_pthread_cleanup_pop(GLIBC_2.2.5) [1]	pthread_cond_broadcast(GLIBC_2.3.2) [2]	pthread_join(GLIBC_2.2.5) [2]	pthread_rwlock_destroy(GLIBC_2.2.5) [2]	pthread_setconcurrency(GLIBC_2.2.5) [2]
_pthread_cleanup_push(GLIBC_2.2.5) [1]	pthread_cond_destroy(GLIBC_2.3.2) [2]	pthread_key_create(GLIBC_2.2.5) [2]	pthread_rwlock_init(GLIBC_2.2.5) [2]	pthread_setspecific(GLIBC_2.2.5) [2]
pthread_attr_destroy(GLIBC_2.2.5) [2]	pthread_cond_init(GLIBC_2.3.2) [2]	pthread_key_delete(GLIBC_2.2.5) [2]	pthread_rwlock_rdlock(GLIBC_2.2.5) [2]	pthread_sigmask(GLIBC_2.2.5) [2]
pthread_attr_	pthread_cond	pthread_kill(	pthread_rwlo	pthread_testc

getdetachstate(GLIBC_2.2.5) [2]	_signal(GLIBC_2.3.2) [2]	GLIBC_2.2.5) [2]	ck_timedrdlock(GLIBC_2.2.5) [2]	ancel(GLIBC_2.2.5) [2]
pthread_attr_getguardsize(GLIBC_2.2.5) [2]	pthread_cond_timedwait(GLIBC_2.3.2) [2]	pthread_mutex_destroy(GLIBC_2.2.5) [2]	pthread_rwlock_timedwrlock(GLIBC_2.2.5) [2]	sem_close(GLIBC_2.2.5) [2]
pthread_attr_getschedparam(GLIBC_2.2.5) [2]	pthread_cond_wait(GLIBC_2.3.2) [2]	pthread_mutex_init(GLIBC_2.2.5) [2]	pthread_rwlock_tryrdlock(GLIBC_2.2.5) [2]	sem_destroy(GLIBC_2.2.5) [2]
pthread_attr_getstack(GLIBC_2.2.5) [2]	pthread_condattr_destroy(GLIBC_2.2.5) [2]	pthread_mutex_lock(GLIBC_2.2.5) [2]	pthread_rwlock_trywrlock(GLIBC_2.2.5) [2]	sem_getvalue(GLIBC_2.2.5) [2]
pthread_attr_getstackaddr(GLIBC_2.2.5) [2]	pthread_condattr_getpshared(GLIBC_2.2.5) [2]	pthread_mutex_trylock(GLIBC_2.2.5) [2]	pthread_rwlock_unlock(GLIBC_2.2.5) [2]	sem_init(GLIBC_2.2.5) [2]
pthread_attr_getstacksize(GLIBC_2.2.5) [2]	pthread_condattr_init(GLIBC_2.2.5) [2]	pthread_mutex_unlock(GLIBC_2.2.5) [2]	pthread_rwlock_wrlock(GLIBC_2.2.5) [2]	sem_open(GLIBC_2.2.5) [2]
pthread_attr_init(GLIBC_2.2.5) [2]	pthread_condattr_setpshared(GLIBC_2.2.5) [2]	pthread_mutexattr_destroy(GLIBC_2.2.5) [2]	pthread_rwlockattr_destroy(GLIBC_2.2.5) [2]	sem_post(GLIBC_2.2.5) [2]
pthread_attr_setdetachstate(GLIBC_2.2.5) [2]	pthread_create(GLIBC_2.2.5) [2]	pthread_mutexattr_getpshared(GLIBC_2.2.5) [2]	pthread_rwlockattr_getpshared(GLIBC_2.2.5) [2]	sem_timedwait(GLIBC_2.2.5) [2]
pthread_attr_setguardsize(GLIBC_2.2.5) [2]	pthread_detach(GLIBC_2.2.5) [2]	pthread_mutexattr_gettype(GLIBC_2.2.5) [2]	pthread_rwlockattr_init(GLIBC_2.2.5) [2]	sem_trywait(GLIBC_2.2.5) [2]
pthread_attr_setschedparam(GLIBC_2.2.5) [2]	pthread_equal(GLIBC_2.2.5) [2]	pthread_mutexattr_init(GLIBC_2.2.5) [2]	pthread_rwlockattr_setpshared(GLIBC_2.2.5) [2]	sem_unlink(GLIBC_2.2.5) [2]
pthread_attr_setstackaddr(GLIBC_2.2.5) [2]	pthread_exit(GLIBC_2.2.5) [2]	pthread_mutexattr_setpshared(GLIBC_2.2.5) [2]	pthread_self(GLIBC_2.2.5) [2]	sem_wait(GLIBC_2.2.5) [2]
pthread_attr_setstacksize(GLIBC_2.2.5)	pthread_getconcurrency(GLIBC_2.2.5)	pthread_mutexattr_settype(GLIBC_2.2.5)	pthread_setcancelstate(GLIBC_2.2.5) [2]	

[2]	[2]	[2]		
pthread_cancel(GLIBC_2.2.5) [2]	pthread_getspecific(GLIBC_2.2.5) [2]	pthread_once(GLIBC_2.2.5) [2]	pthread_setcanceltype(GLIBC_2.2.5) [2]	

Referenced Specification(s)

[1]. this specification

[2]. ISO POSIX (2003)

11.6.4 Thread aware versions of libc interfaces

11.6.4.1 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 11-30, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-30 libpthread - Thread aware versions of libc interfaces Function Interfaces

lseek64(GLIBC_2.2.5) [1]	pread(GLIBC_2.2.5) [2]	pwrite(GLIBC_2.2.5) [2]		
open64(GLIBC_2.2.5) [1]	pread64(GLIBC_2.2.5) [1]	pwrite64(GLIBC_2.2.5) [1]		

Referenced Specification(s)

[1]. Large File Support

[2]. ISO POSIX (2003)

11.7 Interfaces for libgcc_s

Table 11-31 defines the library name and shared object name for the libgcc_s library

Table 11-31 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:

this specification

```
extern int getpriority(__priority_which_t, id_t);
extern int getrlimit64(id_t, struct rlimit64 *);
extern int setpriority(__priority_which_t, id_t, int);
extern int setrlimit(__rlimit_resource_t, const struct rlimit *);
extern int setrlimit64(__rlimit_resource_t, const struct rlimit64 *);
extern int getrlimit(__rlimit_resource_t, struct rlimit *);
extern int getrusage(int, struct rusage *);
```

11.3.56 sys/sem.h

```
struct semid_ds {
```

```
    struct ipc_perm sem_perm;
    time_t sem_otime;
    unsigned long int __unused1;
    time_t sem_ctime;
    unsigned long int __unused2;
    unsigned long int sem_nsems;
    unsigned long int __unused3;
    unsigned long int __unused4;
};
extern int semctl(int, int, int, ...);
extern int semget(key_t, int, int);
extern int semop(int, struct sembuf *, size_t);
```

11.3.57 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;
    time_t shm_dtime;
    time_t shm_ctime;
    pid_t shm_cpid;
    pid_t shm_lpid;
    shmatt_t shm_nattch;
    unsigned long int __unused4;
    unsigned long int __unused5;
};
extern int __getpagesize(void);
extern void *shmat(int, const void *, int);
extern int shmctl(int, int, struct shmid_ds *);
extern int shmdt(const void *);
extern int shmget(key_t, size_t, int);
```

11.3.58 sys/socket.h

```

typedef uint64_t __ss_aligntype;

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

extern int bind(int, const struct sockaddr *, socklen_t);
extern int getnameinfo(const struct sockaddr *, socklen_t, char *,
                       socklen_t, char *, socklen_t, unsigned int);
extern int getsockname(int, struct sockaddr *, socklen_t *);
extern int listen(int, int);
extern int setsockopt(int, int, int, const void *, socklen_t);
extern int accept(int, struct sockaddr *, socklen_t *);
extern int connect(int, const struct sockaddr *, socklen_t);
extern ssize_t recv(int, void *, size_t, int);
extern ssize_t recvfrom(int, void *, size_t, int, struct sockaddr *,
                        socklen_t *);
extern ssize_t recvmsg(int, struct msghdr *, int);
extern ssize_t send(int, const void *, size_t, int);
extern ssize_t sendmsg(int, const struct msghdr *, int);
extern ssize_t sendto(int, const void *, size_t, int,
                      const struct sockaddr *, socklen_t);
```

```
extern int getpeername(int, struct sockaddr *, socklen_t *);
extern int getsockopt(int, int, int, void *, socklen_t *);
extern int shutdown(int, int);
extern int socket(int, int, int);
extern int socketpair(int, int, int, int);
extern int sockatmark(int);
```

11.3.59 sys/stat.h

```
#define _STAT_VER      1

struct stat {
    dev_t st_dev;
    ino_t st_ino;
    nlink_t st_nlink;
    mode_t st_mode;
    uid_t st_uid;
    gid_t st_gid;
    int pad0;
    dev_t st_rdev;
    off_t st_size;
    blksize_t st_blksize;
    blkcnt_t st_blocks;
    struct timespec st_atim;
    struct timespec st_mtim;
    struct timespec st_ctim;
    unsigned long int __unused[3];
};
struct stat64 {
    dev_t st_dev;
    ino64_t st_ino;
    nlink_t st_nlink;
    mode_t st_mode;
    uid_t st_uid;
    gid_t st_gid;
    int pad0;
    dev_t st_rdev;
    off_t st_size;
    blksize_t st_blksize;
    blkcnt64_t st_blocks;
    struct timespec st_atim;
    struct timespec st_mtim;
    struct timespec st_ctim;
    unsigned long int __unused[3];
};
```

~~11.7.1 Unwind Library~~

~~11.7.1.1 Interfaces for Unwind Library~~

~~An LSB conforming implementation shall provide the architecture specific functions for Unwind Library specified in Table 11-32, with the full mandatory functionality as described in the referenced underlying specification.~~

~~**Table 11-32 libgcc_s - Unwind Library Function Interfaces**~~

~~_Unwind_Backtrace(GCC_3.3) [1]~~	~~_Unwind_ForcedUnwind(GCC_3.0) [1]~~	~~_Unwind_GetIP(GCC_3.0) [1]~~	~~_Unwind_RaiseException(GCC_3.0) [1]~~	~~_Unwind_SetIP(GCC_3.0) [1]~~

_Unwind_DeleteException(GCC_3.0) [1]	_Unwind_GetCFA(GCC_3.3) [1]	_Unwind_GetLanguageSpecificData(GCC_3.0) [1]	_Unwind_Resume(GCC_3.0) [1]	
_Unwind_FindEnclosingFunction(GCC_3.3) [1]	_Unwind_GetDataRelBase(GCC_3.0) [1]	_Unwind_GetRegionStart(GCC_3.0) [1]	_Unwind_Resume_or_Rethrow(GCC_3.3) [1]	
_Unwind_Find_FDE(GCC_3.0) [1]	_Unwind_GetGR(GCC_3.0) [1]	_Unwind_GetTextRelBase(GCC_3.0) [1]	_Unwind_SetGR(GCC_3.0) [1]	

```
extern int __fxstat(int, int, struct stat *);
extern int __fxstat64(int, int, struct stat64 *);
extern int __lxstat(int, char *, struct stat *);
extern int __lxstat64(int, const char *, struct stat64 *);
extern int __xmknod(int, const char *, mode_t, dev_t *);
extern int __xstat(int, const char *, struct stat *);
extern int __xstat64(int, const char *, struct stat64 *);
extern int mkfifo(const char *, mode_t);
extern int chmod(const char *, mode_t);
extern int fchmod(int, mode_t);
extern mode_t umask(mode_t);
```

11.3.60 sys/statvfs.h

```
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;
    unsigned long int f_flag;
    unsigned long int f_namemax;
    int __f_spare[6];
};
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;
    unsigned long int f_flag;
    unsigned long int f_namemax;
    int __f_spare[6];
};
extern int fstatvfs(int, struct statvfs *);
extern int fstatvfs64(int, struct statvfs64 *);
extern int statvfs(const char *, struct statvfs *);
extern int statvfs64(const char *, struct statvfs64 *);
```

11.3.61 sys/time.h

```
extern int getitimer(__itimer_which_t, struct itimerval *);
extern int setitimer(__itimer_which_t, const struct itimerval *,
                     struct itimerval *);
extern int adjtime(const struct timeval *, struct timeval *);
extern int gettimeofday(struct timeval *, struct timezone *);
extern int utimes(const char *, const struct timeval *);
```

11.3.62 sys/timeb.h

```
extern int ftime(struct timeb *);
```

11.3.63 sys/times.h

Referenced Specification(s)

[1]. this specification

11.8 Interface Definitions for libgcc_s

The following interfaces 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 above for libgcc_s shall behave as described in the referenced base document.

11.9 Interfaces for libdl

Table 11-33 defines the library name and shared object name for the libdl library

Table 11-33 libdl Definition

Library:	libdl
SONAME:	libdl.so.2

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

this specification
ISO POSIX (2003)

11.9.1 Dynamic Loader

11.9.1.1 Interfaces for Dynamic Loader

An LSB conforming implementation shall provide the architecture specific functions for Dynamic Loader specified in Table 11-34, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-34 libdl - Dynamic Loader Function Interfaces

dladdr(GLIBC_2.2.5) [1]	dlclose(GLIBC_2.2.5) [2]	dlerror(GLIBC_2.2.5) [2]	dlopen(GLIBC_2.2.5) [1]	dlsym(GLIBC_2.2.5) [1]

Referenced Specification(s)

[1]. this specification

[2]. ISO POSIX (2003)

11.10 Interfaces for libcrypt

Table 11-35 defines the library name and shared object name for the libcrypt library

Table 11-35 libcrypt Definition

Library:	libcrypt
SONAME:	libcrypt.so.1

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

ISO POSIX (2003)

```
extern clock_t times(struct tms *);
```

11.3.64 sys/types.h

```
typedef long int int64_t;

typedef int64_t ssize_t;

#define __FDSET_LONGS   16
```

11.3.65 sys/uio.h

```
extern ssize_t readv(int, const struct iovec *, int);
extern ssize_t writev(int, const struct iovec *, int);
```

11.3.66 sys/un.h

11.10.1 Encryption

11.10.1.1 Interfaces for Encryption

An LSB conforming implementation shall provide the architecture specific functions for Encryption specified in Table 11-36, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-36 libcrypt - Encryption Function Interfaces

crypt(GLIBC_2.2.5) [1]	encrypt(GLIBC_2.2.5) [1]	setkey(GLIBC_2.2.5) [1]		

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

11.3.67 sys/utsname.h

```
extern int uname(struct utsname *);
```

11.3.68 sys/wait.h

```
extern pid_t wait(int *);
extern pid_t waitpid(pid_t, int *, int);
extern pid_t wait4(pid_t, int *, int, struct rusage *);
```

11.3.69 syslog.h

~~*Referenced Specification(s)*~~

~~**[1].**~~

```
extern void closelog(void);
extern void openlog(const char *, int, int);
extern int setlogmask(int);
extern void syslog(int, const char *, ...);
extern void vsyslog(int, const char *, va_list);
```

11.3.70 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

extern speed_t cfgetispeed(const struct termios *);
extern speed_t cfgetospeed(const struct termios *);
extern void cfmakeraw(struct termios *);
extern int cfsetispeed(struct termios *, speed_t);
extern int cfsetospeed(struct termios *, speed_t);
extern int cfsetspeed(struct termios *, speed_t);
extern int tcflow(int, int);
extern int tcflush(int, int);
extern pid_t tcgetsid(int);
extern int tcsendbreak(int, int);
extern int tcsetattr(int, int, const struct termios *);
extern int tcdrain(int);
extern int tcgetattr(int, struct termios *);
```

11.3.71 time.h

```

extern int __daylight(void);
extern long int __timezone(void);
extern char *__tzname(void);
extern char *asctime(const struct tm *);
extern clock_t clock(void);
extern char *ctime(const time_t *);
extern char *ctime_r(const time_t *, char *);
extern double difftime(time_t, time_t);
extern struct tm *getdate(const char *);
extern int getdate_err(void);
extern struct tm *gmtime(const time_t *);
extern struct tm *localtime(const time_t *);
extern time_t mktime(struct tm *);
extern int stime(const time_t *);
extern size_t strftime(char *, size_t, const char *, const struct tm *);
extern char *strptime(const char *, const char *, struct tm *);
extern time_t time(time_t *);
extern int nanosleep(const struct timespec *, struct timespec *);
extern int daylight(void);
extern long int timezone(void);
extern char *tzname(void);
extern void tzset(void);
extern char *asctime_r(const struct tm *, char *);
extern struct tm *gmtime_r(const time_t *, struct tm *);
extern struct tm *localtime_r(const time_t *, struct tm *);
extern int clock_getcpuclockid(pid_t, clockid_t *);
extern int clock_getres(clockid_t, struct timespec *);
```

```
extern int clock_gettime(clockid_t, struct timespec *);
extern int clock_nanosleep(clockid_t, int, const struct timespec *,
                           struct timespec *);
extern int clock_settime(clockid_t, const struct timespec *);
extern int timer_create(clockid_t, struct sigevent *, timer_t *);
extern int timer_delete(timer_t);
extern int timer_getoverrun(timer_t);
extern int timer_gettime(timer_t, struct itimerspec *);
extern int timer_settime(timer_t, int, const struct itimerspec *,
                         struct itimerspec *);
```

11.3.72 ucontext.h

```

struct _libc_fpxreg {
    unsigned short significand[4];
    unsigned short exponent;
    unsigned short padding[3];
};

typedef long int greg_t;

#define NGREG   23

typedef greg_t gregset_t[23];

struct _libc_xmmreg {
    uint32_t element[4];
};
struct _libc_fpstate {
    uint16_t cwd;
    uint16_t swd;
    uint16_t ftw;
    uint16_t fop;
    uint64_t rip;
    uint64_t rdp;
    uint32_t mxcsr;
    uint32_t mxcr_mask;
    struct _libc_fpxreg _st[8];
    struct _libc_xmmreg _xmm[16];
    uint32_t padding[24];
};
typedef struct _libc_fpstate *fpregset_t;

typedef struct {
    gregset_t gregs;
    fpregset_t fpregs;
    unsigned long int __reserved1[8];
} 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;
    struct _libc_fpstate __fpregs_mem;
} ucontext_t;
extern int getcontext(ucontext_t *);
extern int makecontext(ucontext_t *, void (*func) (void)
                       , int, ...);
extern int setcontext(const struct ucontext *);
extern int swapcontext(ucontext_t *, const struct ucontext *);
```

11.3.73 ulimit.h

```
extern long int ulimit(int, ...);
```

11.3.74 unistd.h

```
typedef long int intptr_t;

extern char **__environ(void);
extern pid_t __getpgid(pid_t);
extern void _exit(int);
extern int acct(const char *);
extern unsigned int alarm(unsigned int);
extern int chown(const char *, uid_t, gid_t);
extern int chroot(const char *);
extern size_t confstr(int, char *, size_t);
extern int creat(const char *, mode_t);
extern int creat64(const char *, mode_t);
extern char *ctermid(char *);
extern char *cuserid(char *);
extern int daemon(int, int);
extern int execl(const char *, const char *, ...);
extern int execle(const char *, const char *, ...);
extern int execlp(const char *, const char *, ...);
extern int execv(const char *, char *const);
extern int execvp(const char *, char *const);
extern int fdatasync(int);
extern int ftruncate64(int, off64_t);
extern long int gethostid(void);
extern char *getlogin(void);
extern int getlogin_r(char *, size_t);
extern int getopt(int, char *const, const char *);
extern pid_t getpgrp(void);
extern pid_t getsid(pid_t);
extern char *getwd(char *);
extern int lockf(int, int, off_t);
extern int mkstemp(char *);
extern int nice(int);
extern char *optarg(void);
extern int opterr(void);
extern int optind(void);
extern int optopt(void);
extern int rename(const char *, const char *);
extern int setegid(gid_t);
extern int seteuid(uid_t);
extern int sethostname(const char *, size_t);
extern int setpgrp(void);
extern void swab(const void *, void *, ssize_t);
extern void sync(void);
extern pid_t tcgetpgrp(int);
extern int tcsetpgrp(int, pid_t);
extern int truncate(const char *, off_t);
extern int truncate64(const char *, off64_t);
extern char *ttyname(int);
extern unsigned int ualarm(useconds_t, useconds_t);
extern int usleep(useconds_t);
extern int close(int);
extern int fsync(int);
extern off_t lseek(int, off_t, int);
extern int open(const char *, int, ...);
extern int pause(void);
extern ssize_t read(int, void *, size_t);
```

```
1952        extern ssize_t write(int, const void *, size_t);
1953        extern char *crypt(char *, char *);
1954        extern void encrypt(char *, int);
1955        extern void setkey(const char *);
1956        extern int access(const char *, int);
1957        extern int brk(void *);
1958        extern int chdir(const char *);
1959        extern int dup(int);
1960        extern int dup2(int, int);
1961        extern int execve(const char *, char *const, char *const);
1962        extern int fchdir(int);
1963        extern int fchown(int, uid_t, gid_t);
1964        extern pid_t fork(void);
1965        extern gid_t getegid(void);
1966        extern uid_t geteuid(void);
1967        extern gid_t getgid(void);
1968        extern int getgroups(int, gid_t);
1969        extern int gethostname(char *, size_t);
1970        extern pid_t getpgid(pid_t);
1971        extern pid_t getpid(void);
1972        extern uid_t getuid(void);
1973        extern int lchown(const char *, uid_t, gid_t);
1974        extern int link(const char *, const char *);
1975        extern int mkdir(const char *, mode_t);
1976        extern long int pathconf(const char *, int);
1977        extern int pipe(int);
1978        extern int readlink(const char *, char *, size_t);
1979        extern int rmdir(const char *);
1980        extern void *sbrk(ptrdiff_t);
1981        extern int select(int, fd_set *, fd_set *, fd_set *, struct timeval *);
1982        extern int setgid(gid_t);
1983        extern int setpgid(pid_t, pid_t);
1984        extern int setregid(gid_t, gid_t);
1985        extern int setreuid(uid_t, uid_t);
1986        extern pid_t setsid(void);
1987        extern int setuid(uid_t);
1988        extern unsigned int sleep(unsigned int);
1989        extern int symlink(const char *, const char *);
1990        extern long int sysconf(int);
1991        extern int unlink(const char *);
1992        extern pid_t vfork(void);
1993        extern ssize_t pread(int, void *, size_t, off_t);
1994        extern ssize_t pwrite(int, const void *, size_t, off_t);
1995        extern char **_environ(void);
1996        extern long int fpathconf(int, int);
1997        extern int ftruncate(int, off_t);
1998        extern char *getcwd(char *, size_t);
1999        extern int getpagesize(void);
2000        extern pid_t getppid(void);
2001        extern int isatty(int);
2002        extern loff_t lseek64(int, loff_t, int);
2003        extern int open64(const char *, int, ...);
2004        extern ssize_t pread64(int, void *, size_t, off64_t);
2005        extern ssize_t pwrite64(int, const void *, size_t, off64_t);
2006        extern int ttyname_r(int, char *, size_t);
```

11.3.75 utime.h

```
2007
2008        extern int utime(const char *, const struct utimbuf *);
```

11.3.76 utmp.h

```
2009
```

```
struct lastlog {
    int32_t ll_time;
    char ll_line[UT_LINESIZE];
    char ll_host[UT_HOSTSIZE];
};

struct utmp {
    short ut_type;
    pid_t ut_pid;
    char ut_line[UT_LINESIZE];
    char ut_id[4];
    char ut_user[UT_NAMESIZE];
    char ut_host[UT_HOSTSIZE];
    struct exit_status ut_exit;
    int ut_session;
    struct {
        int32_t tv_sec;
        int32_t tv_usec;
    } ut_tv;
    int32_t ut_addr_v6[4];
    char __unused[20];
};

extern void endutent(void);
extern struct utmp *getutent(void);
extern void setutent(void);
extern int getutent_r(struct utmp *, struct utmp **);
extern int utmpname(const char *);
extern int login_tty(int);
extern void login(const struct utmp *);
extern int logout(const char *);
extern void logwtmp(const char *, const char *, const char *);
```

11.3.77 utmpx.h

```

struct utmpx {
    short ut_type;
    pid_t ut_pid;
    char ut_line[UT_LINESIZE];
    char ut_id[4];
    char ut_user[UT_NAMESIZE];
    char ut_host[UT_HOSTSIZE];
    struct exit_status ut_exit;
    int32_t ut_session;
    struct {
        int32_t tv_sec;
        int32_t tv_usec;
    } ut_tv;
    int32_t ut_addr_v6[4];
    char __unused[20];
};

extern void endutxent(void);
extern struct utmpx *getutxent(void);
extern struct utmpx *getutxid(const struct utmpx *);
extern struct utmpx *getutxline(const struct utmpx *);
extern struct utmpx *pututxline(const struct utmpx *);
extern void setutxent(void);
```

11.3.78 wchar.h

```

extern double __wcstod_internal(const wchar_t *, wchar_t * *, int);
```

```
2068          extern float __wcstof_internal(const wchar_t *, wchar_t * *, int);
2069          extern long int __wcstol_internal(const wchar_t *, wchar_t * *, int,
2070          int);
2071          extern long double __wcstold_internal(const wchar_t *, wchar_t * *, int);
2072          extern unsigned long int __wcstoul_internal(const wchar_t *, wchar_t *
2073          *,
2074                                                      int, int);
2075          extern wchar_t *wcscat(wchar_t *, const wchar_t *);
2076          extern wchar_t *wcschr(const wchar_t *, wchar_t);
2077          extern int wcscmp(const wchar_t *, const wchar_t *);
2078          extern int wcscoll(const wchar_t *, const wchar_t *);
2079          extern wchar_t *wcscpy(wchar_t *, const wchar_t *);
2080          extern size_t wcscspn(const wchar_t *, const wchar_t *);
2081          extern wchar_t *wcsdup(const wchar_t *);
2082          extern wchar_t *wcsncat(wchar_t *, const wchar_t *, size_t);
2083          extern int wcsncmp(const wchar_t *, const wchar_t *, size_t);
2084          extern wchar_t *wcsncpy(wchar_t *, const wchar_t *, size_t);
2085          extern wchar_t *wcspbrk(const wchar_t *, const wchar_t *);
2086          extern wchar_t *wcsrchr(const wchar_t *, wchar_t);
2087          extern size_t wcsspn(const wchar_t *, const wchar_t *);
2088          extern wchar_t *wcsstr(const wchar_t *, const wchar_t *);
2089          extern wchar_t *wcstok(wchar_t *, const wchar_t *, wchar_t * *);
2090          extern int wcswidth(const wchar_t *, size_t);
2091          extern size_t wcsxfrm(wchar_t *, const wchar_t *, size_t);
2092          extern int wctob(wint_t);
2093          extern int wcwidth(wchar_t);
2094          extern wchar_t *wmemchr(const wchar_t *, wchar_t, size_t);
2095          extern int wmemcmp(const wchar_t *, const wchar_t *, size_t);
2096          extern wchar_t *wmemcpy(wchar_t *, const wchar_t *, size_t);
2097          extern wchar_t *wmemmove(wchar_t *, const wchar_t *, size_t);
2098          extern wchar_t *wmemset(wchar_t *, wchar_t, size_t);
2099          extern size_t mbrlen(const char *, size_t, mbstate_t *);
2100          extern size_t mbrtowc(wchar_t *, const char *, size_t, mbstate_t *);
2101          extern int mbsinit(const mbstate_t *);
2102          extern size_t mbsnrtowcs(wchar_t *, const char **, size_t, size_t,
2103                                   mbstate_t *);
2104          extern size_t mbsrtowcs(wchar_t *, const char **, size_t, mbstate_t *);
2105          extern wchar_t *wcpcpy(wchar_t *, const wchar_t *);
2106          extern wchar_t *wcpncpy(wchar_t *, const wchar_t *, size_t);
2107          extern size_t wcrtomb(char *, wchar_t, mbstate_t *);
2108          extern size_t wcslen(const wchar_t *);
2109          extern size_t wcsnrtombs(char *, const wchar_t * *, size_t, size_t,
2110                                   mbstate_t *);
2111          extern size_t wcsrtombs(char *, const wchar_t * *, size_t, mbstate_t *);
2112          extern double wcstod(const wchar_t *, wchar_t * *);
2113          extern float wcstof(const wchar_t *, wchar_t * *);
2114          extern long int wcstol(const wchar_t *, wchar_t * *, int);
2115          extern long double wcstold(const wchar_t *, wchar_t * *);
2116          extern long long int wcstoq(const wchar_t *, wchar_t * *, int);
2117          extern unsigned long int wcstoul(const wchar_t *, wchar_t * *, int);
2118          extern unsigned long long int wcstouq(const wchar_t *, wchar_t * *, int);
2119          extern wchar_t *wcswcs(const wchar_t *, const wchar_t *);
2120          extern int wcscasecmp(const wchar_t *, const wchar_t *);
2121          extern int wcsncasecmp(const wchar_t *, const wchar_t *, size_t);
2122          extern size_t wcsnlen(const wchar_t *, size_t);
2123          extern long long int wcstoll(const wchar_t *, wchar_t * *, int);
2124          extern unsigned long long int wcstoull(const wchar_t *, wchar_t * *, int);
2125          extern wint_t btowc(int);
2126          extern wint_t fgetwc(FILE *);
2127          extern wint_t fgetwc_unlocked(FILE *);
2128          extern wchar_t *fgetws(wchar_t *, int, FILE *);
2129          extern wint_t fputwc(wchar_t, FILE *);
2130          extern int fputws(const wchar_t *, FILE *);
2131          extern int fwide(FILE *, int);
```

```
extern int fwprintf(FILE *, const wchar_t *, ...);
extern int fwscanf(FILE *, const wchar_t *, ...);
extern wint_t getwc(FILE *);
extern wint_t getwchar(void);
extern wint_t putwc(wchar_t, FILE *);
extern wint_t putwchar(wchar_t);
extern int swprintf(wchar_t *, size_t, const wchar_t *, ...);
extern int swscanf(const wchar_t *, const wchar_t *, ...);
extern wint_t ungetwc(wint_t, FILE *);
extern int vfwprintf(FILE *, const wchar_t *, va_list);
extern int vfwscanf(FILE *, const wchar_t *, va_list);
extern int vswprintf(wchar_t *, size_t, const wchar_t *, va_list);
extern int vswscanf(const wchar_t *, const wchar_t *, va_list);
extern int vwprintf(const wchar_t *, va_list);
extern int vwscanf(const wchar_t *, va_list);
extern size_t wcsftime(wchar_t *, size_t, const wchar_t *,
                       const struct tm *);
extern int wprintf(const wchar_t *, ...);
extern int wscanf(const wchar_t *, ...);
```

11.3.79 wctype.h

```
extern int iswblank(wint_t);
extern wint_t towlower(wint_t);
extern wint_t towupper(wint_t);
extern wctrans_t wctrans(const char *);
extern int iswalnum(wint_t);
extern int iswalpha(wint_t);
extern int iswcntrl(wint_t);
extern int iswctype(wint_t, wctype_t);
extern int iswdigit(wint_t);
extern int iswgraph(wint_t);
extern int iswlower(wint_t);
extern int iswprint(wint_t);
extern int iswpunct(wint_t);
extern int iswspace(wint_t);
extern int iswupper(wint_t);
extern int iswxdigit(wint_t);
extern wctype_t wctype(const char *);
extern wint_t towctrans(wint_t, wctrans_t);
```

11.3.80 wordexp.h

```
extern int wordexp(const char *, wordexp_t *, int);
extern void wordfree(wordexp_t *);
```

11.4 Interfaces for libm

~~ISO POSIX (2003)~~Table 11-24 defines the library name and shared object name for the libm library

Table 11-24 libm Definition

Library:	libm
SONAME:	libm.so.6

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

[ISOC99] ISO C (1999)
[LSB] This Specification
[SUSv2] SUSv2
[SUSv3] ISO POSIX (2003)

11.4.1 Math

11.4.1.1 Interfaces for Math

An LSB conforming implementation shall provide the architecture specific functions for Math specified in Table 11-25, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-25 libm - Math Function Interfaces

__finite(GLIBC_2.2.5) [ISOC99]	__finitef(GLIBC_2.2.5) [ISOC99]	__finitel(GLIBC_2.2.5) [ISOC99]	__fpclassify(GLIBC_2.2.5) [LSB]
__fpclassifyf(GLIBC_2.2.5) [LSB]	__fpclassifyl(GLIBC_2.2.5) [ISOC99]	__signbitl(GLIBC_2.2.5) [ISOC99]	acos(GLIBC_2.2.5) [SUSv3]
acosf(GLIBC_2.2.5) [SUSv3]	acosh(GLIBC_2.2.5) [SUSv3]	acoshf(GLIBC_2.2.5) [SUSv3]	acoshl(GLIBC_2.2.5) [SUSv3]
acosl(GLIBC_2.2.5) [SUSv3]	asin(GLIBC_2.2.5) [SUSv3]	asinf(GLIBC_2.2.5) [SUSv3]	asinh(GLIBC_2.2.5) [SUSv3]
asinhf(GLIBC_2.2.5) [SUSv3]	asinhl(GLIBC_2.2.5) [SUSv3]	asinl(GLIBC_2.2.5) [SUSv3]	atan(GLIBC_2.2.5) [SUSv3]
atan2(GLIBC_2.2.5) [SUSv3]	atan2f(GLIBC_2.2.5) [SUSv3]	atan2l(GLIBC_2.2.5) [SUSv3]	atanf(GLIBC_2.2.5) [SUSv3]
atanh(GLIBC_2.2.5) [SUSv3]	atanhf(GLIBC_2.2.5) [SUSv3]	atanhl(GLIBC_2.2.5) [SUSv3]	atanl(GLIBC_2.2.5) [SUSv3]
cabs(GLIBC_2.2.5) [SUSv3]	cabsf(GLIBC_2.2.5) [SUSv3]	cabsl(GLIBC_2.2.5) [SUSv3]	cacos(GLIBC_2.2.5) [SUSv3]
cacosf(GLIBC_2.2.5) [SUSv3]	cacosh(GLIBC_2.2.5) [SUSv3]	cacoshf(GLIBC_2.2.5) [SUSv3]	cacoshl(GLIBC_2.2.5) [SUSv3]
cacosl(GLIBC_2.2.5) [SUSv3]	carg(GLIBC_2.2.5) [SUSv3]	cargf(GLIBC_2.2.5) [SUSv3]	cargl(GLIBC_2.2.5) [SUSv3]
casin(GLIBC_2.2.5) [SUSv3]	casinf(GLIBC_2.2.5) [SUSv3]	casinh(GLIBC_2.2.5) [SUSv3]	casinhf(GLIBC_2.2.5) [SUSv3]
casinhl(GLIBC_2.2.5) [SUSv3]	casinl(GLIBC_2.2.5) [SUSv3]	catan(GLIBC_2.2.5) [SUSv3]	catanf(GLIBC_2.2.5) [SUSv3]
catanh(GLIBC_2.2.5) [SUSv3]	catanhf(GLIBC_2.2.5) [SUSv3]	catanhl(GLIBC_2.2.5) [SUSv3]	catanl(GLIBC_2.2.5) [SUSv3]
cbrt(GLIBC_2.2.5) [SUSv3]	cbrtf(GLIBC_2.2.5) [SUSv3]	cbrtl(GLIBC_2.2.5) [SUSv3]	ccos(GLIBC_2.2.5) [SUSv3]
ccosf(GLIBC_2.2.5) [SUSv3]	ccosh(GLIBC_2.2.5) [SUSv3]	ccoshf(GLIBC_2.2.5) [SUSv3]	ccoshl(GLIBC_2.2.5) [SUSv3]

ccosl(GLIBC_2.2.5) [SUSv3]	ceil(GLIBC_2.2.5) [SUSv3]	ceilf(GLIBC_2.2.5) [SUSv3]	ceill(GLIBC_2.2.5) [SUSv3]
cexp(GLIBC_2.2.5) [SUSv3]	cexpf(GLIBC_2.2.5) [SUSv3]	cexpl(GLIBC_2.2.5) [SUSv3]	cimag(GLIBC_2.2.5) [SUSv3]
cimagf(GLIBC_2.2.5) [SUSv3]	cimagl(GLIBC_2.2.5) [SUSv3]	clog(GLIBC_2.2.5) [SUSv3]	clog10(GLIBC_2.2.5) [ISOC99]
clog10f(GLIBC_2.2.5) [ISOC99]	clog10l(GLIBC_2.2.5) [ISOC99]	clogf(GLIBC_2.2.5) [SUSv3]	clogl(GLIBC_2.2.5) [SUSv3]
conj(GLIBC_2.2.5) [SUSv3]	conjf(GLIBC_2.2.5) [SUSv3]	conjl(GLIBC_2.2.5) [SUSv3]	copysign(GLIBC_2.2.5) [SUSv3]
copysignf(GLIBC_2.2.5) [SUSv3]	copysignl(GLIBC_2.2.5) [SUSv3]	cos(GLIBC_2.2.5) [SUSv3]	cosf(GLIBC_2.2.5) [SUSv3]
cosh(GLIBC_2.2.5) [SUSv3]	coshf(GLIBC_2.2.5) [SUSv3]	coshl(GLIBC_2.2.5) [SUSv3]	cosl(GLIBC_2.2.5) [SUSv3]
cpow(GLIBC_2.2.5) [SUSv3]	cpowf(GLIBC_2.2.5) [SUSv3]	cpowl(GLIBC_2.2.5) [SUSv3]	cproj(GLIBC_2.2.5) [SUSv3]
cprojf(GLIBC_2.2.5) [SUSv3]	cprojl(GLIBC_2.2.5) [SUSv3]	creal(GLIBC_2.2.5) [SUSv3]	crealf(GLIBC_2.2.5) [SUSv3]
creall(GLIBC_2.2.5) [SUSv3]	csin(GLIBC_2.2.5) [SUSv3]	csinf(GLIBC_2.2.5) [SUSv3]	csinh(GLIBC_2.2.5) [SUSv3]
csinhf(GLIBC_2.2.5) [SUSv3]	csinhl(GLIBC_2.2.5) [SUSv3]	csinl(GLIBC_2.2.5) [SUSv3]	csqrt(GLIBC_2.2.5) [SUSv3]
csqrtf(GLIBC_2.2.5) [SUSv3]	csqrtl(GLIBC_2.2.5) [SUSv3]	ctan(GLIBC_2.2.5) [SUSv3]	ctanf(GLIBC_2.2.5) [SUSv3]
ctanh(GLIBC_2.2.5) [SUSv3]	ctanhf(GLIBC_2.2.5) [SUSv3]	ctanhl(GLIBC_2.2.5) [SUSv3]	ctanl(GLIBC_2.2.5) [SUSv3]
dremf(GLIBC_2.2.5) [ISOC99]	dreml(GLIBC_2.2.5) [ISOC99]	erf(GLIBC_2.2.5) [SUSv3]	erfc(GLIBC_2.2.5) [SUSv3]
erfcf(GLIBC_2.2.5) [SUSv3]	erfcl(GLIBC_2.2.5) [SUSv3]	erff(GLIBC_2.2.5) [SUSv3]	erfl(GLIBC_2.2.5) [SUSv3]
exp(GLIBC_2.2.5) [SUSv3]	exp2(GLIBC_2.2.5) [SUSv3]	exp2f(GLIBC_2.2.5) [SUSv3]	exp2l(GLIBC_2.2.5) [SUSv3]
expf(GLIBC_2.2.5) [SUSv3]	expl(GLIBC_2.2.5) [SUSv3]	expm1(GLIBC_2.2.5) [SUSv3]	expm1f(GLIBC_2.2.5) [SUSv3]
expm1l(GLIBC_2.2.5) [SUSv3]	fabs(GLIBC_2.2.5) [SUSv3]	fabsf(GLIBC_2.2.5) [SUSv3]	fabsl(GLIBC_2.2.5) [SUSv3]
fdim(GLIBC_2.2.5) [SUSv3]	fdimf(GLIBC_2.2.5) [SUSv3]	fdiml(GLIBC_2.2.5) [SUSv3]	feclearexcept(GLIBC_2.2.5) [SUSv3]
fegetenv(GLIBC_2.2.5) [SUSv3]	fegetexceptflag(GLIBC_2.2.5) [SUSv3]	fegetround(GLIBC_2.2.5) [SUSv3]	feholdexcept(GLIBC_2.2.5) [SUSv3]

feraiseexcept(GLIBC_2.2.5) [SUSv3]	fesetenv(GLIBC_2.2.5) [SUSv3]	fesetexceptflag(GLIBC_2.2.5) [SUSv3]	fesetround(GLIBC_2.2.5) [SUSv3]
fetestexcept(GLIBC_2.2.5) [SUSv3]	feupdateenv(GLIBC_2.2.5) [SUSv3]	finite(GLIBC_2.2.5) [SUSv2]	finitef(GLIBC_2.2.5) [ISOC99]
finitel(GLIBC_2.2.5) [ISOC99]	floor(GLIBC_2.2.5) [SUSv3]	floorf(GLIBC_2.2.5) [SUSv3]	floorl(GLIBC_2.2.5) [SUSv3]
fma(GLIBC_2.2.5) [SUSv3]	fmaf(GLIBC_2.2.5) [SUSv3]	fmal(GLIBC_2.2.5) [SUSv3]	fmax(GLIBC_2.2.5) [SUSv3]
fmaxf(GLIBC_2.2.5) [SUSv3]	fmaxl(GLIBC_2.2.5) [SUSv3]	fmin(GLIBC_2.2.5) [SUSv3]	fminf(GLIBC_2.2.5) [SUSv3]
fminl(GLIBC_2.2.5) [SUSv3]	fmod(GLIBC_2.2.5) [SUSv3]	fmodf(GLIBC_2.2.5) [SUSv3]	fmodl(GLIBC_2.2.5) [SUSv3]
frexp(GLIBC_2.2.5) [SUSv3]	frexpf(GLIBC_2.2.5) [SUSv3]	frexpl(GLIBC_2.2.5) [SUSv3]	gamma(GLIBC_2.2.5) [SUSv2]
gammaf(GLIBC_2.2.5) [ISOC99]	gammal(GLIBC_2.2.5) [ISOC99]	hypot(GLIBC_2.2.5) [SUSv3]	hypotf(GLIBC_2.2.5) [SUSv3]
hypotl(GLIBC_2.2.5) [SUSv3]	ilogb(GLIBC_2.2.5) [SUSv3]	ilogbf(GLIBC_2.2.5) [SUSv3]	ilogbl(GLIBC_2.2.5) [SUSv3]
j0(GLIBC_2.2.5) [SUSv3]	j0f(GLIBC_2.2.5) [ISOC99]	j0l(GLIBC_2.2.5) [ISOC99]	j1(GLIBC_2.2.5) [SUSv3]
j1f(GLIBC_2.2.5) [ISOC99]	j1l(GLIBC_2.2.5) [ISOC99]	jn(GLIBC_2.2.5) [SUSv3]	jnf(GLIBC_2.2.5) [ISOC99]
jnl(GLIBC_2.2.5) [ISOC99]	ldexp(GLIBC_2.2.5) [SUSv3]	ldexpf(GLIBC_2.2.5) [SUSv3]	ldexpl(GLIBC_2.2.5) [SUSv3]
lgamma(GLIBC_2.2.5) [SUSv3]	lgamma_r(GLIBC_2.2.5) [ISOC99]	lgammaf(GLIBC_2.2.5) [SUSv3]	lgammaf_r(GLIBC_2.2.5) [ISOC99]
lgammal(GLIBC_2.2.5) [SUSv3]	lgammal_r(GLIBC_2.2.5) [ISOC99]	llrint(GLIBC_2.2.5) [SUSv3]	llrintf(GLIBC_2.2.5) [SUSv3]
llrintl(GLIBC_2.2.5) [SUSv3]	llround(GLIBC_2.2.5) [SUSv3]	llroundf(GLIBC_2.2.5) [SUSv3]	llroundl(GLIBC_2.2.5) [SUSv3]
log(GLIBC_2.2.5) [SUSv3]	log10(GLIBC_2.2.5) [SUSv3]	log10f(GLIBC_2.2.5) [SUSv3]	log10l(GLIBC_2.2.5) [SUSv3]
log1p(GLIBC_2.2.5) [SUSv3]	log1pf(GLIBC_2.2.5) [SUSv3]	log1pl(GLIBC_2.2.5) [SUSv3]	log2(GLIBC_2.2.5) [SUSv3]
log2f(GLIBC_2.2.5) [SUSv3]	log2l(GLIBC_2.2.5) [SUSv3]	logb(GLIBC_2.2.5) [SUSv3]	logbf(GLIBC_2.2.5) [SUSv3]
logbl(GLIBC_2.2.5) [SUSv3]	logf(GLIBC_2.2.5) [SUSv3]	logl(GLIBC_2.2.5) [SUSv3]	lrint(GLIBC_2.2.5) [SUSv3]
lrintf(GLIBC_2.2.5) [SUSv3]	lrintl(GLIBC_2.2.5) [SUSv3]	lround(GLIBC_2.2.5) [SUSv3]	lroundf(GLIBC_2.2.5) [SUSv3]

lroundl(GLIBC_2.2.5) [SUSv3]	matherr(GLIBC_2.2.5) [ISOC99]	modf(GLIBC_2.2.5) [SUSv3]	modff(GLIBC_2.2.5) [SUSv3]
modfl(GLIBC_2.2.5) [SUSv3]	nan(GLIBC_2.2.5) [SUSv3]	nanf(GLIBC_2.2.5) [SUSv3]	nanl(GLIBC_2.2.5) [SUSv3]
nearbyint(GLIBC_2.2.5) [SUSv3]	nearbyintf(GLIBC_2.2.5) [SUSv3]	nearbyintl(GLIBC_2.2.5) [SUSv3]	nextafter(GLIBC_2.2.5) [SUSv3]
nextafterf(GLIBC_2.2.5) [SUSv3]	nextafterl(GLIBC_2.2.5) [SUSv3]	nexttoward(GLIBC_2.2.5) [SUSv3]	nexttowardf(GLIBC_2.2.5) [SUSv3]
nexttowardl(GLIBC_2.2.5) [SUSv3]	pow(GLIBC_2.2.5) [SUSv3]	pow10(GLIBC_2.2.5) [ISOC99]	pow10f(GLIBC_2.2.5) [ISOC99]
pow10l(GLIBC_2.2.5) [ISOC99]	powf(GLIBC_2.2.5) [SUSv3]	powl(GLIBC_2.2.5) [SUSv3]	remainder(GLIBC_2.2.5) [SUSv3]
remainderf(GLIBC_2.2.5) [SUSv3]	remainderl(GLIBC_2.2.5) [SUSv3]	remquo(GLIBC_2.2.5) [SUSv3]	remquof(GLIBC_2.2.5) [SUSv3]
remquol(GLIBC_2.2.5) [SUSv3]	rint(GLIBC_2.2.5) [SUSv3]	rintf(GLIBC_2.2.5) [SUSv3]	rintl(GLIBC_2.2.5) [SUSv3]
round(GLIBC_2.2.5) [SUSv3]	roundf(GLIBC_2.2.5) [SUSv3]	roundl(GLIBC_2.2.5) [SUSv3]	scalb(GLIBC_2.2.5) [SUSv3]
scalbf(GLIBC_2.2.5) [ISOC99]	scalbl(GLIBC_2.2.5) [ISOC99]	scalbln(GLIBC_2.2.5) [SUSv3]	scalblnf(GLIBC_2.2.5) [SUSv3]
scalblnl(GLIBC_2.2.5) [SUSv3]	scalbn(GLIBC_2.2.5) [SUSv3]	scalbnf(GLIBC_2.2.5) [SUSv3]	scalbnl(GLIBC_2.2.5) [SUSv3]
significand(GLIBC_2.2.5) [ISOC99]	significandf(GLIBC_2.2.5) [ISOC99]	significandl(GLIBC_2.2.5) [ISOC99]	sin(GLIBC_2.2.5) [SUSv3]
sincos(GLIBC_2.2.5) [ISOC99]	sincosf(GLIBC_2.2.5) [ISOC99]	sincosl(GLIBC_2.2.5) [ISOC99]	sinf(GLIBC_2.2.5) [SUSv3]
sinh(GLIBC_2.2.5) [SUSv3]	sinhf(GLIBC_2.2.5) [SUSv3]	sinhl(GLIBC_2.2.5) [SUSv3]	sinl(GLIBC_2.2.5) [SUSv3]
sqrt(GLIBC_2.2.5) [SUSv3]	sqrtf(GLIBC_2.2.5) [SUSv3]	sqrtl(GLIBC_2.2.5) [SUSv3]	tan(GLIBC_2.2.5) [SUSv3]
tanf(GLIBC_2.2.5) [SUSv3]	tanh(GLIBC_2.2.5) [SUSv3]	tanhf(GLIBC_2.2.5) [SUSv3]	tanhl(GLIBC_2.2.5) [SUSv3]
tanl(GLIBC_2.2.5) [SUSv3]	tgamma(GLIBC_2.2.5) [SUSv3]	tgammaf(GLIBC_2.2.5) [SUSv3]	tgammal(GLIBC_2.2.5) [SUSv3]
trunc(GLIBC_2.2.5) [SUSv3]	truncf(GLIBC_2.2.5) [SUSv3]	truncl(GLIBC_2.2.5) [SUSv3]	y0(GLIBC_2.2.5) [SUSv3]
y0f(GLIBC_2.2.5) [ISOC99]	y0l(GLIBC_2.2.5) [ISOC99]	y1(GLIBC_2.2.5) [SUSv3]	y1f(GLIBC_2.2.5) [ISOC99]
y1l(GLIBC_2.2.5) [ISOC99]	yn(GLIBC_2.2.5) [SUSv3]	ynf(GLIBC_2.2.5) [ISOC99]	ynl(GLIBC_2.2.5) [ISOC99]

An LSB conforming implementation shall provide the architecture specific data interfaces for Math specified in Table 11-26, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-26 libm - Math Data Interfaces

signgam(GLIBC_2.2.5) [SUSv3]			

11.5 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.

11.5.1 complex.h

```
extern double cabs(double complex);
extern float cabsf(float complex);
extern long double cabsl(long double complex);
extern double complex cacos(double complex);
extern float complex cacosf(float complex);
extern double complex cacosh(double complex);
extern float complex cacoshf(float complex);
extern long double complex cacoshl(long double complex);
extern long double complex cacosl(long double complex);
extern double carg(double complex);
extern float cargf(float complex);
extern long double cargl(long double complex);
extern double complex casin(double complex);
extern float complex casinf(float complex);
extern double complex casinh(double complex);
extern float complex casinhf(float complex);
extern long double complex casinhl(long double complex);
extern long double complex casinl(long double complex);
extern double complex catan(double complex);
extern float complex catanf(float complex);
extern double complex catanh(double complex);
extern float complex catanhf(float complex);
extern long double complex catanhl(long double complex);
extern long double complex catanl(long double complex);
extern double complex ccos(double complex);
extern float complex ccosf(float complex);
extern double complex ccosh(double complex);
extern float complex ccoshf(float complex);
extern long double complex ccoshl(long double complex);
```

```
extern long double complex ccosl(long double complex);
extern double complex cexp(double complex);
extern float complex cexpf(float complex);
extern long double complex cexpl(long double complex);
extern double cimag(double complex);
extern float cimagf(float complex);
extern long double cimagl(long double complex);
extern double complex clog(double complex);
extern float complex clog10f(float complex);
extern long double complex clog10l(long double complex);
extern float complex clogf(float complex);
extern long double complex clogl(long double complex);
extern double complex conj(double complex);
extern float complex conjf(float complex);
extern long double complex conjl(long double complex);
extern double complex cpow(double complex, double complex);
extern float complex cpowf(float complex, float complex);
extern long double complex cpowl(long double complex, long double
complex);
extern double complex cproj(double complex);
extern float complex cprojf(float complex);
extern long double complex cprojl(long double complex);
extern double creal(double complex);
extern float crealf(float complex);
extern long double creall(long double complex);
extern double complex csin(double complex);
extern float complex csinf(float complex);
extern double complex csinh(double complex);
extern float complex csinhf(float complex);
extern long double complex csinhl(long double complex);
extern long double complex csinl(long double complex);
extern double complex csqrt(double complex);
extern float complex csqrtf(float complex);
extern long double complex csqrtl(long double complex);
extern double complex ctan(double complex);
extern float complex ctanf(float complex);
extern double complex ctanh(double complex);
extern float complex ctanhf(float complex);
extern long double complex ctanhl(long double complex);
extern long double complex ctanl(long double complex);
```

11.5.2 fenv.h

```

#define FE_INVALID      0x01
#define FE_DIVBYZERO    0x04
#define FE_OVERFLOW     0x08
#define FE_UNDERFLOW    0x10
#define FE_INEXACT      0x20

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

#define FE_TONEAREST    0
#define FE_DOWNWARD     0x400
#define FE_UPWARD       0x800
#define FE_TOWARDZERO   0xc00

typedef unsigned short fexcept_t;

typedef struct {
    unsigned short __control_word;
    unsigned short __unused1;
```

```
2296            unsigned short __status_word;
2297            unsigned short __unused2;
2298            unsigned short __tags;
2299            unsigned short __unused3;
2300            unsigned int __eip;
2301            unsigned short __cs_selector;
2302            unsigned int __opcode:11;
2303            unsigned int __unused4:5;
2304            unsigned int __data_offset;
2305            unsigned short __data_selector;
2306            unsigned short __unused5;
2307            unsigned int __mxcsr;
2308        } fenv_t;
2309
2310        #define FE_DFL_ENV      ((__const fenv_t *) -1)
2311
2312        extern int feclearexcept(int);
2313        extern int fegetenv(fenv_t *);
2314        extern int fegetexceptflag(fexcept_t *, int);
2315        extern int fegetround(void);
2316        extern int feholdexcept(fenv_t *);
2317        extern int feraiseexcept(int);
2318        extern int fesetenv(const fenv_t *);
2319        extern int fesetexceptflag(const fexcept_t *, int);
2320        extern int fesetround(int);
2321        extern int fetestexcept(int);
2322        extern int feupdateenv(const fenv_t *);
```

11.5.3 math.h

```
2323
2324        #define fpclassify(x)   \
2325                (sizeof (x) == sizeof (float) ? __fpclassifyf (x) :sizeof (x)
2326        == sizeof (double) ? __fpclassify (x) : __fpclassifyl (x))
2327        #define signbit(x)      \
2328                (sizeof (x) == sizeof (float)? __signbitf (x): sizeof (x) ==
2329        sizeof (double)? __signbit (x) : __signbitl (x))
2330
2331        #define FP_ILOGB0       -2147483648
2332        #define FP_ILOGBNAN     -2147483648
2333
2334        extern int __finite(double);
2335        extern int __finitef(float);
2336        extern int __finitel(long double);
2337        extern int __isinf(double);
2338        extern int __isinff(float);
2339        extern int __isinfl(long double);
2340        extern int __isnan(double);
2341        extern int __isnanf(float);
2342        extern int __isnanl(long double);
2343        extern int __signbit(double);
2344        extern int __signbitf(float);
2345        extern int __fpclassify(double);
2346        extern int __fpclassifyf(float);
2347        extern int __fpclassifyl(long double);
2348        extern int signgam(void);
2349        extern double copysign(double, double);
2350        extern int finite(double);
2351        extern double frexp(double, int *);
2352        extern double ldexp(double, int);
2353        extern double modf(double, double *);
2354        extern double acos(double);
2355        extern double acosh(double);
2356        extern double asinh(double);
```

```
2357            extern double atanh(double);
2358            extern double asin(double);
2359            extern double atan(double);
2360            extern double atan2(double, double);
2361            extern double cbrt(double);
2362            extern double ceil(double);
2363            extern double cos(double);
2364            extern double cosh(double);
2365            extern double erf(double);
2366            extern double erfc(double);
2367            extern double exp(double);
2368            extern double expm1(double);
2369            extern double fabs(double);
2370            extern double floor(double);
2371            extern double fmod(double, double);
2372            extern double gamma(double);
2373            extern double hypot(double, double);
2374            extern int ilogb(double);
2375            extern double j0(double);
2376            extern double j1(double);
2377            extern double jn(int, double);
2378            extern double lgamma(double);
2379            extern double log(double);
2380            extern double log10(double);
2381            extern double log1p(double);
2382            extern double logb(double);
2383            extern double nextafter(double, double);
2384            extern double pow(double, double);
2385            extern double remainder(double, double);
2386            extern double rint(double);
2387            extern double scalb(double, double);
2388            extern double sin(double);
2389            extern double sinh(double);
2390            extern double sqrt(double);
2391            extern double tan(double);
2392            extern double tanh(double);
2393            extern double y0(double);
2394            extern double y1(double);
2395            extern double yn(int, double);
2396            extern float copysignf(float, float);
2397            extern long double copysignl(long double, long double);
2398            extern int finitef(float);
2399            extern int finitel(long double);
2400            extern float frexpf(float, int *);
2401            extern long double frexpl(long double, int *);
2402            extern float ldexpf(float, int);
2403            extern long double ldexpl(long double, int);
2404            extern float modff(float, float *);
2405            extern long double modfl(long double, long double *);
2406            extern double scalbln(double, long int);
2407            extern float scalblnf(float, long int);
2408            extern long double scalblnl(long double, long int);
2409            extern double scalbn(double, int);
2410            extern float scalbnf(float, int);
2411            extern long double scalbnl(long double, int);
2412            extern float acosf(float);
2413            extern float acoshf(float);
2414            extern long double acoshl(long double);
2415            extern long double acosl(long double);
2416            extern float asinf(float);
2417            extern float asinhf(float);
2418            extern long double asinhl(long double);
2419            extern long double asinl(long double);
2420            extern float atan2f(float, float);
```

```
2421          extern long double atan2l(long double, long double);
2422          extern float atanf(float);
2423          extern float atanhf(float);
2424          extern long double atanhl(long double);
2425          extern long double atanl(long double);
2426          extern float cbrtf(float);
2427          extern long double cbrtl(long double);
2428          extern float ceilf(float);
2429          extern long double ceill(long double);
2430          extern float cosf(float);
2431          extern float coshf(float);
2432          extern long double coshl(long double);
2433          extern long double cosl(long double);
2434          extern float dremf(float, float);
2435          extern long double dreml(long double, long double);
2436          extern float erfcf(float);
2437          extern long double erfcl(long double);
2438          extern float erff(float);
2439          extern long double erfl(long double);
2440          extern double exp2(double);
2441          extern float exp2f(float);
2442          extern long double exp2l(long double);
2443          extern float expf(float);
2444          extern long double expl(long double);
2445          extern float expm1f(float);
2446          extern long double expm1l(long double);
2447          extern float fabsf(float);
2448          extern long double fabsl(long double);
2449          extern double fdim(double, double);
2450          extern float fdimf(float, float);
2451          extern long double fdiml(long double, long double);
2452          extern float floorf(float);
2453          extern long double floorl(long double);
2454          extern double fma(double, double, double);
2455          extern float fmaf(float, float, float);
2456          extern long double fmal(long double, long double, long double);
2457          extern double fmax(double, double);
2458          extern float fmaxf(float, float);
2459          extern long double fmaxl(long double, long double);
2460          extern double fmin(double, double);
2461          extern float fminf(float, float);
2462          extern long double fminl(long double, long double);
2463          extern float fmodf(float, float);
2464          extern long double fmodl(long double, long double);
2465          extern float gammaf(float);
2466          extern long double gammal(long double);
2467          extern float hypotf(float, float);
2468          extern long double hypotl(long double, long double);
2469          extern int ilogbf(float);
2470          extern int ilogbl(long double);
2471          extern float j0f(float);
2472          extern long double j0l(long double);
2473          extern float j1f(float);
2474          extern long double j1l(long double);
2475          extern float jnf(int, float);
2476          extern long double jnl(int, long double);
2477          extern double lgamma_r(double, int *);
2478          extern float lgammaf(float);
2479          extern float lgammaf_r(float, int *);
2480          extern long double lgammal(long double);
2481          extern long double lgammal_r(long double, int *);
2482          extern long long int llrint(double);
2483          extern long long int llrintf(float);
2484          extern long long int llrintl(long double);
```

```
2485            extern long long int llround(double);
2486            extern long long int llroundf(float);
2487            extern long long int llroundl(long double);
2488            extern float log10f(float);
2489            extern long double log10l(long double);
2490            extern float log1pf(float);
2491            extern long double log1pl(long double);
2492            extern double log2(double);
2493            extern float log2f(float);
2494            extern long double log2l(long double);
2495            extern float logbf(float);
2496            extern long double logbl(long double);
2497            extern float logf(float);
2498            extern long double logl(long double);
2499            extern long int lrint(double);
2500            extern long int lrintf(float);
2501            extern long int lrintl(long double);
2502            extern long int lround(double);
2503            extern long int lroundf(float);
2504            extern long int lroundl(long double);
2505            extern int matherr(struct exception *);
2506            extern double nan(const char *);
2507            extern float nanf(const char *);
2508            extern long double nanl(const char *);
2509            extern double nearbyint(double);
2510            extern float nearbyintf(float);
2511            extern long double nearbyintl(long double);
2512            extern float nextafterf(float, float);
2513            extern long double nextafterl(long double, long double);
2514            extern double nexttoward(double, long double);
2515            extern float nexttowardf(float, long double);
2516            extern long double nexttowardl(long double, long double);
2517            extern double pow10(double);
2518            extern float pow10f(float);
2519            extern long double pow10l(long double);
2520            extern float powf(float, float);
2521            extern long double powl(long double, long double);
2522            extern float remainderf(float, float);
2523            extern long double remainderl(long double, long double);
2524            extern double remquo(double, double, int *);
2525            extern float remquof(float, float, int *);
2526            extern long double remquol(long double, long double, int *);
2527            extern float rintf(float);
2528            extern long double rintl(long double);
2529            extern double round(double);
2530            extern float roundf(float);
2531            extern long double roundl(long double);
2532            extern float scalbf(float, float);
2533            extern long double scalbl(long double, long double);
2534            extern double significand(double);
2535            extern float significandf(float);
2536            extern long double significandl(long double);
2537            extern void sincos(double, double *, double *);
2538            extern void sincosf(float, float *, float *);
2539            extern void sincosl(long double, long double *, long double *);
2540            extern float sinf(float);
2541            extern float sinhf(float);
2542            extern long double sinhl(long double);
2543            extern long double sinl(long double);
2544            extern float sqrtf(float);
2545            extern long double sqrtl(long double);
2546            extern float tanf(float);
2547            extern float tanhf(float);
2548            extern long double tanhl(long double);
```

```
extern long double tanl(long double);
extern double tgamma(double);
extern float tgammaf(float);
extern long double tgammal(long double);
extern double trunc(double);
extern float truncf(float);
extern long double truncl(long double);
extern float y0f(float);
extern long double y0l(long double);
extern float y1f(float);
extern long double y1l(long double);
extern float ynf(int, float);
extern long double ynl(int, long double);
extern int __fpclassifyl(long double);
extern int __fpclassifyl(long double);
extern int __signbitl(long double);
extern int __signbitl(long double);
extern int __signbitl(long double);
extern long double exp2l(long double);
extern long double exp2l(long double);
```

11.6 Interfaces for libpthread

Table 11-27 defines the library name and shared object name for the libpthread library

Table 11-27 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] This Specification
[SUSv3] ISO POSIX (2003)

11.6.1 Realtime Threads

11.6.1.1 Interfaces for Realtime Threads

An LSB conforming implementation shall provide the architecture specific functions for Realtime Threads specified in Table 11-28, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-28 libpthread - Realtime Threads Function Interfaces

pthread_attr_getinheritsched(GLIBC_2.2.5) [SUSv3]	pthread_attr_getschedpolicy(GLIBC_2.2.5) [SUSv3]	pthread_attr_getscope(GLIBC_2.2.5) [SUSv3]	pthread_attr_setinheritsched(GLIBC_2.2.5) [SUSv3]
pthread_attr_setschedpolicy(GLIBC_2.2.5) [SUSv3]	pthread_attr_setscope(GLIBC_2.2.5) [SUSv3]	pthread_getschedparam(GLIBC_2.2.5) [SUSv3]	pthread_setschedparam(GLIBC_2.2.5) [SUSv3]

11.6.2 Advanced Realtime Threads

11.6.2.1 Interfaces for Advanced Realtime Threads

No external functions are defined for libpthread - Advanced Realtime Threads in this part of the specification. See also the generic specification.

11.6.3 Posix Threads

11.6.3.1 Interfaces for Posix Threads

An LSB conforming implementation shall provide the architecture specific functions for Posix Threads specified in Table 11-29, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-29 libpthread - Posix Threads Function Interfaces

_pthread_cleanup_pop(GLIBC_2.2.5) [LSB]	_pthread_cleanup_push(GLIBC_2.2.5) [LSB]	pthread_attr_destroy(GLIBC_2.2.5) [SUSv3]	pthread_attr_getdetachstate(GLIBC_2.2.5) [SUSv3]
pthread_attr_getguardsize(GLIBC_2.2.5) [SUSv3]	pthread_attr_getschedparam(GLIBC_2.2.5) [SUSv3]	pthread_attr_getstack(GLIBC_2.2.5) [SUSv3]	pthread_attr_getstackaddr(GLIBC_2.2.5) [SUSv3]
pthread_attr_getstacksize(GLIBC_2.2.5) [SUSv3]	pthread_attr_init(GLIBC_2.2.5) [SUSv3]	pthread_attr_setdetachstate(GLIBC_2.2.5) [SUSv3]	pthread_attr_setguardsize(GLIBC_2.2.5) [SUSv3]
pthread_attr_setschedparam(GLIBC_2.2.5) [SUSv3]	pthread_attr_setstackaddr(GLIBC_2.2.5) [SUSv3]	pthread_attr_setstacksize(GLIBC_2.2.5) [SUSv3]	pthread_cancel(GLIBC_2.2.5) [SUSv3]
pthread_cond_broadcast(GLIBC_2.3.2) [SUSv3]	pthread_cond_destroy(GLIBC_2.3.2) [SUSv3]	pthread_cond_init(GLIBC_2.3.2) [SUSv3]	pthread_cond_signal(GLIBC_2.3.2) [SUSv3]
pthread_cond_timedwait(GLIBC_2.3.2) [SUSv3]	pthread_cond_wait(GLIBC_2.3.2) [SUSv3]	pthread_condattr_destroy(GLIBC_2.2.5) [SUSv3]	pthread_condattr_getpshared(GLIBC_2.2.5) [SUSv3]
pthread_condattr_init(GLIBC_2.2.5) [SUSv3]	pthread_condattr_setpshared(GLIBC_2.2.5) [SUSv3]	pthread_create(GLIBC_2.2.5) [SUSv3]	pthread_detach(GLIBC_2.2.5) [SUSv3]
pthread_equal(GLIBC_2.2.5) [SUSv3]	pthread_exit(GLIBC_2.2.5) [SUSv3]	pthread_getconcurrency(GLIBC_2.2.5) [SUSv3]	pthread_getspecific(GLIBC_2.2.5) [SUSv3]
pthread_join(GLIBC_2.2.5) [SUSv3]	pthread_key_create(GLIBC_2.2.5) [SUSv3]	pthread_key_delete(GLIBC_2.2.5) [SUSv3]	pthread_kill(GLIBC_2.2.5) [SUSv3]
pthread_mutex_destroy(GLIBC_2.2.5) [SUSv3]	pthread_mutex_init(GLIBC_2.2.5) [SUSv3]	pthread_mutex_lock(GLIBC_2.2.5) [SUSv3]	pthread_mutex_trylock(GLIBC_2.2.5) [SUSv3]
pthread_mutex_unlock(GLIBC_2.2.	pthread_mutexattr_destroy(GLIBC_	pthread_mutexattr_getpshared(GLI	pthread_mutexattr_gettype(GLIBC_

5) [SUSv3]	2.2.5) [SUSv3]	BC_2.2.5) [SUSv3]	2.2.5) [SUSv3]
pthread_mutexattr_init(GLIBC_2.2.5) [SUSv3]	pthread_mutexattr_setpshared(GLIBC_2.2.5) [SUSv3]	pthread_mutexattr_settype(GLIBC_2.2.5) [SUSv3]	pthread_once(GLIBC_2.2.5) [SUSv3]
pthread_rwlock_destroy(GLIBC_2.2.5) [SUSv3]	pthread_rwlock_init(GLIBC_2.2.5) [SUSv3]	pthread_rwlock_rdlock(GLIBC_2.2.5) [SUSv3]	pthread_rwlock_timedrdlock(GLIBC_2.2.5) [SUSv3]
pthread_rwlock_timedwrlock(GLIBC_2.2.5) [SUSv3]	pthread_rwlock_tryrdlock(GLIBC_2.2.5) [SUSv3]	pthread_rwlock_trywrlock(GLIBC_2.2.5) [SUSv3]	pthread_rwlock_unlock(GLIBC_2.2.5) [SUSv3]
pthread_rwlock_wrlock(GLIBC_2.2.5) [SUSv3]	pthread_rwlockattr_destroy(GLIBC_2.2.5) [SUSv3]	pthread_rwlockattr_getpshared(GLIBC_2.2.5) [SUSv3]	pthread_rwlockattr_init(GLIBC_2.2.5) [SUSv3]
pthread_rwlockattr_setpshared(GLIBC_2.2.5) [SUSv3]	pthread_self(GLIBC_2.2.5) [SUSv3]	pthread_setcancelstate(GLIBC_2.2.5) [SUSv3]	pthread_setcanceltype(GLIBC_2.2.5) [SUSv3]
pthread_setconcurrency(GLIBC_2.2.5) [SUSv3]	pthread_setspecific(GLIBC_2.2.5) [SUSv3]	pthread_sigmask(GLIBC_2.2.5) [SUSv3]	pthread_testcancel(GLIBC_2.2.5) [SUSv3]
sem_close(GLIBC_2.2.5) [SUSv3]	sem_destroy(GLIBC_2.2.5) [SUSv3]	sem_getvalue(GLIBC_2.2.5) [SUSv3]	sem_init(GLIBC_2.2.5) [SUSv3]
sem_open(GLIBC_2.2.5) [SUSv3]	sem_post(GLIBC_2.2.5) [SUSv3]	sem_timedwait(GLIBC_2.2.5) [SUSv3]	sem_trywait(GLIBC_2.2.5) [SUSv3]
sem_unlink(GLIBC_2.2.5) [SUSv3]	sem_wait(GLIBC_2.2.5) [SUSv3]		

11.6.4 Thread aware versions of libc interfaces

11.6.4.1 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 11-30, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-30 libpthread - Thread aware versions of libc interfaces Function Interfaces

lseek64(GLIBC_2.2.5) [LFS]	open64(GLIBC_2.2.5) [LFS]	pread(GLIBC_2.2.5) [SUSv3]	pread64(GLIBC_2.2.5) [LFS]
pwrite(GLIBC_2.2.5) [SUSv3]	pwrite64(GLIBC_2.2.5) [LFS]		

11.7 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.

11.7.1 pthread.h

```
extern void _pthread_cleanup_pop(struct _pthread_cleanup_buffer *,
int);
extern void _pthread_cleanup_push(struct _pthread_cleanup_buffer *,
                                  void (*__routine) (void *)
                                  , void *);
extern int pthread_attr_destroy(pthread_attr_t *);
extern int pthread_attr_getdetachstate(const typedef struct {
                                       int __detachstate;
                                       int __schedpolicy;
                                       struct sched_param
__schedparam;
                                       int __inheritsched;
                                       int __scope;
                                       size_t __guardsize;
                                       int __stackaddr_set;
                                       void *__stackaddr;
                                       unsigned long int __stacksize;}
                                       pthread_attr_t *, int *);
extern int pthread_attr_getinheritsched(const typedef struct {
                                        int __detachstate;
                                        int __schedpolicy;
                                        struct sched_param
__schedparam;
                                        int __inheritsched;
                                        int __scope;
                                        size_t __guardsize;
                                        int __stackaddr_set;
                                        void *__stackaddr;
                                        unsigned long int
__stacksize;}
                                        pthread_attr_t *, int *);
extern int pthread_attr_getschedparam(const typedef struct {
                                      int __detachstate;
                                      int __schedpolicy;
                                      struct sched_param
__schedparam;
                                      int __inheritsched;
                                      int __scope;
                                      size_t __guardsize;
                                      int __stackaddr_set;
                                      void *__stackaddr;
                                      unsigned long int __stacksize;}
                                      pthread_attr_t *, struct
sched_param {
```

```
                                          int sched_priority;}

                                          *);
        extern int pthread_attr_getschedpolicy(const typedef struct {
                                           int __detachstate;
                                           int __schedpolicy;
                                           struct sched_param
        __schedparam;
                                           int __inheritsched;
                                           int __scope;
                                           size_t __guardsize;
                                           int __stackaddr_set;
                                           void *__stackaddr;
                                           unsigned long int __stacksize;}
                                           pthread_attr_t *, int *);
        extern int pthread_attr_getscope(const typedef struct {
                                      int __detachstate;
                                      int __schedpolicy;
                                      struct sched_param __schedparam;
                                      int __inheritsched;
                                      int __scope;
                                      size_t __guardsize;
                                      int __stackaddr_set;
                                      void *__stackaddr;
                                      unsigned long int __stacksize;}
                                      pthread_attr_t *, int *);
        extern int pthread_attr_init(pthread_attr_t *);
        extern int pthread_attr_setdetachstate(pthread_attr_t *, int);
        extern int pthread_attr_setinheritsched(pthread_attr_t *, int);
        extern int pthread_attr_setschedparam(pthread_attr_t *, const struct
        sched_param {
                                          int sched_priority;}

                                          *);
        extern int pthread_attr_setschedpolicy(pthread_attr_t *, int);
        extern int pthread_attr_setscope(pthread_attr_t *, int);
        extern int pthread_cancel(typedef unsigned long int pthread_t);
        extern int pthread_cond_broadcast(pthread_cond_t *);
        extern int pthread_cond_destroy(pthread_cond_t *);
        extern int pthread_cond_init(pthread_cond_t *, const typedef struct {
                                    int __dummy;}

                                    pthread_condattr_t *);
        extern int pthread_cond_signal(pthread_cond_t *);
        extern int pthread_cond_timedwait(pthread_cond_t *, pthread_mutex_t *,
        const struct timespec {
                                       time_t tv_sec; long int tv_nsec;}

                                       *);
        extern int pthread_cond_wait(pthread_cond_t *, pthread_mutex_t *);
        extern int pthread_condattr_destroy(pthread_condattr_t *);
        extern int pthread_condattr_init(pthread_condattr_t *);
        extern int pthread_create(pthread_t *, const typedef struct {
                                int __detachstate;
                                int __schedpolicy;
                                struct sched_param __schedparam;
                                int __inheritsched;
                                int __scope;
                                size_t __guardsize;
                                int __stackaddr_set;
                                void *__stackaddr;
                                unsigned long int __stacksize;}
                                pthread_attr_t *,
                                void *(*__start_routine) (void *p1)
```

```
                              , void *);
        extern int pthread_detach(typedef unsigned long int pthread_t);
        extern int pthread_equal(typedef unsigned long int pthread_t,
                                 typedef unsigned long int pthread_t);
        extern void pthread_exit(void *);
        extern int pthread_getschedparam(typedef unsigned long int pthread_t,
                                         int *, struct sched_param {
                                         int sched_priority;}

                                         *);
        extern void *pthread_getspecific(typedef unsigned int pthread_key_t);
        extern int pthread_join(typedef unsigned long int pthread_t, void **);
        extern int pthread_key_create(pthread_key_t *, void (*destr_func) (void
        *)
            );
        extern int pthread_key_delete(typedef unsigned int pthread_key_t);
        extern int pthread_mutex_destroy(pthread_mutex_t *);
        extern int pthread_mutex_init(pthread_mutex_t *, const typedef struct
        {
                                       int __mutexkind;}

                                       pthread_mutexattr_t *);
        extern int pthread_mutex_lock(pthread_mutex_t *);
        extern int pthread_mutex_trylock(pthread_mutex_t *);
        extern int pthread_mutex_unlock(pthread_mutex_t *);
        extern int pthread_mutexattr_destroy(pthread_mutexattr_t *);
        extern int pthread_mutexattr_init(pthread_mutexattr_t *);
        extern int pthread_once(pthread_once_t *, void (*init_routine) (void)
            );
        extern int pthread_rwlock_destroy(pthread_rwlock_t *);
        extern int pthread_rwlock_init(pthread_rwlock_t *,
        pthread_rwlockattr_t *);
        extern int pthread_rwlock_rdlock(pthread_rwlock_t *);
        extern int pthread_rwlock_tryrdlock(pthread_rwlock_t *);
        extern int pthread_rwlock_trywrlock(pthread_rwlock_t *);
        extern int pthread_rwlock_unlock(pthread_rwlock_t *);
        extern int pthread_rwlock_wrlock(pthread_rwlock_t *);
        extern int pthread_rwlockattr_destroy(pthread_rwlockattr_t *);
        extern int pthread_rwlockattr_getpshared(const typedef struct {
                                                 int __lockkind; int
        __pshared;}
                                                 pthread_rwlockattr_t *, int
        *);
        extern int pthread_rwlockattr_init(pthread_rwlockattr_t *);
        extern int pthread_rwlockattr_setpshared(pthread_rwlockattr_t *, int);
        extern typedef unsigned long int pthread_t pthread_self(void);
        extern int pthread_setcancelstate(int, int *);
        extern int pthread_setcanceltype(int, int *);
        extern int pthread_setschedparam(typedef unsigned long int pthread_t,
        int, const struct sched_param {
                                         int sched_priority;}

                                         *);
        extern int pthread_setspecific(typedef unsigned int pthread_key_t,
                                       const void *);
        extern void pthread_testcancel(void);
        extern int pthread_attr_getguardsize(const typedef struct {
                                             int __detachstate;
                                             int __schedpolicy;
                                             struct sched_param __schedparam;
                                             int __inheritsched;
                                             int __scope;
                                             size_t __guardsize;
                                             int __stackaddr_set;
```

```
                                          void *__stackaddr;
                                          unsigned long int __stacksize;}
                                          pthread_attr_t *, size_t *);
        extern int pthread_attr_setguardsize(pthread_attr_t *,
                                          typedef unsigned long int
        size_t);
        extern int pthread_attr_setstackaddr(pthread_attr_t *, void *);
        extern int pthread_attr_getstackaddr(const typedef struct {
                                          int __detachstate;
                                          int __schedpolicy;
                                          struct sched_param __schedparam;
                                          int __inheritsched;
                                          int __scope;
                                          size_t __guardsize;
                                          int __stackaddr_set;
                                          void *__stackaddr;
                                          unsigned long int __stacksize;}
                                          pthread_attr_t *, void **);
        extern int pthread_attr_setstacksize(pthread_attr_t *,
                                          typedef unsigned long int
        size_t);
        extern int pthread_attr_getstacksize(const typedef struct {
                                          int __detachstate;
                                          int __schedpolicy;
                                          struct sched_param __schedparam;
                                          int __inheritsched;
                                          int __scope;
                                          size_t __guardsize;
                                          int __stackaddr_set;
                                          void *__stackaddr;
                                          unsigned long int __stacksize;}
                                          pthread_attr_t *, size_t *);
        extern int pthread_mutexattr_gettype(const typedef struct {
                                          int __mutexkind;}
                                          pthread_mutexattr_t *, int *);
        extern int pthread_mutexattr_settype(pthread_mutexattr_t *, int);
        extern int pthread_getconcurrency(void);
        extern int pthread_setconcurrency(int);
        extern int pthread_attr_getstack(const typedef struct {
                                       int __detachstate;
                                       int __schedpolicy;
                                       struct sched_param __schedparam;
                                       int __inheritsched;
                                       int __scope;
                                       size_t __guardsize;
                                       int __stackaddr_set;
                                       void *__stackaddr;
                                       unsigned long int __stacksize;}
                                       pthread_attr_t *, void **, size_t *);
        extern int pthread_attr_setstack(pthread_attr_t *, void *,
                                       typedef unsigned long int size_t);
        extern int pthread_condattr_getpshared(const typedef struct {
                                         int __dummy;}
                                         pthread_condattr_t *, int *);
        extern int pthread_condattr_setpshared(pthread_condattr_t *, int);
        extern int pthread_mutexattr_getpshared(const typedef struct {
                                          int __mutexkind;}
                                          pthread_mutexattr_t *, int *);
        extern int pthread_mutexattr_setpshared(pthread_mutexattr_t *, int);
        extern int pthread_rwlock_timedrdlock(pthread_rwlock_t *, const struct
        timespec {
                                        time_t tv_sec; long int
        tv_nsec;}
```

```
                                        *);
extern int pthread_rwlock_timedwrlock(pthread_rwlock_t *, const struct
timespec {
                                        time_t tv_sec; long int
tv_nsec;}

                                        *);
extern int __register_atfork(void (*prepare) (void)
                             , void (*parent) (void)
                             , void (*child) (void)
                             , void *);
extern int pthread_setschedprio(typedef unsigned long int pthread_t,
int);
```

11.7.2 semaphore.h

```
extern int sem_close(sem_t *);
extern int sem_destroy(sem_t *);
extern int sem_getvalue(sem_t *, int *);
extern int sem_init(sem_t *, int, unsigned int);
extern sem_t *sem_open(const char *, int, ...);
extern int sem_post(sem_t *);
extern int sem_trywait(sem_t *);
extern int sem_unlink(const char *);
extern int sem_wait(sem_t *);
extern int sem_timedwait(sem_t *, const struct timespec *);
```

11.8 Interfaces for libgcc_s

Table 11-31 defines the library name and shared object name for the libgcc_s library

Table 11-31 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] This Specification

11.8.1 Unwind Library

11.8.1.1 Interfaces for Unwind Library

An LSB conforming implementation shall provide the architecture specific functions for Unwind Library specified in Table 11-32, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-32 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_Find_FDE(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]			

11.9 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.

11.9.1 unwind.h

```
extern void _Unwind_DeleteException(struct _Unwind_Exception *);
extern fde *_Unwind_Find_FDE(void *, struct dwarf_eh_base *);
extern void _Unwind_DeleteException(struct _Unwind_Exception *);
extern _Unwind_Ptr _Unwind_ForcedUnwind(struct _Unwind_Exception *,
                                        _Unwind_Stop_Fn, void *);
extern _Unwind_Word _Unwind_GetGR(struct _Unwind_Context *, int);
extern _Unwind_Ptr _Unwind_GetIP(struct _Unwind_Context *);
extern _Unwind_Ptr _Unwind_GetLanguageSpecificData(struct
_Unwind_Context
                                                   *);
extern _Unwind_Ptr _Unwind_GetRegionStart(struct _Unwind_Context *);
extern _Unwind_Reason_Code _Unwind_RaiseException(struct
_Unwind_Exception
                                                  *);
extern void _Unwind_Resume(struct _Unwind_Exception *);
extern void _Unwind_SetGR(struct _Unwind_Context *, int, u_int64_t);
extern void _Unwind_SetIP(struct _Unwind_Context *, _Unwind_Ptr);
extern void _Unwind_DeleteException(struct _Unwind_Exception *);
extern fde *_Unwind_Find_FDE(void *, struct dwarf_eh_base *);
extern _Unwind_Ptr _Unwind_ForcedUnwind(struct _Unwind_Exception *,
                                        _Unwind_Stop_Fn, void *);
extern _Unwind_Ptr _Unwind_GetDataRelBase(struct _Unwind_Context *);
extern _Unwind_Word _Unwind_GetGR(struct _Unwind_Context *, int);
extern _Unwind_Ptr _Unwind_GetIP(struct _Unwind_Context *);
extern _Unwind_Ptr _Unwind_GetLanguageSpecificData(struct
_Unwind_Context
                                                   *);
```

```
2927            extern _Unwind_Ptr _Unwind_GetRegionStart(struct _Unwind_Context *);
2928            extern _Unwind_Ptr _Unwind_GetTextRelBase(struct _Unwind_Context *);
2929            extern _Unwind_Reason_Code _Unwind_RaiseException(struct
2930            _Unwind_Exception
2931                                                              *);
2932            extern void _Unwind_Resume(struct _Unwind_Exception *);
2933            extern void _Unwind_SetGR(struct _Unwind_Context *, int, u_int64_t);
2934            extern void _Unwind_SetIP(struct _Unwind_Context *, _Unwind_Ptr);
2935            extern _Unwind_Ptr _Unwind_ForcedUnwind(struct _Unwind_Exception *,
2936                                                    _Unwind_Stop_Fn, void *);
2937            extern _Unwind_Ptr _Unwind_GetDataRelBase(struct _Unwind_Context *);
2938            extern _Unwind_Word _Unwind_GetGR(struct _Unwind_Context *, int);
2939            extern _Unwind_Ptr _Unwind_GetIP(struct _Unwind_Context *);
2940            extern _Unwind_Ptr _Unwind_GetLanguageSpecificData(struct
2941            _Unwind_Context
2942                                                               *);
2943            extern _Unwind_Ptr _Unwind_GetRegionStart(struct _Unwind_Context *);
2944            extern _Unwind_Ptr _Unwind_GetTextRelBase(struct _Unwind_Context *);
2945            extern _Unwind_Reason_Code _Unwind_RaiseException(struct
2946            _Unwind_Exception
2947                                                              *);
2948            extern void _Unwind_Resume(struct _Unwind_Exception *);
2949            extern void _Unwind_SetGR(struct _Unwind_Context *, int, u_int64_t);
2950            extern void _Unwind_SetIP(struct _Unwind_Context *, _Unwind_Ptr);
2951            extern void _Unwind_DeleteException(struct _Unwind_Exception *);
2952            extern fde *_Unwind_Find_FDE(void *, struct dwarf_eh_base *);
2953            extern _Unwind_Ptr _Unwind_ForcedUnwind(struct _Unwind_Exception *,
2954                                                    _Unwind_Stop_Fn, void *);
2955            extern _Unwind_Ptr _Unwind_GetDataRelBase(struct _Unwind_Context *);
2956            extern _Unwind_Word _Unwind_GetGR(struct _Unwind_Context *, int);
2957            extern _Unwind_Ptr _Unwind_GetIP(struct _Unwind_Context *);
2958            extern _Unwind_Ptr _Unwind_GetLanguageSpecificData(struct
2959            _Unwind_Context
2960                                                               *);
2961            extern _Unwind_Ptr _Unwind_GetRegionStart(struct _Unwind_Context *);
2962            extern _Unwind_Ptr _Unwind_GetTextRelBase(struct _Unwind_Context *);
2963            extern _Unwind_Reason_Code _Unwind_RaiseException(struct
2964            _Unwind_Exception
2965                                                              *);
2966            extern void _Unwind_Resume(struct _Unwind_Exception *);
2967            extern void _Unwind_SetGR(struct _Unwind_Context *, int, u_int64_t);
2968            extern void _Unwind_SetIP(struct _Unwind_Context *, _Unwind_Ptr);
2969            extern void _Unwind_DeleteException(struct _Unwind_Exception *);
2970            extern fde *_Unwind_Find_FDE(void *, struct dwarf_eh_base *);
2971            extern _Unwind_Ptr _Unwind_ForcedUnwind(struct _Unwind_Exception *,
2972                                                    _Unwind_Stop_Fn, void *);
2973            extern _Unwind_Ptr _Unwind_GetDataRelBase(struct _Unwind_Context *);
2974            extern _Unwind_Word _Unwind_GetGR(struct _Unwind_Context *, int);
2975            extern _Unwind_Ptr _Unwind_GetIP(struct _Unwind_Context *);
2976            extern _Unwind_Ptr _Unwind_GetLanguageSpecificData(struct
2977            _Unwind_Context
2978                                                               *);
2979            extern _Unwind_Ptr _Unwind_GetRegionStart(struct _Unwind_Context *);
2980            extern _Unwind_Ptr _Unwind_GetTextRelBase(struct _Unwind_Context *);
2981            extern _Unwind_Reason_Code _Unwind_RaiseException(struct
2982            _Unwind_Exception
2983                                                              *);
2984            extern void _Unwind_Resume(struct _Unwind_Exception *);
2985            extern void _Unwind_SetGR(struct _Unwind_Context *, int, u_int64_t);
2986            extern void _Unwind_SetIP(struct _Unwind_Context *, _Unwind_Ptr);
2987            extern void _Unwind_DeleteException(struct _Unwind_Exception *);
2988            extern fde *_Unwind_Find_FDE(void *, struct dwarf_eh_base *);
2989            extern _Unwind_Ptr _Unwind_ForcedUnwind(struct _Unwind_Exception *,
2990                                                    _Unwind_Stop_Fn, void *);
```

```
2991            extern _Unwind_Ptr _Unwind_GetDataRelBase(struct _Unwind_Context *);
2992            extern _Unwind_Word _Unwind_GetGR(struct _Unwind_Context *, int);
2993            extern _Unwind_Ptr _Unwind_GetIP(struct _Unwind_Context *);
2994            extern _Unwind_Ptr _Unwind_GetLanguageSpecificData(void);
2995            extern _Unwind_Ptr _Unwind_GetRegionStart(struct _Unwind_Context *);
2996            extern _Unwind_Ptr _Unwind_GetTextRelBase(struct _Unwind_Context *);
2997            extern _Unwind_Reason_Code _Unwind_RaiseException(struct
2998            _Unwind_Exception
2999                                                              *);
3000            extern void _Unwind_Resume(struct _Unwind_Exception *);
3001            extern void _Unwind_SetGR(struct _Unwind_Context *, int, u_int64_t);
3002            extern void _Unwind_SetIP(struct _Unwind_Context *, _Unwind_Ptr);
3003            extern void _Unwind_DeleteException(struct _Unwind_Exception *);
3004            extern fde *_Unwind_Find_FDE(void *, struct dwarf_eh_base *);
3005            extern _Unwind_Ptr _Unwind_ForcedUnwind(struct _Unwind_Exception *,
3006                                                    _Unwind_Stop_Fn, void *);
3007            extern _Unwind_Ptr _Unwind_GetDataRelBase(struct _Unwind_Context *);
3008            extern _Unwind_Word _Unwind_GetGR(struct _Unwind_Context *, int);
3009            extern _Unwind_Ptr _Unwind_GetIP(struct _Unwind_Context *);
3010            extern _Unwind_Ptr _Unwind_GetLanguageSpecificData(void);
3011            extern _Unwind_Ptr _Unwind_GetRegionStart(struct _Unwind_Context *);
3012            extern _Unwind_Ptr _Unwind_GetTextRelBase(struct _Unwind_Context *);
3013            extern _Unwind_Reason_Code _Unwind_RaiseException(struct
3014            _Unwind_Exception
3015                                                              *);
3016            extern void _Unwind_Resume(struct _Unwind_Exception *);
3017            extern void _Unwind_SetGR(struct _Unwind_Context *, int, u_int64_t);
3018            extern void _Unwind_SetIP(struct _Unwind_Context *, _Unwind_Ptr);
3019            extern _Unwind_Reason_Code _Unwind_Backtrace(_Unwind_Trace_Fn, void
3020            *);
3021            extern _Unwind_Reason_Code _Unwind_Backtrace(_Unwind_Trace_Fn, void
3022            *);
3023            extern _Unwind_Reason_Code _Unwind_Backtrace(_Unwind_Trace_Fn, void
3024            *);
3025            extern _Unwind_Reason_Code _Unwind_Backtrace(_Unwind_Trace_Fn, void
3026            *);
3027            extern _Unwind_Reason_Code _Unwind_Backtrace(_Unwind_Trace_Fn, void
3028            *);
3029            extern _Unwind_Reason_Code _Unwind_Backtrace(_Unwind_Trace_Fn, void
3030            *);
3031            extern _Unwind_Reason_Code _Unwind_Backtrace(_Unwind_Trace_Fn, void
3032            *);
3033            extern _Unwind_Reason_Code _Unwind_GetCFA(struct _Unwind_Context *);
3034            extern _Unwind_Reason_Code _Unwind_GetCFA(struct _Unwind_Context *);
3035            extern _Unwind_Reason_Code _Unwind_GetCFA(struct _Unwind_Context *);
3036            extern _Unwind_Reason_Code _Unwind_GetCFA(struct _Unwind_Context *);
3037            extern _Unwind_Reason_Code _Unwind_GetCFA(struct _Unwind_Context *);
3038            extern _Unwind_Reason_Code _Unwind_GetCFA(struct _Unwind_Context *);
3039            extern _Unwind_Reason_Code _Unwind_GetCFA(struct _Unwind_Context *);
3040            extern _Unwind_Reason_Code _Unwind_Resume_or_Rethrow(struct
3041
3042            _Unwind_Exception *);
3043            extern _Unwind_Reason_Code _Unwind_Resume_or_Rethrow(struct
3044
3045            _Unwind_Exception *);
3046            extern _Unwind_Reason_Code _Unwind_Resume_or_Rethrow(struct
3047
3048            _Unwind_Exception *);
3049            extern _Unwind_Reason_Code _Unwind_Resume_or_Rethrow(struct
3050
3051            _Unwind_Exception *);
3052            extern _Unwind_Reason_Code _Unwind_Resume_or_Rethrow(struct
3053
3054            _Unwind_Exception *);
```

```
extern _Unwind_Reason_Code _Unwind_Resume_or_Rethrow(struct

_Unwind_Exception *);
extern _Unwind_Reason_Code _Unwind_Resume_or_Rethrow(struct

_Unwind_Exception *);
extern void *_Unwind_FindEnclosingFunction(void *);
extern void *_Unwind_FindEnclosingFunction(void *);
extern void *_Unwind_FindEnclosingFunction(void *);
extern void *_Unwind_FindEnclosingFunction(void *);
extern void *_Unwind_FindEnclosingFunction(void *);
extern void *_Unwind_FindEnclosingFunction(void *);
extern void *_Unwind_FindEnclosingFunction(void *);
extern _Unwind_Word _Unwind_GetBSP(struct _Unwind_Context *);
```

11.10 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 11.8 shall behave as described in the referenced base document.

_Unwind_DeleteException

Name

`_Unwind_DeleteException` — private C++ error handling method

Synopsis

```
void _Unwind_DeleteException(struct _Unwind_Exception * object);
```

Description

`_Unwind_DeleteException()` deletes the given exception *`object`*. If a given runtime resumes normal execution after catching a foreign exception, it will not know how to delete that exception. Such an exception shall be deleted by calling `_Unwind_DeleteException()`. This is a convenience function that calls the function pointed to by the *exception_cleanup* field of the exception header.

_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_ForcedUnwind

Name

_Unwind_ForcedUnwind — private C++ error handling method

Synopsis

```
_Unwind_Reason_Code _Unwind_ForcedUnwind(struct _Unwind_Exception *
object, _Unwind_Stop_Fn stop, void * stop_parameter);
```

Description

`_Unwind_ForcedUnwind()` raises an exception for forced unwinding, passing along the given exception *`object`*, which should have its *exception_class* and *exception_cleanup* fields set. The exception *`object`* has been allocated by the language-specific runtime, and has a language-specific format, except that it shall contain an `_Unwind_Exception` struct.

Forced unwinding is a single-phase process. *`stop`* and *`stop_parameter`* control the termination of the unwind process instead of the usual personality routine query. *`stop`* is called for each unwind frame, with the parameteres described for the usual personality routine below, plus an additional *`stop_parameter`*.

Return Value

When *`stop`* identifies the destination frame, it transfers control to the user code as appropriate without returning, normally after calling `_Unwind_DeleteException()`. If not, then it should return an `_Unwind_Reason_Code` value.

If *`stop`* returns any reason code other than `_URC_NO_REASON`, then the stack state is indeterminate from the point of view of the caller of `_Unwind_ForcedUnwind()`. Rather than attempt to return, therefore, the unwind library should use the *`exception_cleanup`* entry in the exception, and then call `abort()`.

_URC_NO_REASON

: This is not the destination from. The unwind runtime will call frame's personality routine with the `_UA_FORCE_UNWIND` and `_UA_CLEANUP_PHASE` flag set in *actions*, and then unwind to the next frame and call the `stop()` function again.

_URC_END_OF_STACK

: In order to allow `_Unwind_ForcedUnwind()` to perform special processing when it reaches the end of the stack, the unwind runtime will call it after the last frame is rejected, with a `NULL` stack pointer in the context, and the `stop()` function shall catch this condition. It may return this code if it cannot handle end-of-stack.

_URC_FATAL_PHASE2_ERROR

: The `stop()` function may return this code for other fatal conditions like stack corruption.

_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_GetGR

Name

_Unwind_GetGR — private C++ error handling method

Synopsis

```
_Unwind_Word _Unwind_GetGR(struct _Unwind_Context * context, int index);
```

Description

_Unwind_GetGR() returns data at *index* found in *context*. The register is identified by its index: 0 to 31 are for the fixed registers, and 32 to 127 are for the stacked registers.

During the two phases of unwinding, only GR1 has a guaranteed value, which is the global pointer of the frame referenced by the unwind *context*. If the register has its NAT bit set, the behavior is unspecified.

_Unwind_GetIP

Name

_Unwind_GetIP — private C++ error handling method

Synopsis

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

Description

_Unwind_GetIP() returns the instruction pointer value for the routine identified by the unwind *context*.

_Unwind_GetLanguageSpecificData

Name

_Unwind_GetLanguageSpecificData — private C++ error handling method

Synopsis

```
_Unwind_Ptr _Unwind_GetLanguageSpecificData(struct _Unwind_Context *
context, uint value);
```

Description

_Unwind_GetLanguageSpecificData() returns the address of the language specific data area for the current stack frame.

_Unwind_GetRegionStart

Name

_Unwind_GetRegionStart — private C++ error handling method

Synopsis

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

Description

_Unwind_GetRegionStart() routine returns the address (i.e., 0) of the beginning of the procedure or code fragment described by the current unwind descriptor block.

_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.

_Unwind_RaiseException

Name

_Unwind_RaiseException — private C++ error handling method

Synopsis

```
_Unwind_Reason_Code _Unwind_RaiseException(struct _Unwind_Exception *
object);
```

Description

_Unwind_RaiseException() raises an exception, passing along the given exception *object*, which should have its *exception_class* and *exception_cleanup* fields set. The exception object has been allocated by the language-specific runtime, and has a language-specific format, exception that it shall contain an _Unwind_Exception.

Return Value

_Unwind_RaiseException() does not return unless an error condition is found. If an error condition occurs, an _Unwind_Reason_Code is returnd:

_URC_END_OF_STACK

The unwinder encountered the end of the stack during phase one without finding a handler. The unwind runtime will not have modified the stack. The C++ runtime will normally call uncaught_exception() in this case.

_URC_FATAL_PHASE1_ERROR

The unwinder encountered an unexpected error during phase one, because of something like stack corruption. The unwind runtime will not have modified the stack. The C++ runtime will normally call terminate() in this case.

_URC_FATAL_PHASE2_ERROR

The unwinder encountered an unexpected error during phase two. This is usually a *throw*, which will call terminate().

_Unwind_Resume

Name

_Unwind_Resume — private C++ error handling method

Synopsis

```
void _Unwind_Resume(struct _Unwind_Exception * object);
```

Description

_Unwind_Resume() resumes propagation of an existing exception *object*. A call to this routine is inserted as the end of a landing pad that performs cleanup, but does not resume normal execution. It causes unwinding to proceed further.

_Unwind_SetGR

Name

_Unwind_SetGR — private C++ error handling method

Synopsis

```
void _Unwind_SetGR(struct _Unwind_Context * context, int index, uint value);
```

Description

_Unwind_SetGR() sets the *value* of the register *index*ed for the routine identified by the unwind *context*.

_Unwind_SetIP

Name

_Unwind_SetIP — private C++ error handling method

Synopsis

```
void _Unwind_SetIP(struct _Unwind_Context * context, uint value);
```

Description

_Unwind_SetIP() sets the *value* of the instruction pointer for the routine identified by the unwind *context*

11.11 Interfaces for libdl

Table 11-33 defines the library name and shared object name for the libdl library

Table 11-33 libdl Definition

Library:	libdl
SONAME:	libdl.so.2

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

[LSB] This Specification
[SUSv3] ISO POSIX (2003)

11.11.1 Dynamic Loader

11.11.1.1 Interfaces for Dynamic Loader

An LSB conforming implementation shall provide the architecture specific functions for Dynamic Loader specified in Table 11-34, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-34 libdl - Dynamic Loader Function Interfaces

dladdr(GLIBC_2.2.5) [LSB]	dlclose(GLIBC_2.2.5) [SUSv3]	dlerror(GLIBC_2.2.5) [SUSv3]	dlopen(GLIBC_2.2.5) [LSB]

dlsym(GLIBC_2.2.5) [LSB]			

11.12 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.

11.12.1 dlfcn.h

```
extern int dladdr(const void *, Dl_info *);
extern int dlclose(void *);
extern char *dlerror(void);
extern void *dlopen(char *, int);
extern void *dlsym(void *, char *);
```

11.13 Interfaces for libcrypt

Table 11-35 defines the library name and shared object name for the libcrypt library

Table 11-35 libcrypt Definition

Library:	libcrypt
SONAME:	libcrypt.so.1

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

[SUSv3] ISO POSIX (2003)

11.13.1 Encryption

11.13.1.1 Interfaces for Encryption

An LSB conforming implementation shall provide the architecture specific functions for Encryption specified in Table 11-36, with the full mandatory functionality as described in the referenced underlying specification.

Table 11-36 libcrypt - Encryption Function Interfaces

crypt(GLIBC_2.2.5) [SUSv3]	encrypt(GLIBC_2.2.5) [SUSv3]	setkey(GLIBC_2.2.5) [SUSv3]	

IV Utility Libraries

12 Libraries

An LSB-conforming implementation shall also support some 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.

12.1 Interfaces for libz

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

Table 12-1 libz Definition

Library:	libz
SONAME:	libz.so.1

12.1.1 Compression Library

12.1.1.1 Interfaces for Compression Library

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

12.2 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 . 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.

12.2.1 zlib.h

```
extern int gzread(gzFile, voidp, unsigned int);
extern int gzclose(gzFile);
extern gzFile gzopen(const char *, const char *);
extern gzFile gzdopen(int, const char *);
extern int gzwrite(gzFile, voidpc, unsigned int);
extern int gzflush(gzFile, int);
extern const char *gzerror(gzFile, int *);
extern uLong adler32(uLong, const Bytef *, uInt);
extern int compress(Bytef *, uLongf *, const Bytef *, uLong);
extern int compress2(Bytef *, uLongf *, const Bytef *, uLong, int);
extern uLong crc32(uLong, const Bytef *, uInt);
extern int deflate(z_streamp, int);
```

```
extern int deflateCopy(z_streamp, z_streamp);
extern int deflateEnd(z_streamp);
extern int deflateInit2_(z_streamp, int, int, int, int, int, const char
*,
                         int);
extern int deflateInit_(z_streamp, int, const char *, int);
extern int deflateParams(z_streamp, int, int);
extern int deflateReset(z_streamp);
extern int deflateSetDictionary(z_streamp, const Bytef *, uInt);
extern const uLongf *get_crc_table(void);
extern int gzeof(gzFile);
extern int gzgetc(gzFile);
extern char *gzgets(gzFile, char *, int);
extern int gzprintf(gzFile, const char *, ...);
extern int gzputc(gzFile, int);
extern int gzputs(gzFile, const char *);
extern int gzrewind(gzFile);
extern z_off_t gzseek(gzFile, z_off_t, int);
extern int gzsetparams(gzFile, int, int);
extern z_off_t gztell(gzFile);
extern int inflate(z_streamp, int);
extern int inflateEnd(z_streamp);
extern int inflateInit2_(z_streamp, int, const char *, int);
extern int inflateInit_(z_streamp, const char *, int);
extern int inflateReset(z_streamp);
extern int inflateSetDictionary(z_streamp, const Bytef *, uInt);
extern int inflateSync(z_streamp);
extern int inflateSyncPoint(z_streamp);
extern int uncompress(Bytef *, uLongf *, const Bytef *, uLong);
extern const char *zError(int);
extern const char *zlibVersion(void);
extern uLong deflateBound(z_streamp, uLong);
extern uLong compressBound(uLong);
```

12.3 Interfaces for libncurses

Table 12-2 defines the library name and shared object name for the libncurses library

Table 12-2 libncurses Definition

Library:	libncurses
SONAME:	libncurses.so.5

12.~~2~~3.1 Curses

12.~~2~~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.

12.~~3~~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 . 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.

12.4.1 curses.h

```
extern int addch(const chtype);
extern int addchnstr(const chtype *, int);
extern int addchstr(const chtype *);
extern int addnstr(const char *, int);
extern int addstr(const char *);
extern int attroff(int);
extern int attron(int);
extern int attrset(int);
extern int attr_get(attr_t *, short *, void *);
extern int attr_off(attr_t, void *);
extern int attr_on(attr_t, void *);
extern int attr_set(attr_t, short, void *);
extern int baudrate(void);
extern int beep(void);
extern int bkgd(chtype);
extern void bkgdset(chtype);
extern int border(chtype, chtype, chtype, chtype, chtype, chtype,
chtype,
                  chtype);
extern int box(WINDOW *, chtype, chtype);
extern bool can_change_color(void);
extern int cbreak(void);
extern int chgat(int, attr_t, short, const void *);
extern int clear(void);
extern int clearok(WINDOW *, bool);
extern int clrtobot(void);
extern int clrtoeol(void);
extern int color_content(short, short *, short *, short *);
extern int color_set(short, void *);
extern int copywin(const WINDOW *, WINDOW *, int, int, int, int, int,
int,
                   int);
extern int curs_set(int);
extern int def_prog_mode(void);
extern int def_shell_mode(void);
extern int delay_output(int);
extern int delch(void);
extern void delscreen(SCREEN *);
extern int delwin(WINDOW *);
extern int deleteln(void);
extern WINDOW *derwin(WINDOW *, int, int, int, int);
extern int doupdate(void);
extern WINDOW *dupwin(WINDOW *);
extern int echo(void);
extern int echochar(const chtype);
extern int erase(void);
extern int endwin(void);
extern char erasechar(void);
extern void filter(void);
extern int flash(void);
```

```
142         extern int flushinp(void);
143         extern chtype getbkgd(WINDOW *);
144         extern int getch(void);
145         extern int getnstr(char *, int);
146         extern int getstr(char *);
147         extern WINDOW *getwin(FILE *);
148         extern int halfdelay(int);
149         extern bool has_colors(void);
150         extern bool has_ic(void);
151         extern bool has_il(void);
152         extern int hline(chtype, int);
153         extern void idcok(WINDOW *, bool);
154         extern int idlok(WINDOW *, bool);
155         extern void immedok(WINDOW *, bool);
156         extern chtype inch(void);
157         extern int inchnstr(chtype *, int);
158         extern int inchstr(chtype *);
159         extern WINDOW *initscr(void);
160         extern int init_color(short, short, short, short);
161         extern int init_pair(short, short, short);
162         extern int innstr(char *, int);
163         extern int insch(chtype);
164         extern int insdelln(int);
165         extern int insertln(void);
166         extern int insnstr(const char *, int);
167         extern int insstr(const char *);
168         extern int instr(char *);
169         extern int intrflush(WINDOW *, bool);
170         extern bool isendwin(void);
171         extern bool is_linetouched(WINDOW *, int);
172         extern bool is_wintouched(WINDOW *);
173         extern const char *keyname(int);
174         extern int keypad(WINDOW *, bool);
175         extern char killchar(void);
176         extern int leaveok(WINDOW *, bool);
177         extern char *longname(void);
178         extern int meta(WINDOW *, bool);
179         extern int move(int, int);
180         extern int mvaddch(int, int, const chtype);
181         extern int mvaddchnstr(int, int, const chtype *, int);
182         extern int mvaddchstr(int, int, const chtype *);
183         extern int mvaddnstr(int, int, const char *, int);
184         extern int mvaddstr(int, int, const char *);
185         extern int mvchgat(int, int, int, attr_t, short, const void *);
186         extern int mvcur(int, int, int, int);
187         extern int mvdelch(int, int);
188         extern int mvderwin(WINDOW *, int, int);
189         extern int mvgetch(int, int);
190         extern int mvgetnstr(int, int, char *, int);
191         extern int mvgetstr(int, int, char *);
192         extern int mvhline(int, int, chtype, int);
193         extern chtype mvinch(int, int);
194         extern int mvinchnstr(int, int, chtype *, int);
195         extern int mvinchstr(int, int, chtype *);
196         extern int mvinnstr(int, int, char *, int);
197         extern int mvinsch(int, int, chtype);
198         extern int mvinsnstr(int, int, const char *, int);
199         extern int mvinsstr(int, int, const char *);
200         extern int mvinstr(int, int, char *);
201         extern int mvprintw(int, int, char *, ...);
202         extern int mvscanw(int, int, const char *, ...);
203         extern int mvvline(int, int, chtype, int);
204         extern int mvwaddch(WINDOW *, int, int, const chtype);
205         extern int mvwaddchnstr(WINDOW *, int, int, const chtype *, int);
```

```
206         extern int mvwaddchstr(WINDOW *, int, int, const chtype *);
207         extern int mvwaddnstr(WINDOW *, int, int, const char *, int);
208         extern int mvwaddstr(WINDOW *, int, int, const char *);
209         extern int mvwchgat(WINDOW *, int, int, int, attr_t, short, const void
210         *);
211         extern int mvwdelch(WINDOW *, int, int);
212         extern int mvwgetch(WINDOW *, int, int);
213         extern int mvwgetnstr(WINDOW *, int, int, char *, int);
214         extern int mvwgetstr(WINDOW *, int, int, char *);
215         extern int mvwhline(WINDOW *, int, int, chtype, int);
216         extern int mvwin(WINDOW *, int, int);
217         extern chtype mvwinch(WINDOW *, int, int);
218         extern int mvwinchnstr(WINDOW *, int, int, chtype *, int);
219         extern int mvwinchstr(WINDOW *, int, int, chtype *);
220         extern int mvwinnstr(WINDOW *, int, int, char *, int);
221         extern int mvwinsch(WINDOW *, int, int, chtype);
222         extern int mvwinsnstr(WINDOW *, int, int, const char *, int);
223         extern int mvwinsstr(WINDOW *, int, int, const char *);
224         extern int mvwinstr(WINDOW *, int, int, char *);
225         extern int mvwprintw(WINDOW *, int, int, char *, ...);
226         extern int mvwscanw(WINDOW *, int, int, const char *, ...);
227         extern int mvwvline(WINDOW *, int, int, chtype, int);
228         extern int napms(int);
229         extern WINDOW *newpad(int, int);
230         extern SCREEN *newterm(const char *, FILE *, FILE *);
231         extern WINDOW *newwin(int, int, int, int);
232         extern int nl(void);
233         extern int nocbreak(void);
234         extern int nodelay(WINDOW *, bool);
235         extern int noecho(void);
236         extern int nonl(void);
237         extern void noqiflush(void);
238         extern int noraw(void);
239         extern int notimeout(WINDOW *, bool);
240         extern int overlay(const WINDOW *, WINDOW *);
241         extern int overwrite(const WINDOW *, WINDOW *);
242         extern int pair_content(short, short *, short *);
243         extern int pechochar(WINDOW *, chtype);
244         extern int pnoutrefresh(WINDOW *, int, int, int, int, int, int);
245         extern int prefresh(WINDOW *, int, int, int, int, int, int);
246         extern int printw(char *, ...);
247         extern int putwin(WINDOW *, FILE *);
248         extern void qiflush(void);
249         extern int raw(void);
250         extern int redrawwin(WINDOW *);
251         extern int refresh(void);
252         extern int resetty(void);
253         extern int reset_prog_mode(void);
254         extern int reset_shell_mode(void);
255         extern int ripoffline(int, int (*init) (WINDOW *, int)
256             );
257         extern int savetty(void);
258         extern int scanw(const char *, ...);
259         extern int scr_dump(const char *);
260         extern int scr_init(const char *);
261         extern int scrl(int);
262         extern int scroll(WINDOW *);
263         extern int scrollok(WINDOW *, typedef unsigned char bool);
264         extern int scr_restore(const char *);
265         extern int scr_set(const char *);
266         extern int setscrreg(int, int);
267         extern SCREEN *set_term(SCREEN *);
268         extern int slk_attroff(const typedef unsigned long int chtype);
269         extern int slk_attron(const typedef unsigned long int chtype);
```

```
        extern int slk_attrset(const typedef unsigned long int chtype);
        extern int slk_attr_set(const typedef chtype attr_t, short, void *);
        extern int slk_clear(void);
        extern int slk_color(short);
        extern int slk_init(int);
        extern char *slk_label(int);
        extern int slk_noutrefresh(void);
        extern int slk_refresh(void);
        extern int slk_restore(void);
        extern int slk_set(int, const char *, int);
        extern int slk_touch(void);
        extern int standout(void);
        extern int standend(void);
        extern int start_color(void);
        extern WINDOW *subpad(WINDOW *, int, int, int, int);
        extern WINDOW *subwin(WINDOW *, int, int, int, int);
        extern int syncok(WINDOW *, typedef unsigned char bool);
        extern typedef unsigned long int chtype termattrs(void);
        extern char *termname(void);
        extern void timeout(int);
        extern int typeahead(int);
        extern int ungetch(int);
        extern int untouchwin(WINDOW *);
        extern void use_env(typedef unsigned char bool);
        extern int vidattr(typedef unsigned long int chtype);
        extern int vidputs(typedef unsigned long int chtype,
                           int (*vidputs_int) (int)
            );
        extern int vline(typedef unsigned long int chtype, int);
        extern int vwprintw(WINDOW *, char *, typedef void *va_list);
        extern int vw_printw(WINDOW *, const char *, typedef void *va_list);
        extern int vwscanw(WINDOW *, const char *, typedef void *va_list);
        extern int vw_scanw(WINDOW *, const char *, typedef void *va_list);
        extern int waddch(WINDOW *, const typedef unsigned long int chtype);
        extern int waddchnstr(WINDOW *, const typedef unsigned long int chtype
        *,
                              int);
        extern int waddchstr(WINDOW *, const typedef unsigned long int chtype
        *);
        extern int waddnstr(WINDOW *, const char *, int);
        extern int waddstr(WINDOW *, const char *);
        extern int wattron(WINDOW *, int);
        extern int wattroff(WINDOW *, int);
        extern int wattrset(WINDOW *, int);
        extern int wattr_get(WINDOW *, attr_t *, short *, void *);
        extern int wattr_on(WINDOW *, typedef chtype attr_t, void *);
        extern int wattr_off(WINDOW *, typedef chtype attr_t, void *);
        extern int wattr_set(WINDOW *, typedef chtype attr_t, short, void *);
        extern int wbkgd(WINDOW *, typedef unsigned long int chtype);
        extern void wbkgdset(WINDOW *, typedef unsigned long int chtype);
        extern int wborder(WINDOW *, typedef unsigned long int chtype,
                           typedef unsigned long int chtype,
                           typedef unsigned long int chtype,
                           typedef unsigned long int chtype,
                           typedef unsigned long int chtype,
                           typedef unsigned long int chtype,
                           typedef unsigned long int chtype,
                           typedef unsigned long int chtype);
        extern int wchgat(WINDOW *, int, typedef chtype attr_t, short,
                          const void *);
        extern int wclear(WINDOW *);
        extern int wclrtobot(WINDOW *);
        extern int wclrtoeol(WINDOW *);
        extern int wcolor_set(WINDOW *, short, void *);
```

```
extern void wcursyncup(WINDOW *);
extern int wdelch(WINDOW *);
extern int wdeleteln(WINDOW *);
extern int wechochar(WINDOW *, const typedef unsigned long int chtype);
extern int werase(WINDOW *);
extern int wgetch(WINDOW *);
extern int wgetnstr(WINDOW *, char *, int);
extern int wgetstr(WINDOW *, char *);
extern int whline(WINDOW *, typedef unsigned long int chtype, int);
extern typedef unsigned long int chtype winch(WINDOW *);
extern int winchnstr(WINDOW *, chtype *, int);
extern int winchstr(WINDOW *, chtype *);
extern int winnstr(WINDOW *, char *, int);
extern int winsch(WINDOW *, typedef unsigned long int chtype);
extern int winsdelln(WINDOW *, int);
extern int winsertln(WINDOW *);
extern int winsnstr(WINDOW *, const char *, int);
extern int winsstr(WINDOW *, const char *);
extern int winstr(WINDOW *, char *);
extern int wmove(WINDOW *, int, int);
extern int wnoutrefresh(WINDOW *);
extern int wprintw(WINDOW *, char *, ...);
extern int wredrawln(WINDOW *, int, int);
extern int wrefresh(WINDOW *);
extern int wscanw(WINDOW *, const char *, ...);
extern int wscrl(WINDOW *, int);
extern int wsetscrreg(WINDOW *, int, int);
extern int wstandout(WINDOW *);
extern int wstandend(WINDOW *);
extern void wsyncdown(WINDOW *);
extern void wsyncup(WINDOW *);
extern void wtimeout(WINDOW *, int);
extern int wtouchln(WINDOW *, int, int, int);
extern int wvline(WINDOW *, typedef unsigned long int chtype, int);
extern char *unctrl(typedef unsigned long int chtype);
extern int COLORS(void);
extern int COLOR_PAIRS(void);
extern chtype acs_map(void);
extern WINDOW *curscr(void);
extern WINDOW *stdscr(void);
extern int COLS(void);
extern int LINES(void);
extern int touchline(WINDOW *, int, int);
extern int touchwin(WINDOW *);
```

12.4.2 term.h

```

extern int putp(const char *);
extern int tigetflag(const char *);
extern int tigetnum(const char *);
extern char *tigetstr(const char *);
extern char *tparm(const char *, ...);
extern TERMINAL *set_curterm(TERMINAL *);
extern int del_curterm(TERMINAL *);
extern int restartterm(char *, int, int *);
extern int setupterm(char *, int, int *);
extern char *tgetstr(char *, char **);
extern char *tgoto(const char *, int, int);
extern int tgetent(char *, const char *);
extern int tgetflag(char *);
extern int tgetnum(char *);
extern int tputs(const char *, int, int (*putcproc) (int)
    );
```

```
extern TERMINAL *cur_term(void);
```

12.5 Interfaces for libutil

Table 12-3 defines the library name and shared object name for the libutil library

Table 12-3 libutil Definition

Library:	libutil
SONAME:	libutil.so.1

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

[LSB] ~~this specification~~This Specification

12.~~3~~5.1 Utility Functions

12.~~3~~5.1.1 Interfaces for Utility Functions

An LSB conforming implementation shall provide the architecture specific functions for Utility Functions specified in Table 12-4, with the full mandatory functionality as described in the referenced underlying specification.

Table 12-4 libutil - Utility Functions Function Interfaces

~~forkpty(GLIBC_2.2.5) [1]~~	~~login_tty(GLIBC_2.2.5) [1]~~	~~logwtmp(GLIBC_2.2.5) [1]~~		
~~login(GLIBC_2.2.5) [1]~~	~~logout(GLIBC_2.2.5) [1]~~	~~openpty(GLIBC_2.2.5) [1]~~		

~~*Referenced Specification(s)*~~

~~**[1].** this specification~~

forkpty(GLIBC_2.2.5) [LSB]	login(GLIBC_2.2.5) [LSB]	login_tty(GLIBC_2.2.5) [LSB]	logout(GLIBC_2.2.5) [LSB]
logwtmp(GLIBC_2.2.5) [LSB]	openpty(GLIBC_2.2.5) [LSB]		

V Package Format and Installation

13 Software Installation

13.1 Package Dependencies

The LSB runtime environment shall provde the following dependencies.

lsb-core-amd64

This dependency is used to indicate that the application is dependent on features contained in the LSB-Core specification.

These dependencies shall have a version of 3.0.

Other LSB modules may add additional dependencies; such dependencies shall have the format `lsb-`*`module`*`-amd64`.

13.2 Package Architecture Considerations

All packages must specify an architecture of `x86_64`. An LSB runtime environment must accept an architecture of `x86_64` even if the native architecture is different.

The `archnum` value in the Lead Section shall be 0x0001.

Annex A Alphabetical Listing of Interfaces

A.1 libgcc_s

The behavior of the interfaces in this library is specified by the following Standards.

~~this specification~~This Specification [LSB]

Table A-1 libgcc_s Function Interfaces

~~_Unwind_Backtrace~~_Unwind_Backtrace[~~1~~]LSB]	_Unwind_GetDataRelBase[~~1~~]LSB]	_Unwind_RaiseException[~~1~~]LSB]
_Unwind_DeleteException[~~1~~]LSB]	~~_Unwind_GetGR~~_Unwind_GetGR[~~1~~]LSB]	~~_Unwind_Resume~~_Unwind_Resume[~~1~~]LSB]
_Unwind_FindEnclosingFunction[~~1~~]LSB]	~~_Unwind_GetIP~~_Unwind_GetIP[~~1~~]LSB]	_Unwind_Resume_or_Rethrow[~~1~~]LSB]
~~_Unwind_Find_FDE~~_Unwind_Find_FDE[~~1~~]LSB]	_Unwind_GetLanguageSpecificData[~~1~~]LSB]	~~_Unwind_SetGR~~_Unwind_SetGR[~~1~~]LSB]
~~_Unwind_ForcedUnwind~~_Unwind_ForcedUnwind[~~1~~]LSB]	_Unwind_GetRegionStart[~~1~~]LSB]	~~_Unwind_SetIP~~_Unwind_SetIP[~~1~~]LSB]
~~_Unwind_GetCFA~~_Unwind_GetCFA[~~1~~]LSB]	_Unwind_GetTextRelBase[~~1~~]LSB]	

A.2 libm

The behavior of the interfaces in this library is specified by the following Standards.

ISO C (1999) [ISOC99]
ISO POSIX (2003) [SUSv3]

Table A-2 libm Function Interfaces

~~__fpclassifyl~~__fpclassifyl[~~1~~]ISOC99]	~~__signbitl~~__signbitl[~~1~~]ISOC99]	~~exp2l~~exp2l[~~1~~]SUSv3]

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