

Linux Standard Base Core Specification for S390X

4.1

Linux Standard Base Core Specification for S390X 4.1

ISO/IEC 23360 Part 8:2010(E)

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Foreword

This is version 4.1 of the Linux Standard Base Core Specification for S390X. This specification is one of a series of volumes under the collective title *Linux Standard Base*:

- Core
- C++
- Desktop
- Languages
- Printing

Note that the Core, C++ and Desktop volumes consist of a generic volume augmented by an architecture-specific volume.

Status of this Document

This is a released specification. Other documents may supersede or augment this specification. A list of current Linux Standard Base (LSB) specifications is available at <http://refspecs.linuxfoundation.org> (<http://refspecs.linuxfoundation.org/>).

If you wish to make comments regarding this document in a manner that is tracked by the LSB project, please submit them using our public bug database at <http://bugs.linuxbase.org>. Please enter your feedback, carefully indicating the title of the section for which you are submitting feedback, and the volume and version of the specification where you found the problem, quoting the incorrect text if appropriate. If you are suggesting a new feature, please indicate what the problem you are trying to solve is. That is more important than the solution, in fact.

If you do not have or wish to create a bug database account then you can also e-mail feedback to [<lsb-discuss@lists.linuxfoundation.org>](mailto:lsb-discuss@lists.linuxfoundation.org) (subscribe (<http://lists.linux-foundation.org/mailman/listinfo/lsb-discuss>), archives (<http://lists.linux-foundation.org/pipermail/lsb-discuss/>)), and arrangements will be made to transpose the comments to our public bug database.

Introduction

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

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

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

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

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

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

I Introductory Elements

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"), ISO/IEC 23360 Part 1, describing those parts of the interface that remain constant across all implementations of the LSB, and an architecture-specific part ("LSB-arch") describing the parts of the interface that vary by processor architecture. Together, the LSB-generic and the relevant architecture-specific part of ISO/IEC 23360 for a single hardware architecture provide a complete interface specification for compiled application programs on systems that share a common hardware architecture.

ISO/IEC 23360 Part 1, the LSB-generic document, should be used in conjunction with an architecture-specific part. Whenever a section of the LSB-generic specification is supplemented by architecture-specific information, the LSB-generic document includes a reference to the architecture part. Architecture-specific parts of ISO/IEC 23360 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 provides all of the ABIs listed here. The compilation system may replace (e.g. by macro definition) certain APIs with calls to one or more of the underlying binary interfaces, and may insert calls to binary interfaces as needed.

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

1.2 Module Specific Scope

This is the S390X architecture specific Core part of the Linux Standard Base (LSB). This part supplements the generic LSB Core module with those interfaces that differ between architectures.

Interfaces described in this part of ISO/IEC 23360 are mandatory except where explicitly listed otherwise. Core interfaces may be supplemented by other modules; all modules are built upon the core.

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 Linux Foundation's Reference Specifications (<http://refspecs.freestdards.org>) site.

Table 2-1 Normative References

| Name | Title | URL |
|---|--|---|
| ISO/IEC 23360 Part 1 | ISO/IEC 23360:2005 Linux Standard Base - Part 1 Generic Specification | http://www.linuxbase.org/spec/ |
| Filesystem Hierarchy Standard | Filesystem Hierarchy Standard (FHS) 2.3 | http://www.pathname.com/fhs/ |
| ISO C (1999) | ISO/IEC 9899: 1999, Programming Languages --C | |
| Large File Support | Large File Support | http://www.UNIX-systems.org/version2/whatsnew/lfs20mar.html |
| LINUX for zSeries Application Binary Interface Supplement | LINUX for zSeries Application Binary Interface Supplement | http://www.linux-foundation.org/spec/ELF/zSeries/lzsabi0_zSeries.html |
| POSIX 1003.1-2001 (ISO/IEC 9945-2003) | ISO/IEC 9945-1:2003 Information technology -- Portable Operating System Interface (POSIX) -- Part 1: Base Definitions ISO/IEC 9945-2:2003 Information technology -- Portable Operating System Interface (POSIX) -- Part 2: System Interfaces ISO/IEC 9945-3:2003 Information technology | http://www.unix.org/version3/ |

| Name | Title | URL |
|---------------------------------------|---|---|
| | -- 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 | |
| POSIX 1003.1-2008 (ISO/IEC 9945-2009) | Portable Operating System Interface (POSIX®) 2008 Edition / The Open Group Technical Standard Base Specifications, Issue 7 | http://www.unix.org/version4/ |
| 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 |
| 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 | http://refspecs.linuxfoundation.org/svid4/ |
| System V ABI | System V Application Binary Interface, Edition 4.1 | http://www.sco.com/developers/devspecs/gabi41.pdf |
| System V ABI Update | System V Application Binary Interface - DRAFT - 17 December 2003 | http://www.sco.com/developers/gabi/2003-12-17/contents.html |
| 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 |

| Name | Title | URL |
|--|--|---|
| z/Architecture Principles of Operation | z/Architecture Principles of Operation | http://publibz.boulder.ibm.com/epubs/pdf/dz9zs001.pdf |

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.

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.linux-foundation.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.linux-foundation.org/dwarf |
| IEC 60559/IEEE 754 Floating Point | IEC 60559:1989 Binary floating-point arithmetic for microprocessor systems | http://www.ieee.org/ |
| ISO/IEC TR14652 | ISO/IEC Technical Report 14652:2002 Specification method for cultural conventions | |
| ITU-T V.42 | International Telecommunication Union Recommendation V.42 (2002): Error-correcting procedures for DCEs using asynchronous-to-synchronous conversion ITUV | http://www.itu.int/rec/recommendation.asp?type=folders&lang=e&parent=T-REC-V.42 |
| Li18nux Globalization Specification | LI18N 2000 Globalization Specification, Version 1.0 with Amendment 4 | http://www.openi18n.org/docs/html/LI18N-UX-2000-amd4.htm |
| Linux Allocated Device Registry | LINUX ALLOCATED DEVICES | http://www.lanana.org/docs/device-list/devices.txt |
| Mozilla's NSS SSL Reference | Mozilla's NSS SSL Reference | http://www.mozilla.org/projects/security/pki/nss/ref/ssl/ |
| NSPR Reference | Mozilla's NSPR | http://refspecs.linuxfo |

| Name | Title | URL |
|--|---|---|
| | Reference | undation.org/NSPR_API_Reference/NSPR_API.html |
| 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 Specification | 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 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 |
| 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 |

| Name | Title | URL |
|-------------|-----------------|---|
| 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 S390X Linux Standard Base systems, with the specified runtime names. These names override or supplement the names specified in the generic LSB (ISO/IEC 23360 Part 1) 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-s390x.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 (ISO/IEC 23360 Part 1) and the relevant architecture specific part of ISO/IEC 23360.

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

A conforming implementation shall satisfy the following requirements:

- A processor architecture represents a family of related processors which may not have identical feature sets. The architecture specific parts of ISO/IEC 23360 that supplement this specification for a given target processor architecture describe a minimum acceptable processor. The implementation shall provide all features of this processor, whether in hardware or through emulation transparent to the application.
- The implementation shall be capable of executing compiled applications having the format and using the system interfaces described in this 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 (ISO/IEC 23360 Part 1) and the relevant architecture specific part of ISO/IEC 23360.

A conforming application shall satisfy the following requirements:

- Its executable files 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 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 shall be stated in the application's documentation.
- It 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 shall be in turn an LSB conforming application.
- The use of that interface or data format, as well as its source, 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 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 Terms and Definitions

For the purposes of this document, the terms given in *ISO/IEC Directives, Part 2, Annex H* and the following apply.

archLSB

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

Binary Standard, ABI

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

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, API

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

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.

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

5 Documentation Conventions

Throughout this document, the following typographic conventions are used:

`function()`

the name of a function

command

the name of a command or utility

CONSTANT

a constant value

parameter

a parameter

variable

a variable

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

name

the name of the interface

(symver)

An optional symbol version identifier, if required.

[*refno*]

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

For example,

| |
|----------------------------|
| forkpty(GLIBC_2.0) [SUSv3] |
|----------------------------|

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

Note: For symbols with versions which differ between architectures, the symbol versions are defined in the architecture specific parts of ISO/IEC 23360 only.

II Executable and Linking Format (ELF)

6 Introduction

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

7 Low Level System Information

7.1 Machine Interface

7.1.1 Processor Architecture

The z/Architecture is specified by the following documents

- LINUX for zSeries Application Binary Interface Supplement
- z/Architecture Principles of Operation

Only the non optional features of z/Architecture processor instruction set may be assumed to be present. An application should determine if any additional instruction set features are available before using those additional features. If a feature is not present, then a conforming application shall not use it.

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

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

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

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

7.1.2 Data Representation

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

7.1.2.1 Byte Ordering

See chapter 1 of the LINUX for zSeries Application Binary Interface Supplement.

7.1.2.2 Fundamental Types

See chapter 1 of the LINUX for zSeries Application Binary Interface Supplement.

7.1.2.3 Aggregates and Unions

See chapter 1 of the LINUX for zSeries Application Binary Interface Supplement.

7.1.2.4 Bit Fields

See chapter 1 of the LINUX for zSeries Application Binary Interface Supplement.

7.2 Function Calling Sequence

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

7.2.1 Registers

See chapter 1 of the LINUX for zSeries Application Binary Interface Supplement.

7.2.2 Stack Frame

See chapter 1 of the LINUX for zSeries Application Binary Interface Supplement.

7.2.3 Parameter Passing

See chapter 1 of the LINUX for zSeries Application Binary Interface Supplement.

7.2.4 Variable Argument Lists

See chapter 1 of the LINUX for zSeries Application Binary Interface Supplement.

7.2.5 Return Values

See chapter 1 of the LINUX for zSeries Application Binary Interface Supplement.

7.3 Operating System Interface

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

7.3.1 Virtual Address Space

See chapter 1 of the LINUX for zSeries Application Binary Interface Supplement.

7.3.2 Page Size

See chapter 1 of the LINUX for zSeries Application Binary Interface Supplement.

7.3.3 Virtual Address Assignments

See chapter 1 of the LINUX for zSeries Application Binary Interface Supplement.

7.3.4 Managing the Process Stack

See chapter 1 of the LINUX for zSeries Application Binary Interface Supplement.

7.3.5 Coding Guidelines

See chapter 1 of the LINUX for zSeries Application Binary Interface Supplement.

7.3.6 Processor Execution Mode

See chapter 1 of the LINUX for zSeries Application Binary Interface Supplement.

7.3.7 Exception Interface

See chapter 1 of the LINUX for zSeries Application Binary Interface Supplement.

7.3.8 Signal Delivery

See chapter 1 of the LINUX for zSeries Application Binary Interface Supplement.

7.3.8.1 Signal Handler Interface

See chapter 1 of the LINUX for zSeries Application Binary Interface Supplement.

7.4 Process Initialization

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

7.4.1 Registers

See chapter 1 of the LINUX for zSeries Application Binary Interface Supplement.

7.4.2 Process Stack

See chapter 1 of the LINUX for zSeries Application Binary Interface Supplement.

7.5 Coding Examples

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

7.5.1 Code Model Overview

See chapter 1 of the LINUX for zSeries Application Binary Interface Supplement.

7.5.2 Function Prolog and Epilog

See chapter 1 of the LINUX for zSeries Application Binary Interface Supplement.

7.5.3 Profiling

See chapter 1 of the LINUX for zSeries Application Binary Interface Supplement.

7.5.4 Data Objects

See chapter 1 of the LINUX for zSeries Application Binary Interface Supplement.

7.5.5 Function Calls

See chapter 1 of the LINUX for zSeries Application Binary Interface Supplement.

7.5.6 Dynamic Stack Space Allocation

See chapter 1 of the LINUX for zSeries Application Binary Interface Supplement.

7.6 Debug Information

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

8 Object Format

8.1 Introduction

LSB-conforming implementations shall support an object file format, called Executable and Linking Format (ELF) as defined by the System V ABI , System V ABI Update , LINUX for zSeries Application Binary Interface Supplement and as supplemented by the generic LSB and this document.

8.2 ELF Header

8.2.1 Machine Information

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

8.3 Sections

See chapter 2 of the LINUX for zSeries Application Binary Interface Supplement.

8.3.1 Special Sections

The following sections are defined in the LINUX for zSeries Application Binary Interface Supplement.

Table 8-1 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.

8.3.2 Linux Special Sections

The following Linux S/390 specific sections are defined here.

Table 8-2 Additional Special Sections

| Name | Type | Attributes |
|-----------|--------------|------------|
| .rela.dyn | SHT_RELA | SHF_ALLOC |
| .rela.plt | SHT_RELA | SHF_ALLOC |
| .sbss | SHT_PROGBITS | SHF_WRITE |

.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

.sbss

This section holds uninitialized data that contribute to the program's memory image. The system initializes the data with zeroes when the program begins to run.

8.4 Symbol Table

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

8.5 Relocation

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

8.5.1 Relocation Types

See chapter 2 of the LINUX for zSeries Application Binary Interface Supplement.

9 Program Loading and Dynamic Linking

9.1 Introduction

LSB-conforming implementations shall support the object file information and system actions that create running programs as specified in the System V ABI , System V ABI Update , LINUX for zSeries Application Binary Interface Supplement and as supplemented by the ISO/IEC 23360 Part 1 and this document.

9.2 Program Loading

See Chapter 3 of the LINUX for zSeries Application Binary Interface Supplement.

9.3 Dynamic Linking

See Chapter 3 of the LINUX for zSeries Application Binary Interface Supplement.

9.3.1 Dynamic Section

The following dynamic entries are defined in the LINUX for zSeries Application Binary Interface Supplement.

DT_JMPREL

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

DT_PLTGOT

This entry's `d_ptr` member gives the address of the first byte in the procedure linkage table

9.3.2 Global Offset Table

See Chapter 3 of the LINUX for zSeries Application Binary Interface Supplement.

9.3.3 Function Addresses

See chapter 3 of the LINUX for zSeries Application Binary Interface Supplement.

9.3.4 Procedure Linkage Table

See chapter 3 of the LINUX for zSeries Application Binary Interface Supplement.

III Base Libraries

10 Libraries

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

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

10.1 Program Interpreter/Dynamic Linker

The Program Interpreter shall be `/lib64/ld-lsb-s390x.so.3`.

10.2 Interfaces for libc

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

Table 10-1 libc Definition

| | |
|----------|-----------|
| Library: | libc |
| SONAME: | libc.so.6 |

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

[LFS] Large File Support
 [LSB] ISO/IEC 23360 Part 1
 [RPC & XDR] RFC 1831/1832 RPC & XDR
 [SUSv2] SUSv2
 [SUSv3] POSIX 1003.1-2001 (ISO/IEC 9945-2003)
 [SUSv4] POSIX 1003.1-2008 (ISO/IEC 9945-2009)
 [SVID.4] SVID Issue 4

10.2.1 RPC

10.2.1.1 Interfaces for RPC

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

Table 10-2 libc - RPC Function Interfaces

| | | | |
|-------------------------------------|---------------------------------------|--|--|
| authnone_create(GLIBC_2.2) [SVID.4] | callrpc(GLIBC_2.2) [RPC & XDR] | clnt_create(GLIBC_2.2) [SVID.4] | clnt_pcreateerror(GLIBC_2.2) [SVID.4] |
| clnt_pererrno(GLIBC_2.2) [SVID.4] | clnt_perror(GLIBC_2.2) [SVID.4] | clnt_spcreateerror(GLIBC_2.2) [SVID.4] | clnt_sperrno(GLIBC_2.2) [SVID.4] |
| clnt_sperror(GLIBC_2.2) [SVID.4] | clntraw_create(GLIBC_2.2) [RPC & XDR] | clnttcp_create(GLIBC_2.2) [RPC & XDR] | clntudp_bufcreate(GLIBC_2.2) [RPC & XDR] |
| clntudp_create(GLIBC_2.2) [RPC] | key_decryptsession(GLIBC_2.2) | pmap_getport(GLIBC_2.2) [LSB] | pmap_set(GLIBC_2.2) [LSB] |

| | | | |
|--|--|--------------------------------------|---|
| & XDR] | [SVID.4] | | |
| pmap_unset(GLIBC_2.2) [LSB] | svc_getreqset(GLIBC_2.2) [SVID.4] | svc_register(GLIBC_2.2) [LSB] | svc_run(GLIBC_2.2) [LSB] |
| svc_sendsreply(GLIBC_2.2) [LSB] | svcerr_auth(GLIBC_2.2) [SVID.4] | svcerr_decode(GLIBC_2.2) [SVID.4] | svcerr_noproc(GLIBC_2.2) [SVID.4] |
| svcerr_noprog(GLIBC_2.2) [SVID.4] | svcerr_progvers(GLIBC_2.2) [SVID.4] | svcerr_systemerr(GLIBC_2.2) [SVID.4] | svcerr_weakauth(GLIBC_2.2) [SVID.4] |
| svcf_create(GLIBC_2.2) [RPC & XDR] | svccraw_create(GLIBC_2.2) [RPC & XDR] | svctcp_create(GLIBC_2.2) [LSB] | svcudp_create(GLIBC_2.2) [LSB] |
| xdr_accepted_reply(GLIBC_2.2) [SVID.4] | xdr_array(GLIBC_2.2) [SVID.4] | xdr_bool(GLIBC_2.2) [SVID.4] | xdr_bytes(GLIBC_2.2) [SVID.4] |
| xdr_callhdr(GLIBC_2.2) [SVID.4] | xdr_callmsg(GLIBC_2.2) [SVID.4] | xdr_char(GLIBC_2.2) [SVID.4] | xdr_double(GLIBC_2.2) [SVID.4] |
| xdr_enum(GLIBC_2.2) [SVID.4] | xdr_float(GLIBC_2.2) [SVID.4] | xdr_free(GLIBC_2.2) [SVID.4] | xdr_int(GLIBC_2.2) [SVID.4] |
| xdr_long(GLIBC_2.2) [SVID.4] | xdr_opaque(GLIBC_2.2) [SVID.4] | xdr_opaque_auth(GLIBC_2.2) [SVID.4] | xdr_pointer(GLIBC_2.2) [SVID.4] |
| xdr_reference(GLIBC_2.2) [SVID.4] | xdr_rejected_reply(GLIBC_2.2) [SVID.4] | xdr_replymsg(GLIBC_2.2) [SVID.4] | xdr_short(GLIBC_2.2) [SVID.4] |
| xdr_string(GLIBC_2.2) [SVID.4] | xdr_u_char(GLIBC_2.2) [SVID.4] | xdr_u_int(GLIBC_2.2) [LSB] | xdr_u_long(GLIBC_2.2) [SVID.4] |
| xdr_u_short(GLIBC_2.2) [SVID.4] | xdr_union(GLIBC_2.2) [SVID.4] | xdr_vector(GLIBC_2.2) [SVID.4] | xdr_void(GLIBC_2.2) [SVID.4] |
| xdr_wrapstring(GLIBC_2.2) [SVID.4] | xdrmem_create(GLIBC_2.2) [SVID.4] | xdrrec_create(GLIBC_2.2) [SVID.4] | xdrrec_endofrecord(GLIBC_2.2) [RPC & XDR] |
| xdrrec_eof(GLIBC_2.2) [SVID.4] | xdrrec_skiprecord(GLIBC_2.2) [RPC & XDR] | xdrstdio_create(GLIBC_2.2) [LSB] | |

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

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

Table 10-3 libc - RPC Deprecated Function Interfaces

| | | | |
|-------------------------------|--|--|--|
| key_decryptsession(GLIBC_2.2) | | | |
|-------------------------------|--|--|--|

| | | | |
|----------|--|--|--|
| [SVID.4] | | | |
|----------|--|--|--|

10.2.2 Epoll

10.2.2.1 Interfaces for Epoll

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

10.2.3 System Calls

10.2.3.1 Interfaces for System Calls

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

Table 10-4 libc - System Calls Function Interfaces

| | | | |
|------------------------------|------------------------------------|---------------------------------------|--------------------------------|
| __fxstat(GLIBC_2.2) [LSB] | __getpgid(GLIBC_2.2) [LSB] | __lxstat(GLIBC_2.2) [LSB] | __xmknod(GLIBC_2.2) [LSB] |
| __xstat(GLIBC_2.2) [LSB] | access(GLIBC_2.2) [SUSv3] | acct(GLIBC_2.2) [LSB] | alarm(GLIBC_2.2) [SUSv3] |
| backtrace(GLIBC_2.2) [LSB] | backtrace_symbols(GLIBC_2.2) [LSB] | backtrace_symbols_fd(GLIBC_2.2) [LSB] | brk(GLIBC_2.2) [SUSv2] |
| chdir(GLIBC_2.2) [SUSv3] | chmod(GLIBC_2.2) [SUSv3] | chown(GLIBC_2.2) [SUSv3] | chroot(GLIBC_2.2) [SUSv2] |
| clock(GLIBC_2.2) [SUSv3] | close(GLIBC_2.2) [SUSv3] | closedir(GLIBC_2.2) [SUSv3] | creat(GLIBC_2.2) [SUSv3] |
| dup(GLIBC_2.2) [SUSv3] | dup2(GLIBC_2.2) [SUSv3] | execl(GLIBC_2.2) [SUSv3] | execle(GLIBC_2.2) [SUSv3] |
| execlp(GLIBC_2.2) [SUSv3] | execv(GLIBC_2.2) [SUSv3] | execve(GLIBC_2.2) [SUSv3] | execvp(GLIBC_2.2) [SUSv3] |
| exit(GLIBC_2.2) [SUSv3] | fchdir(GLIBC_2.2) [SUSv3] | fchmod(GLIBC_2.2) [SUSv3] | fchown(GLIBC_2.2) [SUSv3] |
| fcntl(GLIBC_2.2) [LSB] | fdatasync(GLIBC_2.2) [SUSv3] | fexecve(GLIBC_2.2) [SUSv4] | flock(GLIBC_2.2) [LSB] |
| fork(GLIBC_2.2) [SUSv3] | fstatfs(GLIBC_2.2) [LSB] | fstatvfs(GLIBC_2.2) [SUSv3] | fsync(GLIBC_2.2) [SUSv3] |
| ftruncate(GLIBC_2.2) [SUSv3] | ftruncate(GLIBC_2.2) [SUSv3] | getcontext(GLIBC_2.2) [SUSv3] | getdtablesize(GLIBC_2.2) [LSB] |
| getegid(GLIBC_2.2) [SUSv3] | geteuid(GLIBC_2.2) [SUSv3] | getgid(GLIBC_2.2) [SUSv3] | getgroups(GLIBC_2.2) [SUSv3] |
| getitimer(GLIBC_2.2) [SUSv3] | getloadavg(GLIBC_2.2) [LSB] | getpagesize(GLIBC_2.2) [LSB] | getpgid(GLIBC_2.2) [SUSv3] |
| getpgrp(GLIBC_2.2) [SUSv3] | getpid(GLIBC_2.2) [SUSv3] | getppid(GLIBC_2.2) [SUSv3] | getpriority(GLIBC_2.2) [SUSv3] |

| | | | |
|---|---|-------------------------------------|---------------------------------------|
| getrlimit(GLIBC_2.2) [SUSv3] | getrusage(GLIBC_2.2) [SUSv3] | getsid(GLIBC_2.2) [SUSv3] | getuid(GLIBC_2.2) [SUSv3] |
| getwd(GLIBC_2.2) [SUSv3] | initgroups(GLIBC_2.2) [LSB] | ioctl(GLIBC_2.2) [LSB] | kill(GLIBC_2.2) [LSB] |
| killpg(GLIBC_2.2) [SUSv3] | lchown(GLIBC_2.2) [SUSv3] | link(GLIBC_2.2) [LSB] | lockf(GLIBC_2.2) [SUSv3] |
| lseek(GLIBC_2.2) [SUSv3] | mkdir(GLIBC_2.2) [SUSv3] | mkfifo(GLIBC_2.2) [SUSv3] | mlock(GLIBC_2.2) [SUSv3] |
| mlockall(GLIBC_2.2) [SUSv3] | mmap(GLIBC_2.2) [SUSv3] | mprotect(GLIBC_2.2) [SUSv3] | mremap(GLIBC_2.2) [LSB] |
| msync(GLIBC_2.2) [SUSv3] | munlock(GLIBC_2.2) [SUSv3] | munlockall(GLIBC_2.2) [SUSv3] | munmap(GLIBC_2.2) [SUSv3] |
| nanosleep(GLIBC_2.2) [SUSv3] | nice(GLIBC_2.2) [SUSv3] | open(GLIBC_2.2) [SUSv3] | opendir(GLIBC_2.2) [SUSv3] |
| pathconf(GLIBC_2.2) [SUSv3] | pause(GLIBC_2.2) [SUSv3] | pipe(GLIBC_2.2) [SUSv3] | poll(GLIBC_2.2) [SUSv3] |
| pread(GLIBC_2.2) [SUSv3] | pselect(GLIBC_2.2) [SUSv3] | ptrace(GLIBC_2.2) [LSB] | pwrite(GLIBC_2.2) [SUSv3] |
| read(GLIBC_2.2) [SUSv3] | readdir(GLIBC_2.2) [SUSv3] | readdir_r(GLIBC_2.2) [SUSv3] | readlink(GLIBC_2.2) [SUSv3] |
| readv(GLIBC_2.2) [SUSv3] | rename(GLIBC_2.2) [SUSv3] | rmdir(GLIBC_2.2) [SUSv3] | sbrk(GLIBC_2.2) [SUSv2] |
| sched_get_priority_max(GLIBC_2.2) [SUSv3] | sched_get_priority_min(GLIBC_2.2) [SUSv3] | sched_getparam(GLIBC_2.2) [SUSv3] | sched_getscheduler(GLIBC_2.2) [SUSv3] |
| sched_rr_get_interval(GLIBC_2.2) [SUSv3] | sched_setparam(GLIBC_2.2) [SUSv3] | sched_setscheduler(GLIBC_2.2) [LSB] | sched_yield(GLIBC_2.2) [SUSv3] |
| select(GLIBC_2.2) [SUSv3] | setcontext(GLIBC_2.2) [SUSv3] | setegid(GLIBC_2.2) [SUSv3] | seteuid(GLIBC_2.2) [SUSv3] |
| setgid(GLIBC_2.2) [SUSv3] | setitimer(GLIBC_2.2) [SUSv3] | setpgid(GLIBC_2.2) [SUSv3] | setpgrp(GLIBC_2.2) [SUSv3] |
| setpriority(GLIBC_2.2) [SUSv3] | setregid(GLIBC_2.2) [SUSv3] | setreuid(GLIBC_2.2) [SUSv3] | setrlimit(GLIBC_2.2) [SUSv3] |
| setrlimit64(GLIBC_2.2) [LFS] | setsid(GLIBC_2.2) [SUSv3] | setuid(GLIBC_2.2) [SUSv3] | sleep(GLIBC_2.2) [SUSv3] |
| statfs(GLIBC_2.2) [LSB] | statvfs(GLIBC_2.2) [SUSv3] | stime(GLIBC_2.2) [LSB] | symlink(GLIBC_2.2) [SUSv3] |
| sync(GLIBC_2.2) [SUSv3] | sysconf(GLIBC_2.2) [LSB] | sysinfo(GLIBC_2.2) [LSB] | time(GLIBC_2.2) [SUSv3] |
| times(GLIBC_2.2) [SUSv3] | truncate(GLIBC_2.2) [SUSv3] | ulimit(GLIBC_2.2) [SUSv3] | umask(GLIBC_2.2) [SUSv3] |
| uname(GLIBC_2.2) | unlink(GLIBC_2.2) | utime(GLIBC_2.2) | utimes(GLIBC_2.2) |

| | | | |
|----------------------------|--------------------------|---------------------------|---------------------------|
| 2) [SUSv3] | 2) [LSB] |) [SUSv3] | 2) [SUSv3] |
| vfork(GLIBC_2.2) [SUSv3] | wait(GLIBC_2.2) [SUSv3] | wait4(GLIBC_2.2) [LSB] | waitid(GLIBC_2.2) [SUSv3] |
| waitpid(GLIBC_2.2) [SUSv3] | write(GLIBC_2.2) [SUSv3] | writew(GLIBC_2.2) [SUSv3] | |

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

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

Table 10-5 libc - System Calls Deprecated Function Interfaces

| | | | |
|--------------------------|--------------------------------|------------------------------|--------------------------|
| fstatfs(GLIBC_2.2) [LSB] | getdtablesize(GLIBC_2.2) [LSB] | getpagesize(GLIBC_2.2) [LSB] | getwd(GLIBC_2.2) [SUSv3] |
| statfs(GLIBC_2.2) [LSB] | | | |

10.2.4 Standard I/O

10.2.4.1 Interfaces for Standard I/O

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

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

| | | | |
|---------------------------------|----------------------------------|----------------------------------|------------------------------------|
| _IO_feof(GLIBC_2.2) [LSB] | _IO_getc(GLIBC_2.2) [LSB] | _IO_putc(GLIBC_2.2) [LSB] | _IO_puts(GLIBC_2.2) [LSB] |
| __fprintf_chk(GLIBC_2.4) [LSB] | __printf_chk(GLIBC_2.4) [LSB] | __snprintf_chk(GLIBC_2.4) [LSB] | __sprintf_chk(GLIBC_2.4) [LSB] |
| __vfprintf_chk(GLIBC_2.4) [LSB] | __vprintf_chk(GLIBC_2.4) [LSB] | __vsnprintf_chk(GLIBC_2.4) [LSB] | __vsprintf_chk(GLIBC_2.4) [LSB] |
| asprintf(GLIBC_2.2) [LSB] | asprintf(GLIBC_2.4) [LSB] | clearerr(GLIBC_2.2) [SUSv3] | clearerr_unlocked(GLIBC_2.2) [LSB] |
| ctermid(GLIBC_2.2) [SUSv3] | dprintf(GLIBC_2.4) [SUSv4] | fclose(GLIBC_2.2) [SUSv3] | fdopen(GLIBC_2.2) [SUSv3] |
| feof(GLIBC_2.2) [SUSv3] | feof_unlocked(GLIBC_2.2) [LSB] | ferror(GLIBC_2.2) [SUSv3] | ferror_unlocked(GLIBC_2.2) [LSB] |
| fflush(GLIBC_2.2) [SUSv3] | fflush_unlocked(GLIBC_2.2) [LSB] | fgetc(GLIBC_2.2) [SUSv3] | fgetc_unlocked(GLIBC_2.2) [LSB] |
| fgetpos(GLIBC_2.2) [SUSv3] | fgets(GLIBC_2.2) [SUSv3] | fgets_unlocked(GLIBC_2.2) [LSB] | fgetwc_unlocked(GLIBC_2.2) [LSB] |
| fgetws_unlocked(GLIBC_2.2) | fileno(GLIBC_2.2) | fileno_unlocked(GLIBC_2.2) | flockfile(GLIBC_2.2) |

| | | | |
|-------------------------------------|-------------------------------------|----------------------------------|----------------------------------|
| [LSB] |) [SUSv3] | GLIBC_2.2) [LSB] | 2.2) [SUSv3] |
| fopen(GLIBC_2.2) [SUSv3] | fprintf(GLIBC_2.2) [SUSv3] | fprintf(GLIBC_2.4) [SUSv3] | fputc(GLIBC_2.2) [SUSv3] |
| fputc_unlocked(GLIBC_2.2) [LSB] | fputs(GLIBC_2.2) [SUSv3] | fputs_unlocked(GLIBC_2.2) [LSB] | fputwc_unlocked(GLIBC_2.2) [LSB] |
| fputws_unlocked(GLIBC_2.2) [LSB] | fread(GLIBC_2.2) [SUSv3] | fread_unlocked(GLIBC_2.2) [LSB] | freopen(GLIBC_2.2) [SUSv3] |
| fscanf(GLIBC_2.2) [LSB] | fscanf(GLIBC_2.4) [LSB] | fseek(GLIBC_2.2) [SUSv3] | fseeko(GLIBC_2.2) [SUSv3] |
| fsetpos(GLIBC_2.2) [SUSv3] | ftell(GLIBC_2.2) [SUSv3] | ftello(GLIBC_2.2) [SUSv3] | fwrite(GLIBC_2.2) [SUSv3] |
| fwrite_unlocked(GLIBC_2.2) [LSB] | getc(GLIBC_2.2) [SUSv3] | getc_unlocked(GLIBC_2.2) [SUSv3] | getchar(GLIBC_2.2) [SUSv3] |
| getchar_unlocked(GLIBC_2.2) [SUSv3] | getdelim(GLIBC_2.2) [SUSv4] | getline(GLIBC_2.2) [SUSv4] | getw(GLIBC_2.2) [SUSv2] |
| getwc_unlocked(GLIBC_2.2) [LSB] | getwchar_unlocked(GLIBC_2.2) [LSB] | pclose(GLIBC_2.2) [SUSv3] | popen(GLIBC_2.2) [SUSv3] |
| printf(GLIBC_2.2) [SUSv3] | printf(GLIBC_2.4) [SUSv3] | putc(GLIBC_2.2) [SUSv3] | putc_unlocked(GLIBC_2.2) [SUSv3] |
| putchar(GLIBC_2.2) [SUSv3] | putchar_unlocked(GLIBC_2.2) [SUSv3] | puts(GLIBC_2.2) [SUSv3] | putw(GLIBC_2.2) [SUSv2] |
| putwc_unlocked(GLIBC_2.2) [LSB] | putwchar_unlocked(GLIBC_2.2) [LSB] | remove(GLIBC_2.2) [SUSv3] | rewind(GLIBC_2.2) [SUSv3] |
| rewinddir(GLIBC_2.2) [SUSv3] | scanf(GLIBC_2.2) [LSB] | scanf(GLIBC_2.4) [LSB] | seekdir(GLIBC_2.2) [SUSv3] |
| setbuf(GLIBC_2.2) [SUSv3] | setbuffer(GLIBC_2.2) [LSB] | setvbuf(GLIBC_2.2) [SUSv3] | snprintf(GLIBC_2.2) [SUSv3] |
| snprintf(GLIBC_2.4) [SUSv3] | sprintf(GLIBC_2.2) [SUSv3] | sprintf(GLIBC_2.4) [SUSv3] | sscanf(GLIBC_2.2) [LSB] |
| sscanf(GLIBC_2.4) [LSB] | telldir(GLIBC_2.2) [SUSv3] | tempnam(GLIBC_2.2) [SUSv3] | ungetc(GLIBC_2.2) [SUSv3] |
| vasprintf(GLIBC_2.2) [LSB] | vasprintf(GLIBC_2.4) [LSB] | vdprintf(GLIBC_2.2) [LSB] | vdprintf(GLIBC_2.4) [LSB] |
| vfprintf(GLIBC_2.2) [SUSv3] | vfprintf(GLIBC_2.4) [SUSv3] | vprintf(GLIBC_2.2) [SUSv3] | vprintf(GLIBC_2.4) [SUSv3] |
| vsnprintf(GLIBC_2.2) [SUSv3] | vsnprintf(GLIBC_2.4) [SUSv3] | vsprintf(GLIBC_2.2) [SUSv3] | vsprintf(GLIBC_2.4) [SUSv3] |

| | | | |
|---------------|---------------|--------------|--------------|
| _2.2) [SUSv3] | _2.4) [SUSv3] | 2.2) [SUSv3] | 2.4) [SUSv3] |
|---------------|---------------|--------------|--------------|

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

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

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

| | | | |
|----------------------------|------------------------------|-----------------------------|-----------------------------|
| asprintf(GLIBC_2.2) [LSB] | fprintf(GLIBC_2.2) [SUSv3] | fscanf(GLIBC_2.2) [LSB] | printf(GLIBC_2.2) [SUSv3] |
| scanf(GLIBC_2.2) [LSB] | snprintf(GLIBC_2.2) [SUSv3] | sprintf(GLIBC_2.2) [SUSv3] | sscanf(GLIBC_2.2) [LSB] |
| tempnam(GLIBC_2.2) [SUSv3] | vasprintf(GLIBC_2.2) [LSB] | vdprintf(GLIBC_2.2) [LSB] | vfprintf(GLIBC_2.2) [SUSv3] |
| vprintf(GLIBC_2.2) [SUSv3] | vsnprintf(GLIBC_2.2) [SUSv3] | vsprintf(GLIBC_2.2) [SUSv3] | |

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

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

| | | | |
|---------------------------|--------------------------|---------------------------|--|
| stderr(GLIBC_2.2) [SUSv3] | stdin(GLIBC_2.2) [SUSv3] | stdout(GLIBC_2.2) [SUSv3] | |
|---------------------------|--------------------------|---------------------------|--|

10.2.5 Signal Handling

10.2.5.1 Interfaces for Signal Handling

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

Table 10-9 libc - Signal Handling Function Interfaces

| | | | |
|--|--|--------------------------------|--------------------------------|
| __libc_current_sigrtmax(GLIBC_2.2) [LSB] | __libc_current_sigrtmin(GLIBC_2.2) [LSB] | __sigsetjmp(GLIBC_2.2) [LSB] | __sysv_signal(GLIBC_2.2) [LSB] |
| __xpg_sigpause(GLIBC_2.2) [LSB] | bsd_signal(GLIBC_2.2) [SUSv3] | psignal(GLIBC_2.2) [LSB] | raise(GLIBC_2.2) [SUSv3] |
| sigaction(GLIBC_2.2) [SUSv3] | sigaddset(GLIBC_2.2) [SUSv3] | sigaltstack(GLIBC_2.2) [SUSv3] | sigandset(GLIBC_2.2) [LSB] |
| sigdelset(GLIBC_2.2) [SUSv3] | sigemptyset(GLIBC_2.2) [SUSv3] | sigfillset(GLIBC_2.2) [SUSv3] | sighold(GLIBC_2.2) [SUSv3] |
| sigignore(GLIBC_2.2) [SUSv3] | siginterrupt(GLIBC_2.2) [SUSv3] | sigisemptyset(GLIBC_2.2) [LSB] | sigismember(GLIBC_2.2) [SUSv3] |
| siglongjmp(GLIBC_2.2) [SUSv3] | signal(GLIBC_2.2) [SUSv3] | sigorset(GLIBC_2.2) [SUSv3] | sigpause(GLIBC_2.2) [SUSv3] |

| | | | |
|-------------------------------|--------------------------------|-------------------------------|---------------------------------|
| C_2.2) [SUSv3] |) [SUSv3] | 2.2) [LSB] | 2.2) [LSB] |
| sigpending(GLIBC_2.2) [SUSv3] | sigprocmask(GLIBC_2.2) [SUSv3] | sigqueue(GLIBC_2.2) [SUSv3] | sigrelse(GLIBC_2.2) [SUSv3] |
| sigreturn(GLIBC_2.2) [LSB] | sigset(GLIBC_2.2) [SUSv3] | sigsuspend(GLIBC_2.2) [SUSv3] | sigtimedwait(GLIBC_2.2) [SUSv3] |
| sigwait(GLIBC_2.2) [SUSv3] | sigwaitinfo(GLIBC_2.2) [SUSv3] | | |

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

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

Table 10-10 libc - Signal Handling Deprecated Function Interfaces

| | | | |
|---------------------------|--|--|--|
| sigpause(GLIBC_2.2) [LSB] | | | |
|---------------------------|--|--|--|

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

Table 10-11 libc - Signal Handling Data Interfaces

| | | | |
|---------------------------------|--|--|--|
| _sys_siglist(GLIBC_2.3.3) [LSB] | | | |
|---------------------------------|--|--|--|

10.2.6 Localization Functions

10.2.6.1 Interfaces for Localization Functions

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

Table 10-12 libc - Localization Functions Function Interfaces

| | | | |
|--|---------------------------------|-----------------------------|--------------------------------|
| bind_textdomain_codeset(GLIBC_2.2) [LSB] | bindtextdomain(GLIBC_2.2) [LSB] | catclose(GLIBC_2.2) [SUSv3] | catgets(GLIBC_2.2) [SUSv3] |
| catopen(GLIBC_2.2) [SUSv3] | dcgettext(GLIBC_2.2) [LSB] | dcngettext(GLIBC_2.2) [LSB] | dgettext(GLIBC_2.2) [LSB] |
| dngettext(GLIBC_2.2) [LSB] | gettext(GLIBC_2.2) [LSB] | iconv(GLIBC_2.2) [SUSv3] | iconv_close(GLIBC_2.2) [SUSv3] |
| iconv_open(GLIBC_2.2) [SUSv3] | localeconv(GLIBC_2.2) [SUSv3] | ngettext(GLIBC_2.2) [LSB] | nl_langinfo(GLIBC_2.2) [SUSv3] |
| setlocale(GLIBC_2.2) [SUSv3] | textdomain(GLIBC_2.2) [LSB] | | |

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

Table 10-13 libc - Localization Functions Data Interfaces

| | | | |
|--|--|--|--|
| _nl_msg_cat_cntr (GLIBC_2.2) [LSB] | | | |
|--|--|--|--|

10.2.7 Posix Spawn Option

10.2.7.1 Interfaces for Posix Spawn Option

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

Table 10-14 libc - Posix Spawn Option Function Interfaces

| | | | |
|---|--|---|---|
| posix_spawn(GLIBC_2.2) [SUSv3] | posix_spawn_file_actions_addclose(GLIBC_2.2) [SUSv3] | posix_spawn_file_actions_adddup2(GLIBC_2.2) [SUSv3] | posix_spawn_file_actions_addopen(GLIBC_2.2) [SUSv3] |
| posix_spawn_file_actions_destroy(GLIBC_2.2) [SUSv3] | posix_spawn_file_actions_init(GLIBC_2.2) [SUSv3] | posix_spawnattr_destroy(GLIBC_2.2) [SUSv3] | posix_spawnattr_getflags(GLIBC_2.2) [SUSv3] |
| posix_spawnattr_getpgroup(GLIBC_2.2) [SUSv3] | posix_spawnattr_getschedparam(GLIBC_2.2) [SUSv3] | posix_spawnattr_getschedpolicy(GLIBC_2.2) [SUSv3] | posix_spawnattr_getsigdefault(GLIBC_2.2) [SUSv3] |
| posix_spawnattr_getsigmask(GLIBC_2.2) [SUSv3] | posix_spawnattr_init(GLIBC_2.2) [SUSv3] | posix_spawnattr_setflags(GLIBC_2.2) [SUSv3] | posix_spawnattr_setpgroup(GLIBC_2.2) [SUSv3] |
| posix_spawnattr_setschedparam(GLIBC_2.2) [SUSv3] | posix_spawnattr_setschedpolicy(GLIBC_2.2) [SUSv3] | posix_spawnattr_setsigdefault(GLIBC_2.2) [SUSv3] | posix_spawnattr_setsigmask(GLIBC_2.2) [SUSv3] |
| posix_spawnnp(GLIBC_2.2) [SUSv3] | | | |

10.2.8 Posix Advisory Option

10.2.8.1 Interfaces for Posix Advisory Option

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

Table 10-15 libc - Posix Advisory Option Function Interfaces

| | | | |
|------------------|--------------------|------------------|-------------------|
| posix_fadvise(G) | posix_fallocate(G) | posix_madvise(G) | posix_memalign(G) |
|------------------|--------------------|------------------|-------------------|

| | | | |
|----------------------|----------------------|----------------------|-----------------------|
| LIBC_2.2) [SUSv3] | LIBC_2.2) [SUSv3] | LIBC_2.2) [SUSv3] | GLIBC_2.2) [SUSv3] |
|----------------------|----------------------|----------------------|-----------------------|

10.2.9 Socket Interface

10.2.9.1 Interfaces for Socket Interface

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

Table 10-16 libc - Socket Interface Function Interfaces

| | | | |
|-------------------------------------|-----------------------------------|-------------------------------------|-----------------------------------|
| __h_errno_location(GLIBC_2.2) [LSB] | accept(GLIBC_2.2) [SUSv3] | bind(GLIBC_2.2) [SUSv3] | bindresvport(GLIBC_2.2) [LSB] |
| connect(GLIBC_2.2) [SUSv3] | gethostid(GLIBC_2.2) [SUSv3] | gethostname(GLIBC_2.2) [SUSv3] | getpeername(GLIBC_2.2) [SUSv3] |
| getsockname(GLIBC_2.2) [SUSv3] | getsockopt(GLIBC_2.2) [LSB] | if_freenameindex(GLIBC_2.2) [SUSv3] | if_indextoname(GLIBC_2.2) [SUSv3] |
| if_nameindex(GLIBC_2.2) [SUSv3] | if_nametoindex(GLIBC_2.2) [SUSv3] | listen(GLIBC_2.2) [SUSv3] | recv(GLIBC_2.2) [SUSv3] |
| recvfrom(GLIBC_2.2) [SUSv3] | recvmsg(GLIBC_2.2) [SUSv3] | send(GLIBC_2.2) [SUSv4] | sendmsg(GLIBC_2.2) [SUSv4] |
| sendto(GLIBC_2.2) [SUSv4] | setsockopt(GLIBC_2.2) [LSB] | shutdown(GLIBC_2.2) [SUSv3] | socketatmark(GLIBC_2.2.4) [SUSv3] |
| socket(GLIBC_2.2) [SUSv3] | socketpair(GLIBC_2.2) [SUSv3] | | |

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

Table 10-17 libc - Socket Interface Data Interfaces

| | | | |
|--------------------------------|-------------------------------------|--|--|
| in6addr_any(GLIBC_2.2) [SUSv3] | in6addr_loopback(GLIBC_2.2) [SUSv3] | | |
|--------------------------------|-------------------------------------|--|--|

10.2.10 Wide Characters

10.2.10.1 Interfaces for Wide Characters

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

Table 10-18 libc - Wide Characters Function Interfaces

| | | | |
|-----------------|------------------|------------------|------------------|
| __wcstod_intern | __wcstof_interna | __wcstol_interna | __wcstold_intern |
|-----------------|------------------|------------------|------------------|

| | | | |
|--|---|-----------------------------|------------------------------|
| al(GLIBC_2.2) [LSB] | l(GLIBC_2.2) [LSB] | l(GLIBC_2.2) [LSB] | al(GLIBC_2.2) [LSB] |
| __wctold_intern al(GLIBC_2.4) [LSB] | __wcstoul_intern al(GLIBC_2.2) [LSB] | btowc(GLIBC_2.2) [SUSv3] | fgetwc(GLIBC_2.2) [SUSv3] |
| fgetws(GLIBC_2.2) [SUSv3] | fputwc(GLIBC_2.2) [SUSv3] | fputws(GLIBC_2.2) [SUSv3] | fwide(GLIBC_2.2) [SUSv3] |
| fwprintf(GLIBC_2.2) [SUSv3] | fwprintf(GLIBC_2.4) [SUSv3] | fwscanf(GLIBC_2.2) [LSB] | fwscanf(GLIBC_2.4) [LSB] |
| getwc(GLIBC_2.2) [SUSv3] | getwchar(GLIBC_2.2) [SUSv3] | mblen(GLIBC_2.2) [SUSv3] | mbrlen(GLIBC_2.2) [SUSv3] |
| mbrtowc(GLIBC_2.2) [SUSv3] | mbsinit(GLIBC_2.2) [SUSv3] | mbsnrtowcs(GLIBC_2.2) [LSB] | mbsrtowcs(GLIBC_2.2) [SUSv3] |
| mbstowcs(GLIBC_2.2) [SUSv3] | mbtowc(GLIBC_2.2) [SUSv3] | putwc(GLIBC_2.2) [SUSv3] | putwchar(GLIBC_2.2) [SUSv3] |
| swprintf(GLIBC_2.2) [SUSv3] | swprintf(GLIBC_2.4) [SUSv3] | swscanf(GLIBC_2.2) [LSB] | swscanf(GLIBC_2.4) [LSB] |
| towctrans(GLIBC_2.2) [SUSv3] | tolower(GLIBC_2.2) [SUSv3] | towupper(GLIBC_2.2) [SUSv3] | ungetwc(GLIBC_2.2) [SUSv3] |
| vfwprintf(GLIBC_2.2) [SUSv3] | vfwprintf(GLIBC_2.4) [SUSv3] | vfwscanf(GLIBC_2.2) [LSB] | vfwscanf(GLIBC_2.4) [LSB] |
| vswprintf(GLIBC_2.2) [SUSv3] | vswprintf(GLIBC_2.4) [SUSv3] | vswscanf(GLIBC_2.2) [LSB] | vswscanf(GLIBC_2.4) [LSB] |
| vwprintf(GLIBC_2.2) [SUSv3] | vwprintf(GLIBC_2.4) [SUSv3] | vwscanf(GLIBC_2.2) [LSB] | vwscanf(GLIBC_2.4) [LSB] |
| wcpncpy(GLIBC_2.2) [LSB] | wcpncpy(GLIBC_2.2) [LSB] | wcrtomb(GLIBC_2.2) [SUSv3] | wcscasecmp(GLIBC_2.2) [LSB] |
| wcscat(GLIBC_2.2) [SUSv3] | wcschr(GLIBC_2.2) [SUSv3] | wcscmp(GLIBC_2.2) [SUSv3] | wcscoll(GLIBC_2.2) [SUSv3] |
| wcscpy(GLIBC_2.2) [SUSv3] | wcscspn(GLIBC_2.2) [SUSv3] | wcsdup(GLIBC_2.2) [LSB] | wcsftime(GLIBC_2.2) [SUSv3] |
| wcslen(GLIBC_2.2) [SUSv3] | wcsncasecmp(GLIBC_2.2) [LSB] | wcsncat(GLIBC_2.2) [SUSv3] | wcsncmp(GLIBC_2.2) [SUSv3] |
| wcsncpy(GLIBC_2.2) [SUSv3] | wcsnlen(GLIBC_2.2) [LSB] | wcsnrtombs(GLIBC_2.2) [LSB] | wcspbrk(GLIBC_2.2) [SUSv3] |
| wcsrchr(GLIBC_2.2) [SUSv3] | wcsrtombs(GLIBC_2.2) [SUSv3] | wcsspn(GLIBC_2.2) [SUSv3] | wcsstr(GLIBC_2.2) [SUSv3] |
| wctod(GLIBC_2.2) [SUSv3] | wctof(GLIBC_2.2) [SUSv3] | wctoimax(GLIBC_2.2) [SUSv3] | wctok(GLIBC_2.2) [SUSv3] |
| wctol(GLIBC_2.2) [SUSv3] | wctold(GLIBC_2.2) [SUSv3] | wctold(GLIBC_2.4) [SUSv3] | wctoll(GLIBC_2.2) [SUSv3] |
| wctombs(GLIBC_2.2) [SUSv3] | wctoq(GLIBC_2.2) [LSB] | wctoul(GLIBC_2.2) [SUSv3] | wctoull(GLIBC_2.2) [SUSv3] |

| | | | |
|------------------------------|-----------------------------|----------------------------|-----------------------------|
| wcstoumax(GLIBC_2.2) [SUSv3] | wcstouq(GLIBC_2.2) [LSB] | wcswcs(GLIBC_2.2) [SUSv3] | wcswidth(GLIBC_2.2) [SUSv3] |
| wcsxfrm(GLIBC_2.2) [SUSv3] | wctob(GLIBC_2.2) [SUSv3] | wctomb(GLIBC_2.2) [SUSv3] | wctrans(GLIBC_2.2) [SUSv3] |
| wctype(GLIBC_2.2) [SUSv3] | wcwidth(GLIBC_2.2) [SUSv3] | wmemchr(GLIBC_2.2) [SUSv3] | wmemcmp(GLIBC_2.2) [SUSv3] |
| wmemcpy(GLIBC_2.2) [SUSv3] | wmemmove(GLIBC_2.2) [SUSv3] | wmemset(GLIBC_2.2) [SUSv3] | wprintf(GLIBC_2.2) [SUSv3] |
| wprintf(GLIBC_2.4) [SUSv3] | wscanf(GLIBC_2.2) [LSB] | wscanf(GLIBC_2.4) [LSB] | |

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

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

Table 10-19 libc - Wide Characters Deprecated Function Interfaces

| | | | |
|-------------------------------------|------------------------------|---------------------------|------------------------------|
| __wcstold_internal(GLIBC_2.2) [LSB] | fwprintf(GLIBC_2.2) [SUSv3] | fwscanf(GLIBC_2.2) [LSB] | swprintf(GLIBC_2.2) [SUSv3] |
| swscanf(GLIBC_2.2) [LSB] | vfwprintf(GLIBC_2.2) [SUSv3] | vfwscanf(GLIBC_2.2) [LSB] | vswprintf(GLIBC_2.2) [SUSv3] |
| vswscanf(GLIBC_2.2) [LSB] | vwprintf(GLIBC_2.2) [SUSv3] | vwscanf(GLIBC_2.2) [LSB] | wcstold(GLIBC_2.2) [SUSv3] |
| wprintf(GLIBC_2.2) [SUSv3] | wscanf(GLIBC_2.2) [LSB] | | |

10.2.11 String Functions

10.2.11.1 Interfaces for String Functions

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

Table 10-20 libc - String Functions Function Interfaces

| | | | |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| __memcpy(GLIBC_2.2) [LSB] | __rawmemchr(GLIBC_2.2) [LSB] | __stpcpy(GLIBC_2.2) [LSB] | __strdup(GLIBC_2.2) [LSB] |
| __strtod_internal(GLIBC_2.2) [LSB] | __strtof_internal(GLIBC_2.2) [LSB] | __strtok_r(GLIBC_2.2) [LSB] | __strtol_internal(GLIBC_2.2) [LSB] |
| __strtold_internal(GLIBC_2.2) [LSB] | __strtold_internal(GLIBC_2.4) [LSB] | __strtoll_internal(GLIBC_2.2) [LSB] | __strtoul_internal(GLIBC_2.2) [LSB] |
| __strtoull_internal(GLIBC_2.2) | __xpg_strerror_r(GLIBC_2.3.4) | bcmp(GLIBC_2.2) [SUSv3] | bcopy(GLIBC_2.2) [SUSv3] |

| | | | |
|--------------------------------|-------------------------------|------------------------------|-----------------------------|
| [LSB] | [LSB] | | |
| bzero(GLIBC_2.2) [SUSv3] | ffs(GLIBC_2.2) [SUSv3] | index(GLIBC_2.2) [SUSv3] | memccpy(GLIBC_2.2) [SUSv3] |
| memchr(GLIBC_2.2) [SUSv3] | memcmp(GLIBC_2.2) [SUSv3] | memcpy(GLIBC_2.2) [SUSv3] | memmove(GLIBC_2.2) [SUSv3] |
| memrchr(GLIBC_2.2) [LSB] | memset(GLIBC_2.2) [SUSv3] | rindex(GLIBC_2.2) [SUSv3] | stpcpy(GLIBC_2.2) [LSB] |
| stpncpy(GLIBC_2.2) [LSB] | strcasecmp(GLIBC_2.2) [SUSv3] | strcasestr(GLIBC_2.2) [LSB] | strcat(GLIBC_2.2) [SUSv3] |
| strchr(GLIBC_2.2) [SUSv3] | strcmp(GLIBC_2.2) [SUSv3] | strcoll(GLIBC_2.2) [SUSv3] | strcpy(GLIBC_2.2) [SUSv3] |
| strcspn(GLIBC_2.2) [SUSv3] | strdup(GLIBC_2.2) [SUSv3] | strerror(GLIBC_2.2) [SUSv3] | strerror_r(GLIBC_2.2) [LSB] |
| strfmon(GLIBC_2.2) [SUSv3] | strfmon(GLIBC_2.4) [SUSv3] | strftime(GLIBC_2.2) [SUSv3] | strlen(GLIBC_2.2) [SUSv3] |
| strncasecmp(GLIBC_2.2) [SUSv3] | strncat(GLIBC_2.2) [SUSv3] | strncmp(GLIBC_2.2) [SUSv3] | strncpy(GLIBC_2.2) [SUSv3] |
| strndup(GLIBC_2.2) [LSB] | strnlen(GLIBC_2.2) [LSB] | strpbrk(GLIBC_2.2) [SUSv3] | strptime(GLIBC_2.2) [LSB] |
| strrchr(GLIBC_2.2) [SUSv3] | strsep(GLIBC_2.2) [LSB] | strsignal(GLIBC_2.2) [LSB] | strspn(GLIBC_2.2) [SUSv3] |
| strstr(GLIBC_2.2) [SUSv3] | strtof(GLIBC_2.2) [SUSv3] | strtoimax(GLIBC_2.2) [SUSv3] | strtok(GLIBC_2.2) [SUSv3] |
| strtok_r(GLIBC_2.2) [SUSv3] | strtold(GLIBC_2.2) [SUSv3] | strtold(GLIBC_2.4) [SUSv3] | strtoll(GLIBC_2.2) [SUSv3] |
| strtoq(GLIBC_2.2) [LSB] | strtoull(GLIBC_2.2) [SUSv3] | strtoumax(GLIBC_2.2) [SUSv3] | strtouq(GLIBC_2.2) [LSB] |
| strxfrm(GLIBC_2.2) [SUSv3] | swab(GLIBC_2.2) [SUSv3] | | |

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

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

Table 10-21 libc - String Functions Deprecated Function Interfaces

| | | | |
|-------------------------------------|-----------------------------|----------------------------|----------------------------|
| __strtold_internal(GLIBC_2.2) [LSB] | strerror_r(GLIBC_2.2) [LSB] | strfmon(GLIBC_2.2) [SUSv3] | strtold(GLIBC_2.2) [SUSv3] |
|-------------------------------------|-----------------------------|----------------------------|----------------------------|

10.2.12 IPC Functions

10.2.12.1 Interfaces for IPC Functions

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

Table 10-22 libc - IPC Functions Function Interfaces

| | | | |
|---------------------------|---------------------------|---------------------------|---------------------------|
| ftok(GLIBC_2.2) [SUSv3] | msgctl(GLIBC_2.2) [SUSv3] | msgget(GLIBC_2.2) [SUSv3] | msgrcv(GLIBC_2.2) [SUSv3] |
| msgsnd(GLIBC_2.2) [SUSv3] | semctl(GLIBC_2.2) [SUSv3] | semget(GLIBC_2.2) [SUSv3] | semop(GLIBC_2.2) [SUSv3] |
| shmat(GLIBC_2.2) [SUSv3] | shmctl(GLIBC_2.2) [SUSv3] | shmdt(GLIBC_2.2) [SUSv3] | shmget(GLIBC_2.2) [SUSv3] |

10.2.13 Regular Expressions

10.2.13.1 Interfaces for Regular Expressions

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

Table 10-23 libc - Regular Expressions Function Interfaces

| | | | |
|----------------------------|-----------------------------|------------------------------|----------------------------|
| regcomp(GLIBC_2.2) [SUSv3] | regerror(GLIBC_2.2) [SUSv3] | regexexec(GLIBC_2.3.4) [LSB] | regfree(GLIBC_2.2) [SUSv3] |
|----------------------------|-----------------------------|------------------------------|----------------------------|

10.2.14 Character Type Functions

10.2.14.1 Interfaces for Character Type Functions

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

Table 10-24 libc - Character Type Functions Function Interfaces

| | | | |
|---|-----------------------------|-----------------------------|-----------------------------|
| __ctype_get_mb_cur_max(GLIBC_2.2) [LSB] | _tolower(GLIBC_2.2) [SUSv3] | _toupper(GLIBC_2.2) [SUSv3] | isalnum(GLIBC_2.2) [SUSv3] |
| isalpha(GLIBC_2.2) [SUSv3] | isascii(GLIBC_2.2) [SUSv3] | isctrl(GLIBC_2.2) [SUSv3] | isdigit(GLIBC_2.2) [SUSv3] |
| isgraph(GLIBC_2.2) [SUSv3] | islower(GLIBC_2.2) [SUSv3] | isprint(GLIBC_2.2) [SUSv3] | ispunct(GLIBC_2.2) [SUSv3] |
| isspace(GLIBC_2.2) [SUSv3] | isupper(GLIBC_2.2) [SUSv3] | iswalnum(GLIBC_2.2) [SUSv3] | iswalpha(GLIBC_2.2) [SUSv3] |
| iswblank(GLIBC_2.2) [SUSv3] | iswcntrl(GLIBC_2.2) [SUSv3] | iswctype(GLIBC_2.2) [SUSv3] | iswdigit(GLIBC_2.2) [SUSv3] |
| iswgraph(GLIBC_2.2) [SUSv3] | iswlower(GLIBC_2.2) [SUSv3] | iswprint(GLIBC_2.2) [SUSv3] | iswpunct(GLIBC_2.2) [SUSv3] |

| | | | |
|-----------------------------|-----------------------------|------------------------------|-----------------------------|
| iswspace(GLIBC_2.2) [SUSv3] | iswupper(GLIBC_2.2) [SUSv3] | iswxdigit(GLIBC_2.2) [SUSv3] | isxdigit(GLIBC_2.2) [SUSv3] |
| toascii(GLIBC_2.2) [SUSv3] | tolower(GLIBC_2.2) [SUSv3] | toupper(GLIBC_2.2) [SUSv3] | |

10.2.15 Time Manipulation

10.2.15.1 Interfaces for Time Manipulation

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

Table 10-25 libc - Time Manipulation Function Interfaces

| | | | |
|------------------------------|--------------------------------|------------------------------|-----------------------------|
| adjtime(GLIBC_2.2) [LSB] | asctime(GLIBC_2.2) [SUSv3] | asctime_r(GLIBC_2.2) [SUSv3] | ctime(GLIBC_2.2) [SUSv3] |
| ctime_r(GLIBC_2.2) [SUSv3] | difftime(GLIBC_2.2) [SUSv3] | gmtime(GLIBC_2.2) [SUSv3] | gmtime_r(GLIBC_2.2) [SUSv3] |
| localtime(GLIBC_2.2) [SUSv3] | localtime_r(GLIBC_2.2) [SUSv3] | mktime(GLIBC_2.2) [SUSv3] | tzset(GLIBC_2.2) [SUSv3] |
| ualarm(GLIBC_2.2) [SUSv3] | | | |

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

Table 10-26 libc - Time Manipulation Data Interfaces

| | | | |
|-----------------------------|-----------------------------|---------------------------|-----------------------------|
| __daylight(GLIBC_2.2) [LSB] | __timezone(GLIBC_2.2) [LSB] | __tzname(GLIBC_2.2) [LSB] | daylight(GLIBC_2.2) [SUSv3] |
| timezone(GLIBC_2.2) [SUSv3] | tzname(GLIBC_2.2) [SUSv3] | | |

10.2.16 Terminal Interface Functions

10.2.16.1 Interfaces for Terminal Interface Functions

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

Table 10-27 libc - Terminal Interface Functions Function Interfaces

| | | | |
|--------------------------------|--------------------------------|------------------------------|--------------------------------|
| cfgetispeed(GLIBC_2.2) [SUSv3] | cfgetospeed(GLIBC_2.2) [SUSv3] | cfmakeraw(GLIBC_2.2) [LSB] | cfsetispeed(GLIBC_2.2) [SUSv3] |
| cfsetospeed(GLIBC_2.2) [SUSv3] | cfsetspeed(GLIBC_2.2) [LSB] | tcdrain(GLIBC_2.2) [SUSv3] | tcflow(GLIBC_2.2) [SUSv3] |
| tcflush(GLIBC_2.2) [SUSv3] | tcgetattr(GLIBC_2.2) [SUSv3] | tcgetpgrp(GLIBC_2.2) [SUSv3] | tcgetsid(GLIBC_2.2) [SUSv3] |
| tcsendbreak(GLIBC_2.2) [SUSv3] | tcsetattr(GLIBC_2.2) [SUSv3] | tcsetpgrp(GLIBC_2.2) [SUSv3] | |

| | | | |
|-----------------|--------------|---------------|--|
| BC_2.2) [SUSv3] | 2.2) [SUSv3] | _2.2) [SUSv3] | |
|-----------------|--------------|---------------|--|

10.2.17 System Database Interface

10.2.17.1 Interfaces for System Database Interface

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

Table 10-28 libc - System Database Interface Function Interfaces

| | | | |
|-----------------------------------|-------------------------------------|-------------------------------------|-----------------------------------|
| endgrent(GLIBC_2.2) [SUSv3] | endprotoent(GLIBC_2.2) [SUSv3] | endpwent(GLIBC_2.2) [SUSv3] | endservent(GLIBC_2.2) [SUSv3] |
| endutent(GLIBC_2.2) [LSB] | endutxent(GLIBC_2.2) [SUSv3] | getgrent(GLIBC_2.2) [SUSv3] | getgrent_r(GLIBC_2.2) [LSB] |
| getgrgid(GLIBC_2.2) [SUSv3] | getgrgid_r(GLIBC_2.2) [SUSv3] | getgrnam(GLIBC_2.2) [SUSv3] | getgrnam_r(GLIBC_2.2) [SUSv3] |
| getgrouplist(GLIBC_2.2.4) [LSB] | gethostbyaddr(GLIBC_2.2) [SUSv3] | gethostbyaddr_r(GLIBC_2.2) [LSB] | gethostbyname(GLIBC_2.2) [SUSv3] |
| gethostbyname2(GLIBC_2.2) [LSB] | gethostbyname2_r(GLIBC_2.2) [LSB] | gethostbyname_r(GLIBC_2.2) [LSB] | getprotobyname(GLIBC_2.2) [SUSv3] |
| getprotobyname_r(GLIBC_2.2) [LSB] | getprotobynumber(GLIBC_2.2) [SUSv3] | getprotobynumber_r(GLIBC_2.2) [LSB] | getprotoent(GLIBC_2.2) [SUSv3] |
| getprotoent_r(GLIBC_2.2) [LSB] | getpwent(GLIBC_2.2) [SUSv3] | getpwent_r(GLIBC_2.2) [LSB] | getpwnam(GLIBC_2.2) [SUSv3] |
| getpwnam_r(GLIBC_2.2) [SUSv3] | getpwuid(GLIBC_2.2) [SUSv3] | getpwuid_r(GLIBC_2.2) [SUSv3] | getservbyname(GLIBC_2.2) [SUSv3] |
| getservbyname_r(GLIBC_2.2) [LSB] | getservbyport(GLIBC_2.2) [SUSv3] | getservbyport_r(GLIBC_2.2) [LSB] | getservent(GLIBC_2.2) [SUSv3] |
| getservent_r(GLIBC_2.2) [LSB] | getutent(GLIBC_2.2) [LSB] | getutent_r(GLIBC_2.2) [LSB] | getutxent(GLIBC_2.2) [SUSv3] |
| getutxid(GLIBC_2.2) [SUSv3] | getutxline(GLIBC_2.2) [SUSv3] | pututxline(GLIBC_2.2) [SUSv3] | setgrent(GLIBC_2.2) [SUSv3] |
| setgroups(GLIBC_2.2) [LSB] | setprotoent(GLIBC_2.2) [SUSv3] | setpwent(GLIBC_2.2) [SUSv3] | setservent(GLIBC_2.2) [SUSv3] |
| setutent(GLIBC_2.2) [LSB] | setutxent(GLIBC_2.2) [SUSv3] | utmpname(GLIBC_2.2) [LSB] | |

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

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

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

| | | | |
|--|---|---|-------------------------------------|
| gethostbyaddr(G LIBC_2.2) [SUSv3] | gethostbyaddr_r(GLIBC_2.2) [LSB] | gethostbyname(GLIBC_2.2) [SUSv3] | gethostbyname2(GLIBC_2.2) [LSB] |
| gethostbyname2 _r(GLIBC_2.2) [LSB] | gethostbyname_r (GLIBC_2.2) [LSB] | | |

10.2.18 Language Support

10.2.18.1 Interfaces for Language Support

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

Table 10-30 libc - Language Support Function Interfaces

| | | | |
|---|--|--|--|
| __libc_start_mai n(GLIBC_2.2) [LSB] | | | |
|---|--|--|--|

10.2.19 Large File Support

10.2.19.1 Interfaces for Large File Support

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

Table 10-31 libc - Large File Support Function Interfaces

| | | | |
|----------------------------------|--------------------------------------|---|-------------------------------|
| __fxstat64(GLIB C_2.2) [LSB] | __lxstat64(GLIBC _2.2) [LSB] | __xstat64(GLIBC _2.2) [LSB] | creat64(GLIBC_2. 2) [LFS] |
| fgetpos64(GLIBC _2.2) [LFS] | fopen64(GLIBC_ 2.2) [LFS] | freopen64(GLIBC _2.2) [LFS] | fseeko64(GLIBC_ 2.2) [LFS] |
| fsetpos64(GLIBC _2.2) [LFS] | fstatfs64(GLIBC_ 2.2) [LSB] | fstatvfs64(GLIBC _2.2) [LFS] | ftello64(GLIBC_2 .2) [LFS] |
| ftruncate64(GLIB C_2.2) [LFS] | ftw64(GLIBC_2.2) [LFS] | getrlimit64(GLIB C_2.2) [LFS] | lockf64(GLIBC_2 .2) [LFS] |
| lseek64(GLIBC_2 .2) [LFS] | mkstemp64(GLI BC_2.2) [LSB] | mmap64(GLIBC_ 2.2) [LFS] | nftw64(GLIBC_2. 3.3) [LFS] |
| open64(GLIBC_2 .2) [LFS] | posix_fadvise64(GLIBC_2.2) [LSB] | posix_fallocate64 (GLIBC_2.2) [LSB] | pread64(GLIBC_ 2.2) [LSB] |
| pwrite64(GLIBC _2.2) [LSB] | readdir64(GLIBC _2.2) [LFS] | readdir64_r(GLI BC_2.2) [LSB] | statfs64(GLIBC_2 .2) [LSB] |
| statvfs64(GLIBC_ _2.2) [LFS] | tmpfile64(GLIBC _2.2) [LFS] | truncate64(GLIB C_2.2) [LFS] | |

| | | | |
|------------|-------------|--------------|--|
| 2.2) [LFS] | _2.2) [LFS] | C_2.2) [LFS] | |
|------------|-------------|--------------|--|

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

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

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

| | | | |
|----------------------------|---------------------------|--|--|
| fstatfs64(GLIBC_2.2) [LSB] | statfs64(GLIBC_2.2) [LSB] | | |
|----------------------------|---------------------------|--|--|

10.2.20 Inotify

10.2.20.1 Interfaces for Inotify

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

10.2.21 Standard Library

10.2.21.1 Interfaces for Standard Library

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

Table 10-33 libc - Standard Library Function Interfaces

| | | | |
|-----------------------------------|--------------------------------|--------------------------------|------------------------------------|
| _Exit(GLIBC_2.2) [SUSv3] | __assert_fail(GLIBC_2.2) [LSB] | __cxa_atexit(GLIBC_2.2) [LSB] | __cxa_finalize(GLIBC_2.2) [LSB] |
| __errno_location(GLIBC_2.2) [LSB] | __fpending(GLIBC_2.2) [LSB] | __getpagesize(GLIBC_2.2) [LSB] | __isinf(GLIBC_2.2) [LSB] |
| __isinf(GLIBC_2.2) [LSB] | __isnfl(GLIBC_2.2) [LSB] | __isnfl(GLIBC_2.4) [LSB] | __isnan(GLIBC_2.2) [LSB] |
| __isnanf(GLIBC_2.2) [LSB] | __isnanl(GLIBC_2.2) [LSB] | __isnanl(GLIBC_2.4) [LSB] | __sysconf(GLIBC_2.2) [LSB] |
| __xpg_basename(GLIBC_2.2) [LSB] | _exit(GLIBC_2.2) [SUSv3] | _longjmp(GLIBC_2.2) [SUSv3] | _setjmp(GLIBC_2.2) [SUSv3] |
| a64l(GLIBC_2.2) [SUSv3] | abort(GLIBC_2.2) [SUSv3] | abs(GLIBC_2.2) [SUSv3] | alphasort(GLIBC_2.2) [SUSv4] |
| alphasort64(GLIBC_2.2) [LSB] | atof(GLIBC_2.2) [SUSv3] | atoi(GLIBC_2.2) [SUSv3] | atol(GLIBC_2.2) [SUSv3] |
| atoll(GLIBC_2.2) [SUSv3] | basename(GLIBC_2.2) [LSB] | bsearch(GLIBC_2.2) [SUSv3] | calloc(GLIBC_2.2) [SUSv3] |
| closelog(GLIBC_2.2) [SUSv3] | confstr(GLIBC_2.2) [SUSv3] | cuserid(GLIBC_2.2) [SUSv2] | daemon(GLIBC_2.2) [LSB] |
| dirfd(GLIBC_2.2) | dirname(GLIBC_2.2) | div(GLIBC_2.2) | dl_iterate_phdr(GLIBC_2.2) [SUSv3] |

| | | | |
|---------------------------------|--------------------------------|-----------------------------------|---------------------------------|
| [SUSv4] | 2.2) [SUSv3] | [SUSv3] | GLIBC_2.2.4) [LSB] |
| drand48(GLIBC_2.2) [SUSv3] | drand48_r(GLIBC_2.2) [LSB] | ecvt(GLIBC_2.2) [SUSv3] | erand48(GLIBC_2.2) [SUSv3] |
| erand48_r(GLIBC_2.2) [LSB] | err(GLIBC_2.2) [LSB] | error(GLIBC_2.2) [LSB] | errx(GLIBC_2.2) [LSB] |
| fcvt(GLIBC_2.2) [SUSv3] | fmemopen(GLIBC_2.2) [SUSv4] | fmsg(GLIBC_2.2) [SUSv3] | fnmatch(GLIBC_2.2.3) [SUSv3] |
| fpathconf(GLIBC_2.2) [SUSv3] | free(GLIBC_2.2) [SUSv3] | freeaddrinfo(GLIBC_2.2) [SUSv3] | ftrylockfile(GLIBC_2.2) [SUSv3] |
| ftw(GLIBC_2.2) [SUSv3] | funlockfile(GLIBC_2.2) [SUSv3] | gai_strerror(GLIBC_2.2) [SUSv3] | gcvt(GLIBC_2.2) [SUSv3] |
| getaddrinfo(GLIBC_2.2) [SUSv3] | getcwd(GLIBC_2.2) [SUSv3] | getdate(GLIBC_2.2) [SUSv3] | getdomainname(GLIBC_2.2) [LSB] |
| getenv(GLIBC_2.2) [SUSv3] | getlogin(GLIBC_2.2) [SUSv3] | getlogin_r(GLIBC_2.2) [SUSv3] | getnameinfo(GLIBC_2.2) [SUSv3] |
| getopt(GLIBC_2.2) [LSB] | getopt_long(GLIBC_2.2) [LSB] | getopt_long_only(GLIBC_2.2) [LSB] | getsubopt(GLIBC_2.2) [SUSv3] |
| gettimeofday(GLIBC_2.2) [SUSv3] | glob(GLIBC_2.2) [SUSv3] | glob64(GLIBC_2.2) [LSB] | globfree(GLIBC_2.2) [SUSv3] |
| globfree64(GLIBC_2.2) [LSB] | grantpt(GLIBC_2.2) [SUSv3] | hcreate(GLIBC_2.2) [SUSv3] | hcreate_r(GLIBC_2.2) [LSB] |
| hdestroy(GLIBC_2.2) [SUSv3] | hdestroy_r(GLIBC_2.2) [LSB] | hsearch(GLIBC_2.2) [SUSv3] | hsearch_r(GLIBC_2.2) [LSB] |
| htonl(GLIBC_2.2) [SUSv3] | htons(GLIBC_2.2) [SUSv3] | imaxabs(GLIBC_2.2) [SUSv3] | imaxdiv(GLIBC_2.2) [SUSv3] |
| inet_addr(GLIBC_2.2) [SUSv3] | inet_aton(GLIBC_2.2) [LSB] | inet_ntoa(GLIBC_2.2) [SUSv3] | inet_ntop(GLIBC_2.2) [SUSv3] |
| inet_pton(GLIBC_2.2) [SUSv3] | initstate(GLIBC_2.2) [SUSv3] | initstate_r(GLIBC_2.2) [LSB] | insque(GLIBC_2.2) [SUSv3] |
| isatty(GLIBC_2.2) [SUSv3] | isblank(GLIBC_2.2) [SUSv3] | jrand48(GLIBC_2.2) [SUSv3] | jrand48_r(GLIBC_2.2) [LSB] |
| l64a(GLIBC_2.2) [SUSv3] | labs(GLIBC_2.2) [SUSv3] | lcong48(GLIBC_2.2) [SUSv3] | lcong48_r(GLIBC_2.2) [LSB] |
| ldiv(GLIBC_2.2) [SUSv3] | lfind(GLIBC_2.2) [SUSv3] | llabs(GLIBC_2.2) [SUSv3] | lldiv(GLIBC_2.2) [SUSv3] |
| longjmp(GLIBC_2.2) [SUSv3] | lrand48(GLIBC_2.2) [SUSv3] | lrand48_r(GLIBC_2.2) [LSB] | lsearch(GLIBC_2.2) [SUSv3] |
| makecontext(GLIBC_2.2) [SUSv3] | malloc(GLIBC_2.2) [SUSv3] | memmem(GLIBC_2.2) [LSB] | mkdtemp(GLIBC_2.2) [SUSv4] |
| mkstemp(GLIBC_2.2) [SUSv3] | mktemp(GLIBC_2.2) [SUSv3] | mrand48(GLIBC_2.2) [SUSv3] | mrand48_r(GLIBC_2.2) [LSB] |

| | | | |
|-----------------------------------|-----------------------------------|-------------------------------|-----------------------------|
| nftw(GLIBC_2.3.3) [SUSv3] | nrand48(GLIBC_2.2) [SUSv3] | nrand48_r(GLIBC_2.2) [LSB] | ntohl(GLIBC_2.2) [SUSv3] |
| ntohs(GLIBC_2.2) [SUSv3] | open_memstream(GLIBC_2.2) [SUSv4] | openlog(GLIBC_2.2) [SUSv3] | perror(GLIBC_2.2) [SUSv3] |
| posix_openpt(GLIBC_2.2.1) [SUSv3] | ptsname(GLIBC_2.2) [SUSv3] | putenv(GLIBC_2.2) [SUSv3] | qsort(GLIBC_2.2) [SUSv3] |
| rand(GLIBC_2.2) [SUSv3] | rand_r(GLIBC_2.2) [SUSv3] | random(GLIBC_2.2) [SUSv3] | random_r(GLIBC_2.2) [LSB] |
| realloc(GLIBC_2.2) [SUSv3] | realpath(GLIBC_2.3) [SUSv3] | remque(GLIBC_2.2) [SUSv3] | scandir(GLIBC_2.2) [SUSv4] |
| scandir64(GLIBC_2.2) [LSB] | seed48(GLIBC_2.2) [SUSv3] | seed48_r(GLIBC_2.2) [LSB] | sendfile(GLIBC_2.2) [LSB] |
| setenv(GLIBC_2.2) [SUSv3] | sethostname(GLIBC_2.2) [LSB] | setlogmask(GLIBC_2.2) [SUSv3] | setstate(GLIBC_2.2) [SUSv3] |
| setstate_r(GLIBC_2.2) [LSB] | srand(GLIBC_2.2) [SUSv3] | srand48(GLIBC_2.2) [SUSv3] | srand48_r(GLIBC_2.2) [LSB] |
| srandom(GLIBC_2.2) [SUSv3] | srandom_r(GLIBC_2.2) [LSB] | strtod(GLIBC_2.2) [SUSv3] | strtol(GLIBC_2.2) [SUSv3] |
| strtoul(GLIBC_2.2) [SUSv3] | swapcontext(GLIBC_2.2) [SUSv3] | syslog(GLIBC_2.2) [SUSv3] | syslog(GLIBC_2.4) [SUSv3] |
| system(GLIBC_2.2) [LSB] | tdelete(GLIBC_2.2) [SUSv3] | tfind(GLIBC_2.2) [SUSv3] | tmpfile(GLIBC_2.2) [SUSv3] |
| tmpnam(GLIBC_2.2) [SUSv3] | tsearch(GLIBC_2.2) [SUSv3] | ttynam(GLIBC_2.2) [SUSv3] | ttynam_r(GLIBC_2.2) [SUSv3] |
| twalk(GLIBC_2.2) [SUSv3] | unlockpt(GLIBC_2.2) [SUSv3] | unsetenv(GLIBC_2.2) [SUSv3] | usleep(GLIBC_2.2) [SUSv3] |
| verrx(GLIBC_2.2) [LSB] | vfscanf(GLIBC_2.2) [LSB] | vfscanf(GLIBC_2.4) [LSB] | vscanf(GLIBC_2.2) [LSB] |
| vscanf(GLIBC_2.4) [LSB] | vsscanf(GLIBC_2.2) [LSB] | vsscanf(GLIBC_2.4) [LSB] | vsyslog(GLIBC_2.2) [LSB] |
| vsyslog(GLIBC_2.4) [LSB] | warn(GLIBC_2.2) [LSB] | warnx(GLIBC_2.2) [LSB] | wordexp(GLIBC_2.2) [SUSv3] |
| wordfree(GLIBC_2.2) [SUSv3] | | | |

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

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

Table 10-34 libc - Standard Library Deprecated Function Interfaces

| | | | |
|---|--|--|---|
| <code>__isinfl(GLIBC_2.2)</code> [LSB] | <code>__isnani(GLIBC_2.2)</code> [LSB] | <code>basename(GLIBC_2.2)</code> [LSB] | <code>getdomainname(GLIBC_2.2)</code> [LSB] |
| <code>inet_aton(GLIBC_2.2)</code> [LSB] | <code>syslog(GLIBC_2.2)</code> [SUSv3] | <code>tmpnam(GLIBC_2.2)</code> [SUSv3] | <code>vfscanf(GLIBC_2.2)</code> [LSB] |
| <code>vscanf(GLIBC_2.2)</code> [LSB] | <code>vsscanf(GLIBC_2.2)</code> [LSB] | <code>vsyslog(GLIBC_2.2)</code> [LSB] | |

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

Table 10-35 libc - Standard Library Data Interfaces

| | | | |
|---|--|--|---|
| <code>__environ(GLIBC_2.2)</code> [LSB] | <code>_environ(GLIBC_2.2)</code> [LSB] | <code>_sys_errlist(GLIBC_2.4)</code> [LSB] | <code>environ(GLIBC_2.2)</code> [SUSv3] |
| <code>getdate_err(GLIBC_2.2)</code> [SUSv3] | <code>optarg(GLIBC_2.2)</code> [SUSv3] | <code>opterr(GLIBC_2.2)</code> [SUSv3] | <code>optind(GLIBC_2.2)</code> [SUSv3] |
| <code>optopt(GLIBC_2.2)</code> [SUSv3] | | | |

10.2.22 GNU Extensions for libc

10.2.22.1 Interfaces for GNU Extensions for libc

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

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

| | | | |
|--|--|--|--|
| <code>gnu_get_libc_release(GLIBC_2.2)</code> [LSB] | <code>gnu_get_libc_version(GLIBC_2.2)</code> [LSB] | | |
|--|--|--|--|

10.3 Data Definitions for libc

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

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

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

10.3.1 assert.h

```

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

```

10.3.2 cpio.h

```

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

```

10.3.3 ctype.h

```

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

```

10.3.4 dirent.h

```

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

```

10.3.5 elf.h

```

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

```

10.3.6 endian.h

```

#define __BYTE_ORDER    __BIG_ENDIAN

```

10.3.7 errno.h

```

#define EDEADLOCK        35

```

10.3.8 fcntl.h

```

#define O_LARGEFILE      0

```



```
#define O_DIRECTORY      0200000
#define O_NOFOLLOW       0400000
#define POSIX_FADV_DONTNEED 6
#define POSIX_FADV_NOREUSE 7

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

10.3.9 fmtmsg.h

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

10.3.10 fnmatch.h

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

10.3.11 ftw.h

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

10.3.12 getopt.h

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

10.3.13 glob.h

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

10.3.14 iconv.h

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

10.3.15 langinfo.h

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

10.3.16 limits.h

```
#define ULONG_MAX      0xFFFFFFFFFFFFFFFFUL
#define LONG_MAX       9223372036854775807L

#define CHAR_MIN       0
#define CHAR_MAX       255

#define PTHREAD_STACK_MIN 16384
```

10.3.17 link.h

```
struct dl_phdr_info {
    Elf64_Addr dlpi_addr;
    const char *dlpi_name;
    const Elf64_Phdr *dlpi_phdr;
    Elf64_Half dlpi_phnum;
    unsigned long long int dlpi_adds;
    unsigned long long int dlpi_subs;
    size_t dlpi_tls_modid;
    void *dlpi_tls_data;
};
```

10.3.18 locale.h

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

10.3.19 net/if.h

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

10.3.20 netdb.h

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

10.3.21 netinet/icmp6.h

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

10.3.22 netinet/igmp.h

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

```
*/
```

10.3.23 netinet/in.h

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

10.3.24 netinet/in_sysm.h

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

10.3.25 netinet/ip.h

```
struct timestamp {
    u_int8_t len;
    u_int8_t ptr;
    unsigned int overflow:4;
    unsigned int flags:4;
    u_int32_t data[9];
};
struct iphdr {
    unsigned int version:4;
    unsigned int ihl:4;
    u_int8_t tos;
    u_int16_t tot_len;
    u_int16_t id;
    u_int16_t frag_off;
    u_int8_t ttl;
    u_int8_t protocol;
    u_int16_t check;
    u_int32_t saddr;
    u_int32_t daddr;
};
struct ip {
    unsigned int ip_v:4;
    unsigned int ip_hl:4;
    u_int8_t ip_tos;
    u_short ip_len;
    u_short ip_id;
    u_short ip_off;
    u_int8_t ip_ttl;
    u_int8_t ip_p;
    u_short ip_sum;
    struct in_addr ip_src;
    struct in_addr ip_dst;
};
struct ip_timestamp {
    u_int8_t ipt_len;
    u_int8_t ipt_code;
    u_int8_t ipt_ptr;
    unsigned int ipt_flg:4;
    unsigned int ipt_oflw:4;
    u_int32_t data[9];
};
```

10.3.26 netinet/ip6.h

```
#define IP6_ALERT_MLD      0x0000
#define IP6F_MORE_FRAG    0x0001
#define IP6_ALERT_RSVP    0x0001
#define IP6_ALERT_AN      0x0002
#define IP6F_RESERVED_MASK 0x0006
#define IP6F_OFF_MASK     0xfff8
```

10.3.27 netinet/ip_icmp.h

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

10.3.28 netinet/tcp.h

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

10.3.29 netinet/udp.h

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

10.3.30 nl_types.h

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

10.3.31 pwd.h

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

10.3.32 regex.h

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

10.3.33 rpc/auth.h

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

10.3.34 rpc/clnt.h

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

10.3.35 rpc/rpc_msg.h

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

10.3.36 rpc/svc.h

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

10.3.37 rpc/types.h

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

10.3.38 rpc/xdr.h

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

10.3.39 sched.h

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

10.3.40 search.h

```

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

```

10.3.41 setjmp.h

```
typedef long int __jmp_buf[18];
```

10.3.42 signal.h

```

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

typedef struct {
    unsigned long int mask;
    unsigned long int addr;
} __attribute__((aligned(8))) _psw_t;
typedef struct {
    _psw_t psw;
    unsigned long int gprs[16];
    unsigned int acrs[16];
} _s390_regs_common;

#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;
    unsigned long int sa_flags;
    void (*sa_restorer) (void);
    sigset_t sa_mask;
};

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

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

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

```

10.3.43 spawn.h

```

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

```

10.3.44 stddef.h

```

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

```

10.3.45 stdint.h

```

#define INT64_C(c)      c ## L
#define INTMAX_C(c)     c ## L
#define __INT64_C(c)    c ## L
#define UINT64_C(c)     c ## UL
#define UINTMAX_C(c)    c ## UL
#define __UINT64_C(c)   c ## UL

#define INTPTR_MIN      (-9223372036854775807L-1)
#define INT_FAST16_MIN  (-9223372036854775807L-1)
#define INT_FAST32_MIN  (-9223372036854775807L-1)
#define PTRDIFF_MIN     (-9223372036854775807L-1)
#define SIZE_MAX        (18446744073709551615UL)
#define UINTPTR_MAX     (18446744073709551615UL)
#define UINT_FAST16_MAX (18446744073709551615UL)
#define UINT_FAST32_MAX (18446744073709551615UL)
#define INTPTR_MAX      (9223372036854775807L)
#define INT_FAST16_MAX  (9223372036854775807L)
#define INT_FAST32_MAX  (9223372036854775807L)
#define PTRDIFF_MAX     (9223372036854775807L)

typedef long int int64_t;
typedef long int intmax_t;
typedef unsigned long int uintmax_t;
typedef long int intptr_t;
typedef unsigned long int uintptr_t;
typedef unsigned long int uint64_t;
typedef long int int_least64_t;
typedef unsigned long int uint_least64_t;
typedef long int int_fast16_t;
typedef long int int_fast32_t;
typedef long int int_fast64_t;
typedef unsigned long int uint_fast16_t;
typedef unsigned long int uint_fast32_t;
typedef unsigned long int uint_fast64_t;

```

10.3.46 stdio.h

```

#define __IO_FILE_SIZE  216

```

10.3.47 stdlib.h

```

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

```

10.3.48 sys/epoll.h

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

10.3.49 sys/file.h

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

10.3.50 sys/inotify.h

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

10.3.51 sys/ioctl.h

```
#define TIOCGWINSZ      0x5413
#define FIONREAD        21531
#define TIOCNOTTY      21538
```

10.3.52 sys/ipc.h

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

10.3.53 sys/mman.h

```
#define MCL_CURRENT      1
#define MCL_FUTURE      2
```

10.3.54 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;
};

```

10.3.55 sys/param.h

```

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

```

10.3.56 sys/poll.h

```

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

```

10.3.57 sys/ptrace.h

```

enum __ptrace_request {
    PTRACE_TRACEME = 0,
    PTRACE_PEEKTEXT = 1,
    PTRACE_PEEKDATA = 2,
    PTRACE_PEEKUSER = 3,
    PTRACE_POKETEXT = 4,
    PTRACE_POKEDATA = 5,
    PTRACE_POKEUSER = 6,
    PTRACE_CONT = 7,
    PTRACE_KILL = 8,
    PTRACE_SINGLESTEP = 9,
    PTRACE_ATTACH = 16,
    PTRACE_DETACH = 17,
    PTRACE_SYSCALL = 24,
    PTRACE_SETOPTIONS = 0x4200,
    PTRACE_GETEVENTMSG = 0x4201,
    PTRACE_GETSIGINFO = 0x4202,
    PTRACE_SETSIGINFO = 0x4203
};

```

10.3.58 sys/resource.h

```

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

```

10.3.59 sys/select.h

```

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

```

10.3.60 sys/sem.h

```

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

```

10.3.61 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;
};

```

10.3.62 sys/socket.h

```

typedef uint64_t __ss_aligntype;

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

```

10.3.63 sys/stat.h

```

#define _MKNOD_VER      0
#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;
    struct timespec st_atim;    /* Time of last access. */
    struct timespec st_mtim;    /* Time of last modification. */
    struct timespec st_ctim;    /* Time of last status change. */
    blksize_t st_blksize;
    blkcnt_t st_blocks;
    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;
    struct timespec st_atim; /* Time of last access. */
    struct timespec st_mtim; /* Time of last modification. */
    struct timespec st_ctim; /* Time of last status change. */
    blksize_t st_blksize;
    blkcnt64_t st_blocks;
    long int __unused[3];
};

```

10.3.64 sys/statfs.h

```

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

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

```

10.3.65 sys/statvfs.h

```

struct statvfs {
    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 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];
    };

```

10.3.66 sys/sysinfo.h

```

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

```

10.3.67 sys/time.h

```

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

```

10.3.68 sys/timeb.h

```

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

```

10.3.69 sys/times.h

```

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

```

10.3.70 sys/types.h

```

typedef int64_t ssize_t;

#define __FDSET_LONGS    16

```

10.3.71 sys/un.h

```

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

```

10.3.72 sys/utsname.h

```

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

```

10.3.73 sys/wait.h

```

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

```

10.3.74 syslog.h

```

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

```

10.3.75 tar.h

```

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

```

10.3.76 termios.h

```

#define CR2      1024
#define CR3      1536
#define CRDLY    1536
#define VT1      16384
#define VTDLY    16384
#define OLCUC    2
#define TAB1     2048
#define NLDLY    256
#define FF1      32768
#define FFDLY    32768
#define ONLCR    4
#define XCASE    4
#define TAB2     4096
#define CR1      512
#define IUCLC    512
#define TAB3     6144
#define TABDLY   6144
#define BS1      8192
#define BSDLY    8192

#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     1024
#define IXOFF    4096

#define HUPCL    1024
#define CREAD    128
#define CS6      16
#define CLOCAL   2048
#define PARENB   256
#define CS7      32
#define CS8      48
#define CSIZE    48
#define VTIME    5
#define PARODD   512
#define CSTOPB   64

#define ISIG     1
#define ECHOPRT  1024
#define NOFLSH   128
#define ECHOE    16
#define PENDIN   16384
#define ICANON   2
#define ECHOKE   2048
#define TOSTOP   256
#define ECHOK    32
#define IEXTEN   32768
#define FLUSHO   4096
#define ECHOCTL  512
#define ECHONL   64

```

10.3.77 ucontext.h

```

#define NGREG     27

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

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

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

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

```

10.3.78 ulimit.h

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

10.3.79 unistd.h

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

10.3.80 utime.h

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

10.3.81 utmp.h

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

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

10.3.82 utmpx.h

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

```

    long int ut_session;                /* Session ID, used for
windowing. */
    struct timeval ut_tv;                /* Time entry was made. */
    int32_t ut_addr_v6[4];              /* Internet address of remote
host. */
    char __unused[20];                  /* Reserved for future use. */
};

```

10.3.83 wctype.h

```

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

```

10.3.84 wordexp.h

```

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

```

10.4 Interfaces for libm

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

Table 10-37 libm Definition

| | |
|----------|-----------|
| Library: | libm |
| SONAME: | libm.so.6 |

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

[LSB] ISO/IEC 23360 Part 1

[SUSv3] POSIX 1003.1-2001 (ISO/IEC 9945-2003)

10.4.1 Math

10.4.1.1 Interfaces for Math

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

Table 10-38 libm - Math Function Interfaces

| | | | |
|--|---|---|---|
| <code>__finite(GLIBC_2.2)</code> [LSB] | <code>__finitef(GLIBC_2.2)</code> [LSB] | <code>__finitel(GLIBC_2.2)</code> [LSB] | <code>__finitel(GLIBC_2.4)</code> [LSB] |
| <code>__fpclassify(GLIBC_2.2)</code> [LSB] | <code>__fpclassifyf(GLIBC_2.2)</code> [LSB] | <code>__fpclassifyl(GLIBC_2.4)</code> [LSB] | <code>__signbit(GLIBC_2.2)</code> [LSB] |
| <code>__signbitf(GLIBC_2.2)</code> [LSB] | <code>__signbitl(GLIBC_2.4)</code> [LSB] | <code>acos(GLIBC_2.2)</code> [SUSv3] | <code>acosf(GLIBC_2.2)</code> [SUSv3] |
| <code>acosh(GLIBC_2.2)</code> [SUSv3] | <code>acoshf(GLIBC_2.2)</code> [SUSv3] | <code>acoshl(GLIBC_2.2)</code> [SUSv3] | <code>acoshl(GLIBC_2.4)</code> [SUSv3] |
| <code>acosl(GLIBC_2.2)</code> | <code>acosl(GLIBC_2.4)</code> | <code>asin(GLIBC_2.2)</code> | <code>asinf(GLIBC_2.2)</code> |

| | | | |
|---------------------------|----------------------------|----------------------------|----------------------------|
| [SUSv3] | [SUSv3] | [SUSv3] | [SUSv3] |
| asinh(GLIBC_2.2) [SUSv3] | asinhf(GLIBC_2.2) [SUSv3] | asinhf(GLIBC_2.2) [SUSv3] | asinhf(GLIBC_2.4) [SUSv3] |
| asinl(GLIBC_2.2) [SUSv3] | asinl(GLIBC_2.4) [SUSv3] | atan(GLIBC_2.2) [SUSv3] | atan2(GLIBC_2.2) [SUSv3] |
| atan2f(GLIBC_2.2) [SUSv3] | atan2l(GLIBC_2.2) [SUSv3] | atan2l(GLIBC_2.4) [SUSv3] | atanf(GLIBC_2.2) [SUSv3] |
| atanh(GLIBC_2.2) [SUSv3] | atanhf(GLIBC_2.2) [SUSv3] | atanhl(GLIBC_2.2) [SUSv3] | atanhl(GLIBC_2.4) [SUSv3] |
| atanl(GLIBC_2.2) [SUSv3] | atanl(GLIBC_2.4) [SUSv3] | cabs(GLIBC_2.2) [SUSv3] | cabsf(GLIBC_2.2) [SUSv3] |
| cabsf(GLIBC_2.2) [SUSv3] | cabsf(GLIBC_2.4) [SUSv3] | cacos(GLIBC_2.2) [SUSv3] | cacosf(GLIBC_2.2) [SUSv3] |
| cacosh(GLIBC_2.2) [SUSv3] | cacoshf(GLIBC_2.2) [SUSv3] | cacoshl(GLIBC_2.2) [SUSv3] | cacoshl(GLIBC_2.4) [SUSv3] |
| cacosl(GLIBC_2.2) [SUSv3] | cacosl(GLIBC_2.4) [SUSv3] | carg(GLIBC_2.2) [SUSv3] | cargf(GLIBC_2.2) [SUSv3] |
| cargl(GLIBC_2.2) [SUSv3] | cargl(GLIBC_2.4) [SUSv3] | casin(GLIBC_2.2) [SUSv3] | casinf(GLIBC_2.2) [SUSv3] |
| casinh(GLIBC_2.2) [SUSv3] | casinhf(GLIBC_2.2) [SUSv3] | casinhf(GLIBC_2.2) [SUSv3] | casinhf(GLIBC_2.4) [SUSv3] |
| casinl(GLIBC_2.2) [SUSv3] | casinl(GLIBC_2.4) [SUSv3] | catan(GLIBC_2.2) [SUSv3] | catanf(GLIBC_2.2) [SUSv3] |
| catanh(GLIBC_2.2) [SUSv3] | catanhf(GLIBC_2.2) [SUSv3] | catanhf(GLIBC_2.2) [SUSv3] | catanhf(GLIBC_2.4) [SUSv3] |
| catanl(GLIBC_2.2) [SUSv3] | catanl(GLIBC_2.4) [SUSv3] | cbrt(GLIBC_2.2) [SUSv3] | cbrtf(GLIBC_2.2) [SUSv3] |
| cbrtl(GLIBC_2.2) [SUSv3] | cbrtl(GLIBC_2.4) [SUSv3] | ccos(GLIBC_2.2) [SUSv3] | ccosf(GLIBC_2.2) [SUSv3] |
| ccosh(GLIBC_2.2) [SUSv3] | ccoshf(GLIBC_2.2) [SUSv3] | ccoshf(GLIBC_2.2) [SUSv3] | ccoshf(GLIBC_2.4) [SUSv3] |
| ccosl(GLIBC_2.2) [SUSv3] | ccosl(GLIBC_2.4) [SUSv3] | ceil(GLIBC_2.2) [SUSv3] | ceilf(GLIBC_2.2) [SUSv3] |
| ceil(GLIBC_2.2) [SUSv3] | ceil(GLIBC_2.4) [SUSv3] | cexp(GLIBC_2.2) [SUSv3] | cexpf(GLIBC_2.2) [SUSv3] |
| cexpl(GLIBC_2.2) [SUSv3] | cexpl(GLIBC_2.4) [SUSv3] | cimag(GLIBC_2.2) [SUSv3] | cimagf(GLIBC_2.2) [SUSv3] |
| cimagl(GLIBC_2.2) [SUSv3] | cimagl(GLIBC_2.4) [SUSv3] | clog(GLIBC_2.2) [SUSv3] | clog10(GLIBC_2.2) [LSB] |
| clog10f(GLIBC_2.2) [LSB] | clog10l(GLIBC_2.2) [LSB] | clog10l(GLIBC_2.4) [LSB] | clogf(GLIBC_2.2) [SUSv3] |
| clogl(GLIBC_2.2) | clogl(GLIBC_2.4) | conj(GLIBC_2.2) | conjf(GLIBC_2.2) |

| | | | |
|---------------------------------|---------------------------------|--------------------------------|---------------------------------|
| [SUSv3] | [SUSv3] | [SUSv3] | [SUSv3] |
| conjl(GLIBC_2.2) [SUSv3] | conjl(GLIBC_2.4) [SUSv3] | copysign(GLIBC_2.2) [SUSv3] | copysignf(GLIBC_2.2) [SUSv3] |
| copysignl(GLIBC_2.2) [SUSv3] | copysignl(GLIBC_2.4) [SUSv3] | cos(GLIBC_2.2) [SUSv3] | cosf(GLIBC_2.2) [SUSv3] |
| cosh(GLIBC_2.2) [SUSv3] | coshf(GLIBC_2.2) [SUSv3] | coshl(GLIBC_2.2) [SUSv3] | coshl(GLIBC_2.4) [SUSv3] |
| cosl(GLIBC_2.2) [SUSv3] | cosl(GLIBC_2.4) [SUSv3] | cpow(GLIBC_2.2) [SUSv3] | cpowf(GLIBC_2.2) [SUSv3] |
| cpowl(GLIBC_2.2) [SUSv3] | cpowl(GLIBC_2.4) [SUSv3] | cproj(GLIBC_2.2) [SUSv3] | cprojf(GLIBC_2.2) [SUSv3] |
| cprojl(GLIBC_2.2) [SUSv3] | cprojl(GLIBC_2.4) [SUSv3] | creal(GLIBC_2.2) [SUSv3] | crealf(GLIBC_2.2) [SUSv3] |
| creall(GLIBC_2.2) [SUSv3] | creall(GLIBC_2.4) [SUSv3] | csin(GLIBC_2.2) [SUSv3] | csinf(GLIBC_2.2) [SUSv3] |
| csinh(GLIBC_2.2) [SUSv3] | csinhf(GLIBC_2.2) [SUSv3] | csinhl(GLIBC_2.2) [SUSv3] | csinhl(GLIBC_2.4) [SUSv3] |
| csinl(GLIBC_2.2) [SUSv3] | csinl(GLIBC_2.4) [SUSv3] | csqrt(GLIBC_2.2) [SUSv3] | csqrtf(GLIBC_2.2) [SUSv3] |
| csqrtl(GLIBC_2.2) [SUSv3] | csqrtl(GLIBC_2.4) [SUSv3] | ctan(GLIBC_2.2) [SUSv3] | ctanf(GLIBC_2.2) [SUSv3] |
| ctanh(GLIBC_2.2) [SUSv3] | ctanhf(GLIBC_2.2) [SUSv3] | ctanhl(GLIBC_2.2) [SUSv3] | ctanhl(GLIBC_2.4) [SUSv3] |
| ctanl(GLIBC_2.2) [SUSv3] | ctanl(GLIBC_2.4) [SUSv3] | drem(GLIBC_2.2) [LSB] | dremf(GLIBC_2.2) [LSB] |
| dreml(GLIBC_2.2) [LSB] | dreml(GLIBC_2.4) [LSB] | erf(GLIBC_2.2) [SUSv3] | erfc(GLIBC_2.2) [SUSv3] |
| erfcf(GLIBC_2.2) [SUSv3] | erfcf(GLIBC_2.2) [SUSv3] | erfcf(GLIBC_2.4) [SUSv3] | erff(GLIBC_2.2) [SUSv3] |
| erfl(GLIBC_2.2) [SUSv3] | erfl(GLIBC_2.4) [SUSv3] | exp(GLIBC_2.2) [SUSv3] | exp10(GLIBC_2.2) [LSB] |
| exp10f(GLIBC_2.2) [LSB] | exp10l(GLIBC_2.2) [LSB] | exp10l(GLIBC_2.4) [LSB] | exp2(GLIBC_2.2) [SUSv3] |
| exp2f(GLIBC_2.2) [SUSv3] | exp2l(GLIBC_2.4) [SUSv3] | expf(GLIBC_2.2) [SUSv3] | expl(GLIBC_2.2) [SUSv3] |
| expl(GLIBC_2.4) [SUSv3] | expm1(GLIBC_2.2) [SUSv3] | expm1f(GLIBC_2.2) [SUSv3] | expm1l(GLIBC_2.2) [SUSv3] |
| expm1l(GLIBC_2.4) [SUSv3] | fabs(GLIBC_2.2) [SUSv3] | fabsf(GLIBC_2.2) [SUSv3] | fabsl(GLIBC_2.2) [SUSv3] |
| fabsl(GLIBC_2.4) [SUSv3] | fdim(GLIBC_2.2) [SUSv3] | fdimf(GLIBC_2.2) [SUSv3] | fdiml(GLIBC_2.2) [SUSv3] |
| fdiml(GLIBC_2.4) | feclearexcept(GL | fedisableexcept(| feenableexcept(G |

| | | | |
|---------------------------------|----------------------------------|------------------------------------|------------------------------------|
|) [SUSv3] | IBC_2.2) [SUSv3] | GLIBC_2.2) [LSB] | LIBC_2.2) [LSB] |
| fegetenv(GLIBC_2.2) [SUSv3] | fegetexcept(GLIBC_2.2) [LSB] | fegetexceptflag(GLIBC_2.2) [SUSv3] | fegetround(GLIBC_2.2) [SUSv3] |
| feholdexcept(GLIBC_2.2) [SUSv3] | feraiseexcept(GLIBC_2.2) [SUSv3] | fesetenv(GLIBC_2.2) [SUSv3] | fesetexceptflag(GLIBC_2.2) [SUSv3] |
| fesetround(GLIBC_2.2) [SUSv3] | fetestexcept(GLIBC_2.2) [SUSv3] | feupdateenv(GLIBC_2.2) [SUSv3] | finite(GLIBC_2.2) [LSB] |
| finitel(GLIBC_2.2) [LSB] | finitel(GLIBC_2.2) [LSB] | finitel(GLIBC_2.4) [LSB] | floor(GLIBC_2.2) [SUSv3] |
| floorf(GLIBC_2.2) [SUSv3] | floorl(GLIBC_2.2) [SUSv3] | floorl(GLIBC_2.4) [SUSv3] | fma(GLIBC_2.2) [SUSv3] |
| fmaf(GLIBC_2.2) [SUSv3] | fmal(GLIBC_2.2) [SUSv3] | fmal(GLIBC_2.4) [SUSv3] | fmax(GLIBC_2.2) [SUSv3] |
| fmaxf(GLIBC_2.2) [SUSv3] | fmaxl(GLIBC_2.2) [SUSv3] | fmaxl(GLIBC_2.4) [SUSv3] | fmin(GLIBC_2.2) [SUSv3] |
| fminf(GLIBC_2.2) [SUSv3] | fminl(GLIBC_2.2) [SUSv3] | fminl(GLIBC_2.4) [SUSv3] | fmod(GLIBC_2.2) [SUSv3] |
| fmodf(GLIBC_2.2) [SUSv3] | fmodl(GLIBC_2.2) [SUSv3] | fmodl(GLIBC_2.4) [SUSv3] | frexp(GLIBC_2.2) [SUSv3] |
| frexpf(GLIBC_2.2) [SUSv3] | frexpl(GLIBC_2.2) [SUSv3] | frexpl(GLIBC_2.4) [SUSv3] | gamma(GLIBC_2.2) [LSB] |
| gammaf(GLIBC_2.2) [LSB] | gammal(GLIBC_2.2) [LSB] | gammal(GLIBC_2.4) [LSB] | hypot(GLIBC_2.2) [SUSv3] |
| hypotf(GLIBC_2.2) [SUSv3] | hypotl(GLIBC_2.2) [SUSv3] | hypotl(GLIBC_2.4) [SUSv3] | ilogb(GLIBC_2.2) [SUSv3] |
| ilogbf(GLIBC_2.2) [SUSv3] | ilogbl(GLIBC_2.2) [SUSv3] | ilogbl(GLIBC_2.4) [SUSv3] | j0(GLIBC_2.2) [SUSv3] |
| j0f(GLIBC_2.2) [LSB] | j0l(GLIBC_2.2) [LSB] | j0l(GLIBC_2.4) [LSB] | j1(GLIBC_2.2) [SUSv3] |
| j1f(GLIBC_2.2) [LSB] | j1l(GLIBC_2.2) [LSB] | j1l(GLIBC_2.4) [LSB] | jn(GLIBC_2.2) [SUSv3] |
| jnf(GLIBC_2.2) [LSB] | jnl(GLIBC_2.2) [LSB] | jnl(GLIBC_2.4) [LSB] | ldexp(GLIBC_2.2) [SUSv3] |
| ldexpf(GLIBC_2.2) [SUSv3] | ldexpl(GLIBC_2.2) [SUSv3] | ldexpl(GLIBC_2.4) [SUSv3] | lgamma(GLIBC_2.2) [SUSv3] |
| lgamma_r(GLIBC_2.2) [LSB] | lgammaf(GLIBC_2.2) [SUSv3] | lgammaf_r(GLIBC_2.2) [LSB] | lgammal(GLIBC_2.2) [SUSv3] |
| lgammal(GLIBC_2.4) [SUSv3] | lgammal_r(GLIBC_2.2) [LSB] | lgammal_r(GLIBC_2.4) [LSB] | llrint(GLIBC_2.2) [SUSv3] |
| llrintf(GLIBC_2.2) [SUSv3] | llrintl(GLIBC_2.2) [SUSv3] | llrintl(GLIBC_2.4) [SUSv3] | llround(GLIBC_2.2) [SUSv3] |

| | | | |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| llroundf(GLIBC_2.2) [SUSv3] | llroundl(GLIBC_2.2) [SUSv3] | llroundl(GLIBC_2.4) [SUSv3] | log(GLIBC_2.2) [SUSv3] |
| log10(GLIBC_2.2) [SUSv3] | log10f(GLIBC_2.2) [SUSv3] | log10l(GLIBC_2.2) [SUSv3] | log10l(GLIBC_2.4) [SUSv3] |
| log1p(GLIBC_2.2) [SUSv3] | log1pf(GLIBC_2.2) [SUSv3] | log1pl(GLIBC_2.2) [SUSv3] | log1pl(GLIBC_2.4) [SUSv3] |
| log2(GLIBC_2.2) [SUSv3] | log2f(GLIBC_2.2) [SUSv3] | log2l(GLIBC_2.2) [SUSv3] | log2l(GLIBC_2.4) [SUSv3] |
| logb(GLIBC_2.2) [SUSv3] | logbf(GLIBC_2.2) [SUSv3] | logbl(GLIBC_2.2) [SUSv3] | logbl(GLIBC_2.4) [SUSv3] |
| logf(GLIBC_2.2) [SUSv3] | logl(GLIBC_2.2) [SUSv3] | logl(GLIBC_2.4) [SUSv3] | lrint(GLIBC_2.2) [SUSv3] |
| lrintf(GLIBC_2.2) [SUSv3] | lrintl(GLIBC_2.2) [SUSv3] | lrintl(GLIBC_2.4) [SUSv3] | lround(GLIBC_2.2) [SUSv3] |
| lroundf(GLIBC_2.2) [SUSv3] | lroundl(GLIBC_2.2) [SUSv3] | lroundl(GLIBC_2.4) [SUSv3] | matherr(GLIBC_2.2) [LSB] |
| modf(GLIBC_2.2) [SUSv3] | modff(GLIBC_2.2) [SUSv3] | modfl(GLIBC_2.2) [SUSv3] | modfl(GLIBC_2.4) [SUSv3] |
| nan(GLIBC_2.2) [SUSv3] | nanf(GLIBC_2.2) [SUSv3] | nanl(GLIBC_2.2) [SUSv3] | nanl(GLIBC_2.4) [SUSv3] |
| nearbyint(GLIBC_2.2) [SUSv3] | nearbyintf(GLIBC_2.2) [SUSv3] | nearbyintl(GLIBC_2.2) [SUSv3] | nearbyintl(GLIBC_2.4) [SUSv3] |
| nextafter(GLIBC_2.2) [SUSv3] | nextafterf(GLIBC_2.2) [SUSv3] | nextafterl(GLIBC_2.2) [SUSv3] | nextafterl(GLIBC_2.4) [SUSv3] |
| nexttoward(GLIBC_2.2) [SUSv3] | nexttowardf(GLIBC_2.4) [SUSv3] | nexttowardf(GLIBC_2.2) [SUSv3] | nexttowardf(GLIBC_2.4) [SUSv3] |
| nexttowardl(GLIBC_2.2) [SUSv3] | nexttowardl(GLIBC_2.4) [SUSv3] | pow(GLIBC_2.2) [SUSv3] | pow10(GLIBC_2.2) [LSB] |
| pow10f(GLIBC_2.2) [LSB] | pow10l(GLIBC_2.2) [LSB] | pow10l(GLIBC_2.4) [LSB] | powf(GLIBC_2.2) [SUSv3] |
| powl(GLIBC_2.2) [SUSv3] | powl(GLIBC_2.4) [SUSv3] | remainder(GLIBC_2.2) [SUSv3] | remainderf(GLIBC_2.2) [SUSv3] |
| remainderl(GLIBC_2.2) [SUSv3] | remainderl(GLIBC_2.4) [SUSv3] | remquo(GLIBC_2.2) [SUSv3] | remquoof(GLIBC_2.2) [SUSv3] |
| remquoof(GLIBC_2.2) [SUSv3] | remquoof(GLIBC_2.4) [SUSv3] | rint(GLIBC_2.2) [SUSv3] | rintf(GLIBC_2.2) [SUSv3] |
| rintl(GLIBC_2.2) [SUSv3] | rintl(GLIBC_2.4) [SUSv3] | round(GLIBC_2.2) [SUSv3] | roundf(GLIBC_2.2) [SUSv3] |
| roundl(GLIBC_2.2) [SUSv3] | roundl(GLIBC_2.4) [SUSv3] | scalb(GLIBC_2.2) [SUSv3] | scalbf(GLIBC_2.2) [LSB] |
| scalbl(GLIBC_2.2) [LSB] | scalbl(GLIBC_2.4) [LSB] | scalbln(GLIBC_2.2) [SUSv3] | scalblnf(GLIBC_2.2) [SUSv3] |

| | | | |
|-------------------------------|-------------------------------|------------------------------|-------------------------------|
| scalbnl(GLIBC_2.2) [SUSv3] | scalbnl(GLIBC_2.4) [SUSv3] | scalbn(GLIBC_2.2) [SUSv3] | scalbnf(GLIBC_2.2) [SUSv3] |
| scalbnl(GLIBC_2.2) [SUSv3] | scalbnl(GLIBC_2.4) [SUSv3] | significand(GLIBC_2.2) [LSB] | significandf(GLIBC_2.2) [LSB] |
| significandl(GLIBC_2.2) [LSB] | significandl(GLIBC_2.4) [LSB] | sin(GLIBC_2.2) [SUSv3] | sincos(GLIBC_2.2) [LSB] |
| sincosf(GLIBC_2.2) [LSB] | sincosl(GLIBC_2.2) [LSB] | sincosl(GLIBC_2.4) [LSB] | sinf(GLIBC_2.2) [SUSv3] |
| sinh(GLIBC_2.2) [SUSv3] | sinhf(GLIBC_2.2) [SUSv3] | sinhl(GLIBC_2.2) [SUSv3] | sinhl(GLIBC_2.4) [SUSv3] |
| sinl(GLIBC_2.2) [SUSv3] | sinl(GLIBC_2.4) [SUSv3] | sqrt(GLIBC_2.2) [SUSv3] | sqrtrf(GLIBC_2.2) [SUSv3] |
| sqrtrl(GLIBC_2.2) [SUSv3] | sqrtrl(GLIBC_2.4) [SUSv3] | tan(GLIBC_2.2) [SUSv3] | tanf(GLIBC_2.2) [SUSv3] |
| tanh(GLIBC_2.2) [SUSv3] | tanhf(GLIBC_2.2) [SUSv3] | tanhf(GLIBC_2.2) [SUSv3] | tanhf(GLIBC_2.4) [SUSv3] |
| tanl(GLIBC_2.2) [SUSv3] | tanl(GLIBC_2.4) [SUSv3] | tgamma(GLIBC_2.2) [SUSv3] | tgammalf(GLIBC_2.2) [SUSv3] |
| tgammal(GLIBC_2.2) [SUSv3] | tgammal(GLIBC_2.4) [SUSv3] | trunc(GLIBC_2.2) [SUSv3] | truncf(GLIBC_2.2) [SUSv3] |
| truncl(GLIBC_2.2) [SUSv3] | truncl(GLIBC_2.4) [SUSv3] | y0(GLIBC_2.2) [SUSv3] | y0f(GLIBC_2.2) [LSB] |
| y0l(GLIBC_2.2) [LSB] | y0l(GLIBC_2.4) [LSB] | y1(GLIBC_2.2) [SUSv3] | y1f(GLIBC_2.2) [LSB] |
| y1l(GLIBC_2.2) [LSB] | y1l(GLIBC_2.4) [LSB] | yn(GLIBC_2.2) [SUSv3] | ynf(GLIBC_2.2) [LSB] |
| ynl(GLIBC_2.2) [LSB] | ynl(GLIBC_2.4) [LSB] | | |

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

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

Table 10-39 libm - Math Deprecated Function Interfaces

| | | | |
|----------------------------|----------------------------|----------------------------|---------------------------|
| __finitel(GLIBC_2.2) [LSB] | acoshl(GLIBC_2.2) [SUSv3] | acosl(GLIBC_2.2) [SUSv3] | asinhf(GLIBC_2.2) [SUSv3] |
| asinl(GLIBC_2.2) [SUSv3] | atan2l(GLIBC_2.2) [SUSv3] | atanhl(GLIBC_2.2) [SUSv3] | atanl(GLIBC_2.2) [SUSv3] |
| cabsf(GLIBC_2.2) [SUSv3] | cacoshl(GLIBC_2.2) [SUSv3] | cacosl(GLIBC_2.2) [SUSv3] | cargf(GLIBC_2.2) [SUSv3] |
| casinhf(GLIBC_2.2) [SUSv3] | casinl(GLIBC_2.2) [SUSv3] | catanhf(GLIBC_2.2) [SUSv3] | catanl(GLIBC_2.2) [SUSv3] |

| | | | |
|--------------------------------|--------------------------------|-------------------------------|-------------------------------|
| 2) [SUSv3] |) [SUSv3] | .2) [SUSv3] |) [SUSv3] |
| cbrtl(GLIBC_2.2) [SUSv3] | ccoshl(GLIBC_2.2) [SUSv3] | ccosl(GLIBC_2.2) [SUSv3] | ceil(GLIBC_2.2) [SUSv3] |
| cexpl(GLIBC_2.2) [SUSv3] | cimagl(GLIBC_2.2) [SUSv3] | clog10l(GLIBC_2.2) [LSB] | clogl(GLIBC_2.2) [SUSv3] |
| conj1(GLIBC_2.2) [SUSv3] | copysignl(GLIBC_2.2) [SUSv3] | coshl(GLIBC_2.2) [SUSv3] | cosl(GLIBC_2.2) [SUSv3] |
| cpowl(GLIBC_2.2) [SUSv3] | cprojl(GLIBC_2.2) [SUSv3] | creall(GLIBC_2.2) [SUSv3] | csinhl(GLIBC_2.2) [SUSv3] |
| csinl(GLIBC_2.2) [SUSv3] | csqrtl(GLIBC_2.2) [SUSv3] | ctanh1(GLIBC_2.2) [SUSv3] | ctanl(GLIBC_2.2) [SUSv3] |
| drem(GLIBC_2.2) [LSB] | dremf(GLIBC_2.2) [LSB] | dreml(GLIBC_2.2) [LSB] | dreml(GLIBC_2.4) [LSB] |
| erfcl(GLIBC_2.2) [SUSv3] | erfl(GLIBC_2.2) [SUSv3] | exp10l(GLIBC_2.2) [LSB] | expl(GLIBC_2.2) [SUSv3] |
| expm1l(GLIBC_2.2) [SUSv3] | fabsl(GLIBC_2.2) [SUSv3] | fdiml(GLIBC_2.2) [SUSv3] | finite(GLIBC_2.2) [LSB] |
| finitel(GLIBC_2.2) [LSB] | finitel(GLIBC_2.2) [LSB] | finitel(GLIBC_2.4) [LSB] | floorl(GLIBC_2.2) [SUSv3] |
| fmal(GLIBC_2.2) [SUSv3] | fmaxl(GLIBC_2.2) [SUSv3] | fminl(GLIBC_2.2) [SUSv3] | fmodl(GLIBC_2.2) [SUSv3] |
| frexpl(GLIBC_2.2) [SUSv3] | gamma(GLIBC_2.2) [LSB] | gammaf(GLIBC_2.2) [LSB] | gammal(GLIBC_2.2) [LSB] |
| gammal(GLIBC_2.4) [LSB] | hypotl(GLIBC_2.2) [SUSv3] | ilogbl(GLIBC_2.2) [SUSv3] | j0l(GLIBC_2.2) [LSB] |
| j1l(GLIBC_2.2) [LSB] | jnl(GLIBC_2.2) [LSB] | ldexpl(GLIBC_2.2) [SUSv3] | lgammal(GLIBC_2.2) [SUSv3] |
| lgamma_r(GLIBC_2.2) [LSB] | llrintl(GLIBC_2.2) [SUSv3] | llroundl(GLIBC_2.2) [SUSv3] | log10l(GLIBC_2.2) [SUSv3] |
| log1pl(GLIBC_2.2) [SUSv3] | log2l(GLIBC_2.2) [SUSv3] | logbl(GLIBC_2.2) [SUSv3] | logl(GLIBC_2.2) [SUSv3] |
| lrintl(GLIBC_2.2) [SUSv3] | lroundl(GLIBC_2.2) [SUSv3] | matherr(GLIBC_2.2) [LSB] | modfl(GLIBC_2.2) [SUSv3] |
| nanl(GLIBC_2.2) [SUSv3] | nearbyintl(GLIBC_2.2) [SUSv3] | nextafterl(GLIBC_2.2) [SUSv3] | nexttoward(GLIBC_2.2) [SUSv3] |
| nexttowardf(GLIBC_2.2) [SUSv3] | nexttowardl(GLIBC_2.2) [SUSv3] | pow10l(GLIBC_2.2) [LSB] | powl(GLIBC_2.2) [SUSv3] |
| remainderl(GLIBC_2.2) [SUSv3] | remquol(GLIBC_2.2) [SUSv3] | rintl(GLIBC_2.2) [SUSv3] | roundl(GLIBC_2.2) [SUSv3] |
| scalbl(GLIBC_2.2) [LSB] | scalbnl(GLIBC_2.2) [SUSv3] | scalbnl(GLIBC_2.2) [SUSv3] | significandl(GLIBC_2.2) [LSB] |
| sincosl(GLIBC_2.2) | sinhl(GLIBC_2.2) | sinl(GLIBC_2.2) | sqrtl(GLIBC_2.2) |

| | | | |
|-----------------------------|----------------------------|-------------------------------|------------------------------|
| 2) [LSB] | [SUSv3] | [SUSv3] | [SUSv3] |
| tanh1(GLIBC_2.2) [SUSv3] | tan1(GLIBC_2.2) [SUSv3] | tgammal(GLIBC_2.2) [SUSv3] | trunc1(GLIBC_2.2) [SUSv3] |
| y0l(GLIBC_2.2) [LSB] | y1l(GLIBC_2.2) [LSB] | ynl(GLIBC_2.2) [LSB] | |

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

Table 10-40 libm - Math Data Interfaces

| | | | |
|----------------------------|--|--|--|
| signgam(GLIBC_2.2) [SUSv3] | | | |
|----------------------------|--|--|--|

10.5 Data Definitions for libm

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

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

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

10.5.1 complex.h

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

10.5.2 fenv.h

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

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

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

```

#define FE_DOWNWARD      0x3

typedef unsigned int fexcept_t;

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

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

```

10.5.3 math.h

```

typedef double float_t;
typedef double double_t;

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

#define HUGE_VALL      0x1.0p2047L

#define FP_ILOGB0      -2147483647
#define FP_ILOGBNAN    2147483647

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

```

10.6 Interface Definitions for libm

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

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

__fpclassify

Name

`__fpclassify` — Classify real floating type

Synopsis

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

Description

`__fpclassify()` has the same specification as `fpclassify()` in POSIX 1003.1-2001 (ISO/IEC 9945-2003), except that the argument type for `__fpclassify()` is known to be long double.

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

__signbitl

Name

`__signbitl` — test sign of floating point value

Synopsis

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

Description

`__signbitl()` has the same specification as `signbit()` in POSIX 1003.1-2001 (ISO/IEC 9945-2003), except that the argument type for `__signbitl()` is known to be long double.

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

10.7 Interfaces for libpthread

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

Table 10-41 libpthread Definition

| | |
|----------|-----------------|
| Library: | libpthread |
| SONAME: | libpthread.so.0 |

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

- [LFS] Large File Support
- [LSB] ISO/IEC 23360 Part 1
- [SUSv3] POSIX 1003.1-2001 (ISO/IEC 9945-2003)

10.7.1 Realtime Threads

10.7.1.1 Interfaces for Realtime Threads

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

Table 10-42 libpthread - Realtime Threads Function Interfaces

| | | | |
|---|--|--|---|
| pthread_attr_getinheritsched(GLIBC_2.2) [SUSv3] | pthread_attr_getschedpolicy(GLIBC_2.2) [SUSv3] | pthread_attr_getscope(GLIBC_2.2) [SUSv3] | pthread_attr_setinheritsched(GLIBC_2.2) [SUSv3] |
| pthread_attr_setschedpolicy(GLIBC_2.2) [SUSv3] | pthread_attr_setscope(GLIBC_2.2) [SUSv3] | pthread_getschedparam(GLIBC_2.2) [SUSv3] | pthread_setschedparam(GLIBC_2.2) [SUSv3] |

10.7.2 Advanced Realtime Threads

10.7.2.1 Interfaces for Advanced Realtime Threads

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

Table 10-43 libpthread - Advanced Realtime Threads Function Interfaces

| | | | |
|---|---|--|--|
| pthread_barrier_destroy(GLIBC_2.2) [SUSv3] | pthread_barrier_init(GLIBC_2.2) [SUSv3] | pthread_barrier_wait(GLIBC_2.2) [SUSv3] | pthread_barrierattr_destroy(GLIBC_2.2) [SUSv3] |
| pthread_barrierattr_init(GLIBC_2.2) [SUSv3] | pthread_barrierattr_setpshared(GLIBC_2.2) [SUSv3] | pthread_getcpuclockid(GLIBC_2.2) [SUSv3] | pthread_spin_destroy(GLIBC_2.2) [SUSv3] |
| pthread_spin_init(GLIBC_2.2) [SUSv3] | pthread_spin_lock(GLIBC_2.2) [SUSv3] | pthread_spin_trylock(GLIBC_2.2) [SUSv3] | pthread_spin_unlock(GLIBC_2.2) [SUSv3] |

10.7.3 Posix Threads

10.7.3.1 Interfaces for Posix Threads

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

Table 10-44 libpthread - Posix Threads Function Interfaces

| | | | |
|--|---|--|--|
| _pthread_cleanup_pop(GLIBC_2.2) [LSB] | _pthread_cleanup_push(GLIBC_2.2) [LSB] | pthread_attr_destroy(GLIBC_2.2) [SUSv3] | pthread_attr_getdetachstate(GLIBC_2.2) [SUSv3] |
| pthread_attr_getguardsize(GLIBC_2.2) [SUSv3] | pthread_attr_getschedparam(GLIBC_2.2) [SUSv3] | pthread_attr_getstack(GLIBC_2.2) [SUSv3] | pthread_attr_getstackaddr(GLIBC_2.2) [SUSv3] |

| | | | |
|--|---|--|---|
| pthread_attr_get stacksize(GLIBC _2.2) [SUSv3] | pthread_attr_init (GLIBC_2.2) [SUSv3] | pthread_attr_set detachstate(GLIB C_2.2) [SUSv3] | pthread_attr_set guardsize(GLIBC _2.2) [SUSv3] |
| pthread_attr_sets chedparam(GLIB C_2.2) [SUSv3] | pthread_attr_sets tack(GLIBC_2.2) [SUSv3] | pthread_attr_sets tackaddr(GLIBC _2.2) [SUSv3] | pthread_attr_sets tacksize(GLIBC_ 2.2) [SUSv3] |
| pthread_cancel(GLIBC_2.2) [SUSv3] | pthread_cond_br oadcast(GLIBC_2 .3.2) [SUSv3] | pthread_cond_de stroy(GLIBC_2.3. 2) [SUSv3] | pthread_cond_in it(GLIBC_2.3.2) [SUSv3] |
| pthread_cond_si gnal(GLIBC_2.3. 2) [SUSv3] | pthread_cond_ti medwait(GLIBC _2.3.2) [SUSv3] | pthread_cond_w ait(GLIBC_2.3.2) [SUSv3] | pthread_condattr _destroy(GLIBC_ 2.2) [SUSv3] |
| pthread_condattr _getpshared(GLI BC_2.2) [SUSv3] | pthread_condattr _init(GLIBC_2.2) [SUSv3] | pthread_condattr _setpshared(GLI BC_2.2) [SUSv3] | pthread_create(G LIBC_2.2) [SUSv3] |
| pthread_detach(GLIBC_2.2) [SUSv3] | pthread_equal(G LIBC_2.2) [SUSv3] | pthread_exit(GLI BC_2.2) [SUSv3] | pthread_getconc urrency(GLIBC_ 2.2) [SUSv3] |
| pthread_getspeci fic(GLIBC_2.2) [SUSv3] | pthread_join(GLI BC_2.2) [SUSv3] | pthread_key_cre ate(GLIBC_2.2) [SUSv3] | pthread_key_del ete(GLIBC_2.2) [SUSv3] |
| pthread_kill(GLI BC_2.2) [SUSv3] | pthread_mutex_ destroy(GLIBC_2 .2) [SUSv3] | pthread_mutex_i nit(GLIBC_2.2) [SUSv3] | pthread_mutex_l ock(GLIBC_2.2) [SUSv3] |
| pthread_mutex_t imedlock(GLIBC _2.2) [SUSv3] | pthread_mutex_t rylock(GLIBC_2. 2) [SUSv3] | pthread_mutex_ unlock(GLIBC_2. 2) [SUSv3] | pthread_mutexat tr_destroy(GLIB C_2.2) [SUSv3] |
| pthread_mutexat tr_getpshared(G LIBC_2.2) [SUSv3] | pthread_mutexat tr_gettype(GLIB C_2.2) [SUSv3] | pthread_mutexat tr_init(GLIBC_2. 2) [SUSv3] | pthread_mutexat tr_setpshared(GL IBC_2.2) [SUSv3] |
| pthread_mutexat tr_settype(GLIBC _2.2) [SUSv3] | pthread_once(GL IBC_2.2) [SUSv3] | pthread_rwlock_ destroy(GLIBC_2 .2) [SUSv3] | pthread_rwlock_ init(GLIBC_2.2) [SUSv3] |
| pthread_rwlock_ rdlock(GLIBC_2. 2) [SUSv3] | pthread_rwlock_ timedrdlock(GLI BC_2.2) [SUSv3] | pthread_rwlock_ timedwrlock(GLI BC_2.2) [SUSv3] | pthread_rwlock_ tryrdlock(GLIBC _2.2) [SUSv3] |
| pthread_rwlock_ trywrlock(GLIBC _2.2) [SUSv3] | pthread_rwlock_ unlock(GLIBC_2. 2) [SUSv3] | pthread_rwlock_ wrlock(GLIBC_2. 2) [SUSv3] | pthread_rwlock_a ttr_destroy(GLIB C_2.2) [SUSv3] |
| pthread_rwlock_a ttr_getpshared(G LIBC_2.2) [SUSv3] | pthread_rwlock_a ttr_init(GLIBC_2. 2) [SUSv3] | pthread_rwlock_a ttr_setpshared(G LIBC_2.2) [SUSv3] | pthread_self(GLI BC_2.2) [SUSv3] |
| pthread_setcance lstate(GLIBC_2.2) | pthread_setcance ltype(GLIBC_2.2) | pthread_setconc urrency(GLIBC_ | pthread_setspeci fic(GLIBC_2.2) |

| | | | |
|-------------------------------------|--|--------------------------------|---------------------------------|
|) [SUSv3] | [SUSv3] | 2.2) [SUSv3] | [SUSv3] |
| pthread_sigmask (GLIBC_2.2) [SUSv3] | pthread_testcancel (GLIBC_2.2) [SUSv3] | sem_close (GLIBC_2.2) [SUSv3] | sem_destroy (GLIBC_2.2) [SUSv3] |
| sem_getvalue (GLIBC_2.2) [SUSv3] | sem_init (GLIBC_2.2) [SUSv3] | sem_open (GLIBC_2.2) [SUSv3] | sem_post (GLIBC_2.2) [SUSv3] |
| sem_timedwait (GLIBC_2.2) [SUSv3] | sem_trywait (GLIBC_2.2) [SUSv3] | sem_unlink (GLIBC_2.2) [SUSv3] | sem_wait (GLIBC_2.2) [SUSv3] |

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

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

Table 10-45 libpthread - Posix Threads Deprecated Function Interfaces

| | | | |
|---|---|--|--|
| pthread_attr_getstackaddr (GLIBC_2.2) [SUSv3] | pthread_attr_setstackaddr (GLIBC_2.2) [SUSv3] | | |
|---|---|--|--|

10.7.4 Thread aware versions of libc interfaces

10.7.4.1 Interfaces for Thread aware versions of libc interfaces

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

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

| | | | |
|----------------------------|----------------------------|---------------------------|---------------------------|
| lseek64 (GLIBC_2.2) [LFS] | open64 (GLIBC_2.2) [LFS] | pread (GLIBC_2.2) [SUSv3] | pread64 (GLIBC_2.2) [LSB] |
| pwrite (GLIBC_2.2) [SUSv3] | pwrite64 (GLIBC_2.2) [LSB] | | |

10.7.5 GNU Extensions for libpthread

10.7.5.1 Interfaces for GNU Extensions for libpthread

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

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

| | | | |
|----------------------------------|---|--|--|
| pthread_getattr_np (GLIBC_2.2.3) | pthread_mutex_consistent_np (GLIBC_2.2.3) | pthread_mutexattr_getrobust_np (GLIBC_2.2.3) | pthread_mutexattr_setrobust_np (GLIBC_2.2.3) |
|----------------------------------|---|--|--|

| | | | |
|--|--|------------------|------------------|
| [LSB] | BC_2.4) [LSB] | GLIBC_2.4) [LSB] | GLIBC_2.4) [LSB] |
| pthread_rwlockattr_getkind_np(G LIBC_2.2) [LSB] | pthread_rwlockattr_setkind_np(G LIBC_2.2) [LSB] | | |

10.8 Data Definitions for libpthread

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

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

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

10.8.1 pthread.h

```
#define __SIZEOF_PTHREAD_BARRIER_T      32
#define __SIZEOF_PTHREAD_MUTEX_T        40
#define __SIZEOF_PTHREAD_ATTR_T      56
#define __SIZEOF_PTHREAD_RWLOCK_T      56
#define PTHREAD_RWLOCK_INITIALIZER      { { 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0 } }
#define PTHREAD_MUTEX_INITIALIZER      { { 0, 0, 0, 0, 0, 0, 0, {
0, 0 } } }

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

typedef struct __pthread_internal_list __pthread_list_t;
struct __pthread_mutex_s {
    int __lock;
    unsigned int __count;
    int __owner;
    unsigned int __nusers;
    int __kind;
    int __spins;
    __pthread_list_t __list;
};

typedef union {
    struct {
        int __lock;
        unsigned int __nr_readers;
        unsigned int __readers_wakeup;
        unsigned int __writer_wakeup;
        unsigned int __nr_readers_queued;
        unsigned int __nr_writers_queued;
```

```

    int __writer;
    int __pad1;
    unsigned long int __pad2;
    unsigned long int __pad3;
    unsigned int __flags;
} __data;
char __size[__SIZEOF_PTHREAD_RWLOCK_T];
long int __align;
} pthread_rwlock_t;

```

10.8.2 semaphore.h

```
#define __SIZEOF_SEM_T 32
```

10.9 Interfaces for libgcc_s

Table 10-48 defines the library name and shared object name for the libgcc_s library

Table 10-48 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] ISO/IEC 23360 Part 1

10.9.1 Unwind Library

10.9.1.1 Interfaces for Unwind Library

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

Table 10-49 libgcc_s - Unwind Library Function Interfaces

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

10.10 Data Definitions for `libgcc_s`

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

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

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

10.10.1 `unwind.h`

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

10.11 Interface Definitions for `libgcc_s`

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

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

`_Unwind_Find_FDE`

Name

`_Unwind_Find_FDE` — private C++ error handling method

Synopsis

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

Description

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

_Unwind_GetDataRelBase**Name**

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

Synopsis

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

Description

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

_Unwind_GetTextRelBase**Name**

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

Synopsis

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

Description

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

10.12 Interfaces for libdl

Table 10-50 defines the library name and shared object name for the libdl library

Table 10-50 libdl Definition

| | |
|----------|------------|
| Library: | libdl |
| SONAME: | libdl.so.2 |

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

[LSB] ISO/IEC 23360 Part 1
[SUSv3] POSIX 1003.1-2001 (ISO/IEC 9945-2003)

10.12.1 Dynamic Loader**10.12.1.1 Interfaces for Dynamic Loader**

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

Table 10-51 libdl - Dynamic Loader Function Interfaces

| | | | |
|--------------------------------------|---|---|--------------------------------------|
| <code>dladdr(GLIBC_2.2) [LSB]</code> | <code>dlclose(GLIBC_2.2) [SUSv3]</code> | <code>dLError(GLIBC_2.2) [SUSv3]</code> | <code>dlopen(GLIBC_2.2) [LSB]</code> |
| <code>dlSym(GLIBC_2.2)</code> | <code>dlvsym(GLIBC_2.2)</code> | | |

| | | | |
|----------|-----------|--|--|
| 2) [LSB] | .2) [LSB] | | |
|----------|-----------|--|--|

10.13 Data Definitions for libdl

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

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

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

10.13.1 dlfcn.h

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

10.14 Interfaces for libcrypt

Table 10-52 defines the library name and shared object name for the libcrypt library

Table 10-52 libcrypt Definition

| | |
|----------|---------------|
| Library: | libcrypt |
| SONAME: | libcrypt.so.1 |

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

[SUSv3] POSIX 1003.1-2001 (ISO/IEC 9945-2003)

10.14.1 Encryption

10.14.1.1 Interfaces for Encryption

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

Table 10-53 libcrypt - Encryption Function Interfaces

| | | | |
|-----------------------------|--------------------------------|-------------------------------|--|
| crypt(GLIBC_2.2) [SUSv3] | encrypt(GLIBC_2 .2) [SUSv3] | setkey(GLIBC_2. 2) [SUSv3] | |
|-----------------------------|--------------------------------|-------------------------------|--|

IV Utility Libraries

11 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.

11.1 Interfaces for libz

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

Table 11-1 libz Definition

| | |
|----------|-----------|
| Library: | libz |
| SONAME: | libz.so.1 |

11.1.1 Compression Library

11.1.1.1 Interfaces for Compression Library

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

11.2 Data Definitions for libz

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

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

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

11.2.1 zconf.h

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

11.2.2 zlib.h

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

11.3 Interfaces for libncurses

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

Table 11-2 libncurses Definition

| | |
|----------|-----------------|
| Library: | libncurses |
| SONAME: | libncurses.so.5 |

11.3.1 Curses

11.3.1.1 Interfaces for Curses

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

11.4 Data Definitions for libncurses

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

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

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

11.4.1 curses.h

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

11.5 Interfaces for libutil

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

Table 11-3 libutil Definition

| | |
|----------|--------------|
| Library: | libutil |
| SONAME: | libutil.so.1 |

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

[LSB] ISO/IEC 23360 Part 1

11.5.1 Utility Functions

11.5.1.1 Interfaces for Utility Functions

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

Table 11-4 libutil - Utility Functions Function Interfaces

| | | | |
|--------------------------|--------------------------|----------------------------|-------------------------|
| forkpty(GLIBC_2.2) [LSB] | login(GLIBC_2.2) [LSB] | login_tty(GLIBC_2.2) [LSB] | logout(GLIBC_2.2) [LSB] |
| logwtmp(GLIBC_2.2) [LSB] | openpty(GLIBC_2.2) [LSB] | | |

V Package Format and Installation

12 Software Installation

12.1 Package Dependencies

The LSB runtime environment shall provide the following dependencies.

`lsb-core-s390x`

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

This dependency shall have a version of 3.0.

Other LSB modules may add additional dependencies; such dependencies shall have the format `lsb-module-s390x`.

12.2 Package Architecture Considerations

All packages must specify an architecture of `s390x`. A LSB runtime environment must accept an architecture of `s390` even if the native architecture is different.

The `archnum` value in the Lead Section shall be 0x000E.

Annex A Alphabetical Listing of Interfaces

A.1 libc

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

Large File Support [LFS]
 ISO/IEC 23360 Part 1 [LSB]
 RFC 1831/1832 RPC & XDR [RPC & XDR]
 SUSv2 [SUSv2]
 POSIX 1003.1-2001 (ISO/IEC 9945-2003) [SUSv3]
 POSIX 1003.1-2008 (ISO/IEC 9945-2009) [SUSv4]
 SVID Issue 4 [SVID.4]

Table A-1 libc Function Interfaces

| | | |
|--|---------------------------------|------------------------------|
| _Exit(GLIBC_2.2)[SUSv3] | getprotoent_r(GLIBC_2.2)[LSB] | setrlimit64(GLIBC_2.2)[LFS] |
| _IO_feof(GLIBC_2.2)[LSB] | getpwent(GLIBC_2.2)[SUSv3] | setservent(GLIBC_2.2)[SUSv3] |
| _IO_getc(GLIBC_2.2)[LSB] | getpwent_r(GLIBC_2.2)[LSB] | setuid(GLIBC_2.2)[SUSv3] |
| _IO_putc(GLIBC_2.2)[LSB] | getpwnam(GLIBC_2.2)[SUSv3] | setsockopt(GLIBC_2.2)[LSB] |
| _IO_puts(GLIBC_2.2)[LSB] | getpwnam_r(GLIBC_2.2)[SUSv3] | setstate(GLIBC_2.2)[SUSv3] |
| __assert_fail(GLIBC_2.2)[LSB] | getpwuid(GLIBC_2.2)[SUSv3] | setstate_r(GLIBC_2.2)[LSB] |
| __ctype_get_mb_cur_max(GLIBC_2.2)[LSB] | getpwuid_r(GLIBC_2.2)[SUSv3] | setuid(GLIBC_2.2)[SUSv3] |
| __cxa_atexit(GLIBC_2.2)[LSB] | getrlimit(GLIBC_2.2)[SUSv3] | setutent(GLIBC_2.2)[LSB] |
| __cxa_finalize(GLIBC_2.2)[LSB] | getrlimit64(GLIBC_2.2)[LFS] | setutxent(GLIBC_2.2)[SUSv3] |
| __errno_location(GLIBC_2.2)[LSB] | getrusage(GLIBC_2.2)[SUSv3] | setvbuf(GLIBC_2.2)[SUSv3] |
| __fpending(GLIBC_2.2)[LSB] | getservbyname(GLIBC_2.2)[SUSv3] | shmat(GLIBC_2.2)[SUSv3] |
| __fprintf_chk(GLIBC_2.4)[LSB] | getservbyname_r(GLIBC_2.2)[LSB] | shmctl(GLIBC_2.2)[SUSv3] |
| __fxstat(GLIBC_2.2)[LSB] | getservbyport(GLIBC_2.2)[SUSv3] | shmdt(GLIBC_2.2)[SUSv3] |
| __fxstat64(GLIBC_2.2)[LSB] | getservbyport_r(GLIBC_2.2)[LSB] | shmget(GLIBC_2.2)[SUSv3] |
| __getpagesize(GLIBC_2.2) | getservent(GLIBC_2.2)[LSB] | shutdown(GLIBC_2.2)[LSB] |

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| .2)[LSB] | SUSv3] | SUSv3] |
| __getpgid(GLIBC_2.2)[LSB] | getservernt_r(GLIBC_2.2)[LSB] | sigaction(GLIBC_2.2)[SUSv3] |
| __h_errno_location(GLIBC_2.2)[LSB] | getsid(GLIBC_2.2)[SUSv3] | sigaddset(GLIBC_2.2)[SUSv3] |
| __isinf(GLIBC_2.2)[LSB] | getsockname(GLIBC_2.2)[SUSv3] | sigaltstack(GLIBC_2.2)[SUSv3] |
| __isnff(GLIBC_2.2)[LSB] | getsockopt(GLIBC_2.2)[LSB] | sigandset(GLIBC_2.2)[LSB] |
| __isnfl(GLIBC_2.2)[LSB] | getsubopt(GLIBC_2.2)[SUSv3] | sigdelset(GLIBC_2.2)[SUSv3] |
| __isnfl(GLIBC_2.4)[LSB] | gettext(GLIBC_2.2)[LSB] | sigemptyset(GLIBC_2.2)[SUSv3] |
| __isnan(GLIBC_2.2)[LSB] | gettimeofday(GLIBC_2.2)[SUSv3] | sigfillset(GLIBC_2.2)[SUSv3] |
| __isnanf(GLIBC_2.2)[LSB] | getuid(GLIBC_2.2)[SUSv3] | sighold(GLIBC_2.2)[SUSv3] |
| __isnani(GLIBC_2.2)[LSB] | getutent(GLIBC_2.2)[LSB] | sigignore(GLIBC_2.2)[SUSv3] |
| __isnani(GLIBC_2.4)[LSB] | getutent_r(GLIBC_2.2)[LSB] | siginterrupt(GLIBC_2.2)[SUSv3] |
| __libc_current_sigrtmax(GLIBC_2.2)[LSB] | getutxent(GLIBC_2.2)[SUSv3] | sigisemptyset(GLIBC_2.2)[LSB] |
| __libc_current_sigrtmin(GLIBC_2.2)[LSB] | getutxid(GLIBC_2.2)[SUSv3] | sigismember(GLIBC_2.2)[SUSv3] |
| __libc_start_main(GLIBC_2.2)[LSB] | getutxline(GLIBC_2.2)[SUSv3] | siglongjmp(GLIBC_2.2)[SUSv3] |
| __lxstat(GLIBC_2.2)[LSB] | getw(GLIBC_2.2)[SUSv2] | signal(GLIBC_2.2)[SUSv3] |
| __lxstat64(GLIBC_2.2)[LSB] | getwc(GLIBC_2.2)[SUSv3] | sigorset(GLIBC_2.2)[LSB] |
| __memcpy(GLIBC_2.2)[LSB] | getwc_unlocked(GLIBC_2.2)[LSB] | sigpause(GLIBC_2.2)[LSB] |
| __printf_chk(GLIBC_2.4)[LSB] | getwchar(GLIBC_2.2)[SUSv3] | sigpending(GLIBC_2.2)[SUSv3] |
| __rawmemchr(GLIBC_2.2)[LSB] | getwchar_unlocked(GLIBC_2.2)[LSB] | sigprocmask(GLIBC_2.2)[SUSv3] |
| __sigsetjmp(GLIBC_2.2)[LSB] | getwd(GLIBC_2.2)[SUSv3] | sigqueue(GLIBC_2.2)[SUSv3] |
| __snprintf_chk(GLIBC_2.4)[LSB] | glob(GLIBC_2.2)[SUSv3] | sigrelse(GLIBC_2.2)[SUSv3] |
| __sprintf_chk(GLIBC_2.2)[LSB] | glob64(GLIBC_2.2)[LSB] | sigreturn(GLIBC_2.2)[LSB] |

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| 4)[LSB] |] | SB] |
| __stpcpy(GLIBC_2.2)[LSB] | globfree(GLIBC_2.2)[SUSv3] | sigset(GLIBC_2.2)[SUSv3] |
| __strdup(GLIBC_2.2)[LSB] | globfree64(GLIBC_2.2)[LSB] | sigsuspend(GLIBC_2.2)[SUSv3] |
| __strtod_internal(GLIBC_2.2)[LSB] | gmtime(GLIBC_2.2)[SUSv3] | sigtimedwait(GLIBC_2.2)[SUSv3] |
| __strtof_internal(GLIBC_2.2)[LSB] | gmtime_r(GLIBC_2.2)[SUSv3] | sigwait(GLIBC_2.2)[SUSv3] |
| __strtok_r(GLIBC_2.2)[LSB] | gnu_get_libc_release(GLIBC_2.2)[LSB] | sigwaitinfo(GLIBC_2.2)[SUSv3] |
| __strtol_internal(GLIBC_2.2)[LSB] | gnu_get_libc_version(GLIBC_2.2)[LSB] | sleep(GLIBC_2.2)[SUSv3] |
| __strtold_internal(GLIBC_2.2)[LSB] | grantpt(GLIBC_2.2)[SUSv3] | snprintf(GLIBC_2.2)[SUSv3] |
| __strtold_internal(GLIBC_2.4)[LSB] | hcreate(GLIBC_2.2)[SUSv3] | snprintf(GLIBC_2.4)[SUSv3] |
| __strtol_internal(GLIBC_2.2)[LSB] | hcreate_r(GLIBC_2.2)[LSB] | socketatmark(GLIBC_2.2.4)[SUSv3] |
| __strtoul_internal(GLIBC_2.2)[LSB] | hdestroy(GLIBC_2.2)[SUSv3] | socket(GLIBC_2.2)[SUSv3] |
| __strtoull_internal(GLIBC_2.2)[LSB] | hdestroy_r(GLIBC_2.2)[LSB] | socketpair(GLIBC_2.2)[SUSv3] |
| __sysconf(GLIBC_2.2)[LSB] | hsearch(GLIBC_2.2)[SUSv3] | sprintf(GLIBC_2.2)[SUSv3] |
| __sysv_signal(GLIBC_2.2)[LSB] | hsearch_r(GLIBC_2.2)[LSB] | sprintf(GLIBC_2.4)[SUSv3] |
| __vfprintf_chk(GLIBC_2.4)[LSB] | htonl(GLIBC_2.2)[SUSv3] | srand(GLIBC_2.2)[SUSv3] |
| __vprintf_chk(GLIBC_2.4)[LSB] | htons(GLIBC_2.2)[SUSv3] | srand48(GLIBC_2.2)[SUSv3] |
| __vsnprintf_chk(GLIBC_2.4)[LSB] | iconv(GLIBC_2.2)[SUSv3] | srand48_r(GLIBC_2.2)[LSB] |
| __vsprintf_chk(GLIBC_2.4)[LSB] | iconv_close(GLIBC_2.2)[SUSv3] | srandom(GLIBC_2.2)[SUSv3] |
| __wcstod_internal(GLIBC_2.2)[LSB] | iconv_open(GLIBC_2.2)[SUSv3] | srandom_r(GLIBC_2.2)[LSB] |
| __wcstof_internal(GLIBC_2.2)[LSB] | if_freenameindex(GLIBC_2.2)[SUSv3] | sscanf(GLIBC_2.2)[LSB] |
| __wcstol_internal(GLIBC_2.2)[LSB] | if_indextoname(GLIBC_2.2)[SUSv3] | sscanf(GLIBC_2.4)[LSB] |
| __wcstold_internal(GLIBC_2.2)[LSB] | if_nameindex(GLIBC_2.2)[LSB] | statfs(GLIBC_2.2)[LSB] |

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| BC_2.2)[LSB] | 2)[SUSv3] | |
| __wcstold_internal(GLIBC_2.4)[LSB] | if_nametoindex(GLIBC_2.2)[SUSv3] | statfs64(GLIBC_2.2)[LSB] |
| __wcstoul_internal(GLIBC_2.2)[LSB] | imaxabs(GLIBC_2.2)[SUSv3] | statvfs(GLIBC_2.2)[SUSv3] |
| __xmknod(GLIBC_2.2)[LSB] | imaxdiv(GLIBC_2.2)[SUSv3] | statvfs64(GLIBC_2.2)[LSB] |
| __xpg_basename(GLIBC_2.2)[LSB] | index(GLIBC_2.2)[SUSv3] | stime(GLIBC_2.2)[LSB] |
| __xpg_sigpause(GLIBC_2.2)[LSB] | inet_addr(GLIBC_2.2)[SUSv3] | stpncpy(GLIBC_2.2)[LSB] |
| __xpg_strerror_r(GLIBC_2.3.4)[LSB] | inet_aton(GLIBC_2.2)[LSB] | stpncpy(GLIBC_2.2)[LSB] |
| __xstat(GLIBC_2.2)[LSB] | inet_ntoa(GLIBC_2.2)[SUSv3] | strcasecmp(GLIBC_2.2)[SUSv3] |
| __xstat64(GLIBC_2.2)[LSB] | inet_ntop(GLIBC_2.2)[SUSv3] | strcasestr(GLIBC_2.2)[LSB] |
| _exit(GLIBC_2.2)[SUSv3] | inet_pton(GLIBC_2.2)[SUSv3] | strcat(GLIBC_2.2)[SUSv3] |
| _longjmp(GLIBC_2.2)[SUSv3] | initgroups(GLIBC_2.2)[LSB] | strchr(GLIBC_2.2)[SUSv3] |
| _setjmp(GLIBC_2.2)[SUSv3] | initstate(GLIBC_2.2)[SUSv3] | strcmp(GLIBC_2.2)[SUSv3] |
| _tolower(GLIBC_2.2)[SUSv3] | initstate_r(GLIBC_2.2)[LSB] | strcoll(GLIBC_2.2)[SUSv3] |
| _toupper(GLIBC_2.2)[SUSv3] | insque(GLIBC_2.2)[SUSv3] | strcpy(GLIBC_2.2)[SUSv3] |
| a64l(GLIBC_2.2)[SUSv3] | ioctl(GLIBC_2.2)[LSB] | strcspn(GLIBC_2.2)[SUSv3] |
| abort(GLIBC_2.2)[SUSv3] | isalnum(GLIBC_2.2)[SUSv3] | strdup(GLIBC_2.2)[SUSv3] |
| abs(GLIBC_2.2)[SUSv3] | isalpha(GLIBC_2.2)[SUSv3] | strerror(GLIBC_2.2)[SUSv3] |
| accept(GLIBC_2.2)[SUSv3] | isascii(GLIBC_2.2)[SUSv3] | strerror_r(GLIBC_2.2)[LSB] |
| access(GLIBC_2.2)[SUSv3] | isatty(GLIBC_2.2)[SUSv3] | strfmon(GLIBC_2.2)[SUSv3] |
| acct(GLIBC_2.2)[LSB] | isblank(GLIBC_2.2)[SUSv3] | strfmon(GLIBC_2.4)[SUSv3] |
| adjtime(GLIBC_2.2)[LSB] | isctrl(GLIBC_2.2)[SUSv3] | strftime(GLIBC_2.2)[SUSv3] |
| alarm(GLIBC_2.2)[SUSv3] | isdigit(GLIBC_2.2)[SUSv3] | strlen(GLIBC_2.2)[SUSv3] |

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| v3] | v3] | 3] |
| alphasort(GLIBC_2.2)[S USv4] | isgraph(GLIBC_2.2)[SU Sv3] | strncasecmp(GLIBC_2.2)[SUSv3] |
| alphasort64(GLIBC_2.2) [LSB] | islower(GLIBC_2.2)[SU Sv3] | strncat(GLIBC_2.2)[SUS v3] |
| asctime(GLIBC_2.2)[SU Sv3] | isprint(GLIBC_2.2)[SUS v3] | strncmp(GLIBC_2.2)[SU Sv3] |
| asctime_r(GLIBC_2.2)[S USv3] | ispunct(GLIBC_2.2)[SU Sv3] | strncpy(GLIBC_2.2)[SU Sv3] |
| asprintf(GLIBC_2.2)[LS B] | isspace(GLIBC_2.2)[SU Sv3] | strndup(GLIBC_2.2)[LS B] |
| asprintf(GLIBC_2.4)[LS B] | isupper(GLIBC_2.2)[SU Sv3] | strlen(GLIBC_2.2)[LSB] |
| atof(GLIBC_2.2)[SUSv3] | iswalnum(GLIBC_2.2)[S USv3] | strpbrk(GLIBC_2.2)[SU Sv3] |
| atoi(GLIBC_2.2)[SUSv3] | iswalpha(GLIBC_2.2)[S USv3] | strptime(GLIBC_2.2)[LS B] |
| atol(GLIBC_2.2)[SUSv3] | iswblank(GLIBC_2.2)[S USv3] | strrchr(GLIBC_2.2)[SUS v3] |
| atoll(GLIBC_2.2)[SUSv3] | iswcntrl(GLIBC_2.2)[SU Sv3] | strsep(GLIBC_2.2)[LSB] |
| authnone_create(GLIBC _2.2)[SVID.4] | iswctype(GLIBC_2.2)[S USv3] | strsignal(GLIBC_2.2)[LS B] |
| backtrace(GLIBC_2.2)[L SB] | iswdigit(GLIBC_2.2)[SU Sv3] | strspn(GLIBC_2.2)[SUS v3] |
| backtrace_symbols(GLI BC_2.2)[LSB] | iswgraph(GLIBC_2.2)[S USv3] | strstr(GLIBC_2.2)[SUSv 3] |
| backtrace_symbols_fd(GLIBC_2.2)[LSB] | iswlower(GLIBC_2.2)[S USv3] | strtod(GLIBC_2.2)[SUS v3] |
| basename(GLIBC_2.2)[LSB] | iswprint(GLIBC_2.2)[S USv3] | strtof(GLIBC_2.2)[SUSv 3] |
| bcmp(GLIBC_2.2)[SUSv 3] | iswpunct(GLIBC_2.2)[S USv3] | strtoimax(GLIBC_2.2)[S USv3] |
| bcopy(GLIBC_2.2)[SUS v3] | iswspace(GLIBC_2.2)[S USv3] | strtok(GLIBC_2.2)[SUS v3] |
| bind(GLIBC_2.2)[SUSv3] | iswupper(GLIBC_2.2)[S USv3] | strtok_r(GLIBC_2.2)[SU Sv3] |
| bind_textdomain_codes et(GLIBC_2.2)[LSB] | iswxdigit(GLIBC_2.2)[S USv3] | strtol(GLIBC_2.2)[SUSv 3] |
| bindresvport(GLIBC_2. 2)[LSB] | isxdigit(GLIBC_2.2)[SU Sv3] | strtold(GLIBC_2.2)[SUS v3] |
| bindtextdomain(GLIBC | jrand48(GLIBC_2.2)[SU | strtold(GLIBC_2.4)[SUS |

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| _2.2)[LSB] | Sv3] | v3] |
| brk(GLIBC_2.2)[SUSv2] | jrand48_r(GLIBC_2.2)[LSB] | strtoll(GLIBC_2.2)[SUSv3] |
| bsd_signal(GLIBC_2.2)[SUSv3] | key_decryptsession(GLIBC_2.2)[SVID.4] | strtoq(GLIBC_2.2)[LSB] |
| bsearch(GLIBC_2.2)[SUSv3] | kill(GLIBC_2.2)[LSB] | strtoul(GLIBC_2.2)[SUSv3] |
| btowc(GLIBC_2.2)[SUSv3] | killpg(GLIBC_2.2)[SUSv3] | strtoull(GLIBC_2.2)[SUSv3] |
| bzero(GLIBC_2.2)[SUSv3] | l64a(GLIBC_2.2)[SUSv3] | strtoumax(GLIBC_2.2)[SUSv3] |
| calloc(GLIBC_2.2)[SUSv3] | labs(GLIBC_2.2)[SUSv3] | strtouq(GLIBC_2.2)[LSB] |
| callrpc(GLIBC_2.2)[RPC & XDR] | lchown(GLIBC_2.2)[SUSv3] | strxfrm(GLIBC_2.2)[SUSv3] |
| catclose(GLIBC_2.2)[SUSv3] | lcng48(GLIBC_2.2)[SUSv3] | svc_getreqset(GLIBC_2.2)[SVID.4] |
| catgets(GLIBC_2.2)[SUSv3] | lcng48_r(GLIBC_2.2)[LSB] | svc_register(GLIBC_2.2)[LSB] |
| catopen(GLIBC_2.2)[SUSv3] | ldiv(GLIBC_2.2)[SUSv3] | svc_run(GLIBC_2.2)[LSB] |
| cfgetispeed(GLIBC_2.2)[SUSv3] | lfind(GLIBC_2.2)[SUSv3] | svc_sendreply(GLIBC_2.2)[LSB] |
| cfgetospeed(GLIBC_2.2)[SUSv3] | link(GLIBC_2.2)[LSB] | svcerr_auth(GLIBC_2.2)[SVID.4] |
| cfmakeraw(GLIBC_2.2)[LSB] | listen(GLIBC_2.2)[SUSv3] | svcerr_decode(GLIBC_2.2)[SVID.4] |
| cfsetispeed(GLIBC_2.2)[SUSv3] | llabs(GLIBC_2.2)[SUSv3] | svcerr_noproc(GLIBC_2.2)[SVID.4] |
| cfsetospeed(GLIBC_2.2)[SUSv3] | lldiv(GLIBC_2.2)[SUSv3] | svcerr_noprogram(GLIBC_2.2)[SVID.4] |
| cfsetspeed(GLIBC_2.2)[LSB] | localeconv(GLIBC_2.2)[SUSv3] | svcerr_progvers(GLIBC_2.2)[SVID.4] |
| chdir(GLIBC_2.2)[SUSv3] | localtime(GLIBC_2.2)[SUSv3] | svcerr_systemerr(GLIBC_2.2)[SVID.4] |
| chmod(GLIBC_2.2)[SUSv3] | localtime_r(GLIBC_2.2)[SUSv3] | svcerr_weakauth(GLIBC_2.2)[SVID.4] |
| chown(GLIBC_2.2)[SUSv3] | lockf(GLIBC_2.2)[SUSv3] | svcf_create(GLIBC_2.2)[RPC & XDR] |
| chroot(GLIBC_2.2)[SUSv2] | lockf64(GLIBC_2.2)[LFS] | svcrw_create(GLIBC_2.2)[RPC & XDR] |
| clearerr(GLIBC_2.2)[SUSv3] | longjmp(GLIBC_2.2)[SUSv3] | svctcp_create(GLIBC_2.2)[RPC & XDR] |

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| Sv3] | USv3] | 2)[LSB] |
| clearerr_unlocked(GLIBC_2.2)[LSB] | lrnd48(GLIBC_2.2)[SU Sv3] | svdup_create(GLIBC_2.2)[LSB] |
| clnt_create(GLIBC_2.2)[SVID.4] | lrnd48_r(GLIBC_2.2)[LSB] | swab(GLIBC_2.2)[SUSv3] |
| clnt_pcreateerror(GLIBC_2.2)[SVID.4] | lsearch(GLIBC_2.2)[SUSv3] | swapcontext(GLIBC_2.2)[SUSv3] |
| clnt_perrno(GLIBC_2.2)[SVID.4] | lseek(GLIBC_2.2)[SUSv3] | swprintf(GLIBC_2.2)[SUSv3] |
| clnt_perror(GLIBC_2.2)[SVID.4] | lseek64(GLIBC_2.2)[LFS] | swprintf(GLIBC_2.4)[SUSv3] |
| clnt_screateerror(GLIBC_2.2)[SVID.4] | makecontext(GLIBC_2.2)[SUSv3] | swscanf(GLIBC_2.2)[LSB] |
| clnt_sperrno(GLIBC_2.2)[SVID.4] | malloc(GLIBC_2.2)[SUSv3] | swscanf(GLIBC_2.4)[LSB] |
| clnt_sperror(GLIBC_2.2)[SVID.4] | mblen(GLIBC_2.2)[SUSv3] | symlink(GLIBC_2.2)[SUSv3] |
| clntraw_create(GLIBC_2.2)[RPC & XDR] | mbrlen(GLIBC_2.2)[SUSv3] | sync(GLIBC_2.2)[SUSv3] |
| clnttcp_create(GLIBC_2.2)[RPC & XDR] | mbrtowc(GLIBC_2.2)[SUSv3] | sysconf(GLIBC_2.2)[LSB] |
| clntudp_bufcreate(GLIBC_2.2)[RPC & XDR] | mbsinit(GLIBC_2.2)[SUSv3] | sysinfo(GLIBC_2.2)[LSB] |
| clntudp_create(GLIBC_2.2)[RPC & XDR] | mbsnrtowcs(GLIBC_2.2)[LSB] | syslog(GLIBC_2.2)[SUSv3] |
| clock(GLIBC_2.2)[SUSv3] | mbsrtowcs(GLIBC_2.2)[SUSv3] | syslog(GLIBC_2.4)[SUSv3] |
| close(GLIBC_2.2)[SUSv3] | mbstowcs(GLIBC_2.2)[SUSv3] | system(GLIBC_2.2)[LSB] |
| closedir(GLIBC_2.2)[SUSv3] | mbtowc(GLIBC_2.2)[SUSv3] | tcdrain(GLIBC_2.2)[SUSv3] |
| closelog(GLIBC_2.2)[SUSv3] | memccpy(GLIBC_2.2)[SUSv3] | tcflow(GLIBC_2.2)[SUSv3] |
| confstr(GLIBC_2.2)[SUSv3] | memchr(GLIBC_2.2)[SUSv3] | tcflush(GLIBC_2.2)[SUSv3] |
| connect(GLIBC_2.2)[SUSv3] | memcmp(GLIBC_2.2)[SUSv3] | tcgetattr(GLIBC_2.2)[SUSv3] |
| creat(GLIBC_2.2)[SUSv3] | memcpy(GLIBC_2.2)[SUSv3] | tcgetpgrp(GLIBC_2.2)[SUSv3] |
| creat64(GLIBC_2.2)[LFS] | memmem(GLIBC_2.2)[LSB] | tcgetsid(GLIBC_2.2)[SUSv3] |
| ctermid(GLIBC_2.2)[SU] | memmove(GLIBC_2.2)[| tcsendbreak(GLIBC_2.2 |

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| Sv3] | SUSv3] |)[SUSv3] |
| ctime(GLIBC_2.2)[SUSv3] | memrchr(GLIBC_2.2)[LSB] | tcsetattr(GLIBC_2.2)[SUSv3] |
| ctime_r(GLIBC_2.2)[SUSv3] | memset(GLIBC_2.2)[SUSv3] | tcsetpgrp(GLIBC_2.2)[SUSv3] |
| cuserid(GLIBC_2.2)[SUSv2] | mkdir(GLIBC_2.2)[SUSv3] | tdelete(GLIBC_2.2)[SUSv3] |
| daemon(GLIBC_2.2)[LSB] | mkdtemp(GLIBC_2.2)[SUSv4] | telldir(GLIBC_2.2)[SUSv3] |
| dcgettext(GLIBC_2.2)[LSB] | mkfifo(GLIBC_2.2)[SUSv3] | tempnam(GLIBC_2.2)[SUSv3] |
| dcngettext(GLIBC_2.2)[LSB] | mkstemp(GLIBC_2.2)[SUSv3] | textdomain(GLIBC_2.2)[LSB] |
| dgettext(GLIBC_2.2)[LSB] | mkstemp64(GLIBC_2.2)[LSB] | tfind(GLIBC_2.2)[SUSv3] |
| difftime(GLIBC_2.2)[SUSv3] | mktemp(GLIBC_2.2)[SUSv3] | time(GLIBC_2.2)[SUSv3] |
| dirfd(GLIBC_2.2)[SUSv4] | mktime(GLIBC_2.2)[SUSv3] | times(GLIBC_2.2)[SUSv3] |
| dirname(GLIBC_2.2)[SUSv3] | mlock(GLIBC_2.2)[SUSv3] | tmpfile(GLIBC_2.2)[SUSv3] |
| div(GLIBC_2.2)[SUSv3] | mlockall(GLIBC_2.2)[SUSv3] | tmpfile64(GLIBC_2.2)[LFS] |
| dl_iterate_phdr(GLIBC_2.2.4)[LSB] | mmap(GLIBC_2.2)[SUSv3] | tmpnam(GLIBC_2.2)[SUSv3] |
| dngettext(GLIBC_2.2)[LSB] | mmap64(GLIBC_2.2)[LFS] | toascii(GLIBC_2.2)[SUSv3] |
| dprintf(GLIBC_2.4)[SUSv4] | mprotect(GLIBC_2.2)[SUSv3] | tolower(GLIBC_2.2)[SUSv3] |
| drand48(GLIBC_2.2)[SUSv3] | mrnd48(GLIBC_2.2)[SUSv3] | toupper(GLIBC_2.2)[SUSv3] |
| drand48_r(GLIBC_2.2)[LSB] | mrnd48_r(GLIBC_2.2)[LSB] | towctrans(GLIBC_2.2)[SUSv3] |
| dup(GLIBC_2.2)[SUSv3] | mremap(GLIBC_2.2)[LSB] | tolower(GLIBC_2.2)[SUSv3] |
| dup2(GLIBC_2.2)[SUSv3] | msgctl(GLIBC_2.2)[SUSv3] | toupper(GLIBC_2.2)[SUSv3] |
| ecvt(GLIBC_2.2)[SUSv3] | msgget(GLIBC_2.2)[SUSv3] | truncate(GLIBC_2.2)[SUSv3] |
| endgrent(GLIBC_2.2)[SUSv3] | msgrcv(GLIBC_2.2)[SUSv3] | truncate64(GLIBC_2.2)[LFS] |
| endprotoent(GLIBC_2.2) | msgsnd(GLIBC_2.2)[SUSv3] | tsearch(GLIBC_2.2)[SUSv3] |

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|)[SUSv3] | Sv3] | Sv3] |
| endpwent(GLIBC_2.2)[SUSv3] | msync(GLIBC_2.2)[SUSv3] | ttynname(GLIBC_2.2)[SUSv3] |
| endservent(GLIBC_2.2)[SUSv3] | munlock(GLIBC_2.2)[SUSv3] | ttynname_r(GLIBC_2.2)[SUSv3] |
| endutent(GLIBC_2.2)[LSB] | munlockall(GLIBC_2.2)[SUSv3] | twalk(GLIBC_2.2)[SUSv3] |
| endutxent(GLIBC_2.2)[SUSv3] | munmap(GLIBC_2.2)[SUSv3] | tzset(GLIBC_2.2)[SUSv3] |
| erand48(GLIBC_2.2)[SUSv3] | nanosleep(GLIBC_2.2)[SUSv3] | ualarm(GLIBC_2.2)[SUSv3] |
| erand48_r(GLIBC_2.2)[LSB] | nftw(GLIBC_2.3.3)[SUSv3] | ulimit(GLIBC_2.2)[SUSv3] |
| err(GLIBC_2.2)[LSB] | nftw64(GLIBC_2.3.3)[LFS] | umask(GLIBC_2.2)[SUSv3] |
| error(GLIBC_2.2)[LSB] | ngettext(GLIBC_2.2)[LSB] | uname(GLIBC_2.2)[SUSv3] |
| errx(GLIBC_2.2)[LSB] | nice(GLIBC_2.2)[SUSv3] | ungetc(GLIBC_2.2)[SUSv3] |
| execl(GLIBC_2.2)[SUSv3] | nl_langinfo(GLIBC_2.2)[SUSv3] | ungetwc(GLIBC_2.2)[SUSv3] |
| execle(GLIBC_2.2)[SUSv3] | nrnd48(GLIBC_2.2)[SUSv3] | unlink(GLIBC_2.2)[LSB] |
| execlp(GLIBC_2.2)[SUSv3] | nrnd48_r(GLIBC_2.2)[LSB] | unlockpt(GLIBC_2.2)[SUSv3] |
| execv(GLIBC_2.2)[SUSv3] | ntohl(GLIBC_2.2)[SUSv3] | unsetenv(GLIBC_2.2)[SUSv3] |
| execve(GLIBC_2.2)[SUSv3] | ntohs(GLIBC_2.2)[SUSv3] | usleep(GLIBC_2.2)[SUSv3] |
| execvp(GLIBC_2.2)[SUSv3] | open(GLIBC_2.2)[SUSv3] | utime(GLIBC_2.2)[SUSv3] |
| exit(GLIBC_2.2)[SUSv3] | open64(GLIBC_2.2)[LFS] | utimes(GLIBC_2.2)[SUSv3] |
| fchdir(GLIBC_2.2)[SUSv3] | open_memstream(GLIBC_2.2)[SUSv4] | utmpname(GLIBC_2.2)[LSB] |
| fchmod(GLIBC_2.2)[SUSv3] | opendir(GLIBC_2.2)[SUSv3] | vasprintf(GLIBC_2.2)[LSB] |
| fchown(GLIBC_2.2)[SUSv3] | openlog(GLIBC_2.2)[SUSv3] | vasprintf(GLIBC_2.4)[LSB] |
| fclose(GLIBC_2.2)[SUSv3] | pathconf(GLIBC_2.2)[SUSv3] | vdprintf(GLIBC_2.2)[LSB] |
| fcntl(GLIBC_2.2)[LSB] | pause(GLIBC_2.2)[SUSv3] | vdprintf(GLIBC_2.4)[LSB] |

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| | v3] | B] |
| fcvt(GLIBC_2.2)[SUSv3] | pclose(GLIBC_2.2)[SUSv3] | verrx(GLIBC_2.2)[LSB] |
| fdatasync(GLIBC_2.2)[SUSv3] | perror(GLIBC_2.2)[SUSv3] | vfork(GLIBC_2.2)[SUSv3] |
| fdopen(GLIBC_2.2)[SUSv3] | pipe(GLIBC_2.2)[SUSv3] | vfprintf(GLIBC_2.2)[SUSv3] |
| feof(GLIBC_2.2)[SUSv3] | pmap_getport(GLIBC_2.2)[LSB] | vfprintf(GLIBC_2.4)[SUSv3] |
| feof_unlocked(GLIBC_2.2)[LSB] | pmap_set(GLIBC_2.2)[LSB] | vfscanf(GLIBC_2.2)[LSB] |
| ferror(GLIBC_2.2)[SUSv3] | pmap_unset(GLIBC_2.2)[LSB] | vfscanf(GLIBC_2.4)[LSB] |
| ferror_unlocked(GLIBC_2.2)[LSB] | poll(GLIBC_2.2)[SUSv3] | vwprintf(GLIBC_2.2)[SUSv3] |
| fexecve(GLIBC_2.2)[SUSv4] | popen(GLIBC_2.2)[SUSv3] | vwprintf(GLIBC_2.4)[SUSv3] |
| fflush(GLIBC_2.2)[SUSv3] | posix_fadvise(GLIBC_2.2)[SUSv3] | vwscanf(GLIBC_2.2)[LSB] |
| fflush_unlocked(GLIBC_2.2)[LSB] | posix_fadvise64(GLIBC_2.2)[LSB] | vwscanf(GLIBC_2.4)[LSB] |
| ffs(GLIBC_2.2)[SUSv3] | posix_fallocate(GLIBC_2.2)[SUSv3] | vprintf(GLIBC_2.2)[SUSv3] |
| fgetc(GLIBC_2.2)[SUSv3] | posix_fallocate64(GLIBC_2.2)[LSB] | vprintf(GLIBC_2.4)[SUSv3] |
| fgetc_unlocked(GLIBC_2.2)[LSB] | posix_madvise(GLIBC_2.2)[SUSv3] | vscanf(GLIBC_2.2)[LSB] |
| fgetpos(GLIBC_2.2)[SUSv3] | posix_memalign(GLIBC_2.2)[SUSv3] | vscanf(GLIBC_2.4)[LSB] |
| fgetpos64(GLIBC_2.2)[LSB] | posix_openpt(GLIBC_2.2.1)[SUSv3] | vsnprintf(GLIBC_2.2)[SUSv3] |
| fgets(GLIBC_2.2)[SUSv3] | posix_spawn(GLIBC_2.2)[SUSv3] | vsnprintf(GLIBC_2.4)[SUSv3] |
| fgets_unlocked(GLIBC_2.2)[LSB] | posix_spawn_file_actions_addclose(GLIBC_2.2)[SUSv3] | vsprintf(GLIBC_2.2)[SUSv3] |
| fgetwc(GLIBC_2.2)[SUSv3] | posix_spawn_file_actions_adddup2(GLIBC_2.2)[SUSv3] | vsprintf(GLIBC_2.4)[SUSv3] |
| fgetwc_unlocked(GLIBC_2.2)[LSB] | posix_spawn_file_actions_addopen(GLIBC_2.2)[SUSv3] | vsscanf(GLIBC_2.2)[LSB] |
| fgetws(GLIBC_2.2)[SUSv3] | posix_spawn_file_actions_addwrite(GLIBC_2.2)[SUSv3] | vsscanf(GLIBC_2.4)[LSB] |

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| v3] | ns_destroy(GLIBC_2.2)[SUSv3] | B] |
| fgetws_unlocked(GLIBC_2.2)[LSB] | posix_spawn_file_actions_init(GLIBC_2.2)[SUSv3] | vswprintf(GLIBC_2.2)[SUSv3] |
| fileno(GLIBC_2.2)[SUSv3] | posix_spawnattr_destroy(GLIBC_2.2)[SUSv3] | vswprintf(GLIBC_2.4)[SUSv3] |
| fileno_unlocked(GLIBC_2.2)[LSB] | posix_spawnattr_getflags(GLIBC_2.2)[SUSv3] | vswscanf(GLIBC_2.2)[LSB] |
| flock(GLIBC_2.2)[LSB] | posix_spawnattr_getpgroup(GLIBC_2.2)[SUSv3] | vswscanf(GLIBC_2.4)[LSB] |
| flockfile(GLIBC_2.2)[SUSv3] | posix_spawnattr_getschedparam(GLIBC_2.2)[SUSv3] | vsyslog(GLIBC_2.2)[LSB] |
| fmemopen(GLIBC_2.2)[SUSv4] | posix_spawnattr_getschedpolicy(GLIBC_2.2)[SUSv3] | vsyslog(GLIBC_2.4)[LSB] |
| fmtmsg(GLIBC_2.2)[SUSv3] | posix_spawnattr_getsigdefault(GLIBC_2.2)[SUSv3] | vwprintf(GLIBC_2.2)[SUSv3] |
| fnmatch(GLIBC_2.2.3)[SUSv3] | posix_spawnattr_getsigmask(GLIBC_2.2)[SUSv3] | vwprintf(GLIBC_2.4)[SUSv3] |
| fopen(GLIBC_2.2)[SUSv3] | posix_spawnattr_init(GLIBC_2.2)[SUSv3] | vwscanf(GLIBC_2.2)[LSB] |
| fopen64(GLIBC_2.2)[LFS] | posix_spawnattr_setflags(GLIBC_2.2)[SUSv3] | vwscanf(GLIBC_2.4)[LSB] |
| fork(GLIBC_2.2)[SUSv3] | posix_spawnattr_setpgroup(GLIBC_2.2)[SUSv3] | wait(GLIBC_2.2)[SUSv3] |
| fpathconf(GLIBC_2.2)[SUSv3] | posix_spawnattr_setschedparam(GLIBC_2.2)[SUSv3] | wait4(GLIBC_2.2)[LSB] |
| fprintf(GLIBC_2.2)[SUSv3] | posix_spawnattr_setschedpolicy(GLIBC_2.2)[SUSv3] | waitid(GLIBC_2.2)[SUSv3] |
| fprintf(GLIBC_2.4)[SUSv3] | posix_spawnattr_setsigdefault(GLIBC_2.2)[SUSv3] | waitpid(GLIBC_2.2)[SUSv3] |
| fputc(GLIBC_2.2)[SUSv3] | posix_spawnattr_setsigmask(GLIBC_2.2)[SUSv3] | warn(GLIBC_2.2)[LSB] |
| fputc_unlocked(GLIBC_2.2)[LSB] | posix_spawnnp(GLIBC_2.2)[SUSv3] | warnx(GLIBC_2.2)[LSB] |

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| fputs(GLIBC_2.2)[SUSv3] | pread(GLIBC_2.2)[SUSv3] | wcpcpy(GLIBC_2.2)[LSB] |
| fputs_unlocked(GLIBC_2.2)[LSB] | pread64(GLIBC_2.2)[LSB] | wcpncpy(GLIBC_2.2)[LSB] |
| fputwc(GLIBC_2.2)[SUSv3] | printf(GLIBC_2.2)[SUSv3] | wcrtomb(GLIBC_2.2)[SUSv3] |
| fputwc_unlocked(GLIBC_2.2)[LSB] | printf(GLIBC_2.4)[SUSv3] | wscasecmp(GLIBC_2.2)[LSB] |
| fputws(GLIBC_2.2)[SUSv3] | pselect(GLIBC_2.2)[SUSv3] | wscat(GLIBC_2.2)[SUSv3] |
| fputws_unlocked(GLIBC_2.2)[LSB] | psignal(GLIBC_2.2)[LSB] | wcschr(GLIBC_2.2)[SUSv3] |
| fread(GLIBC_2.2)[SUSv3] | ptrace(GLIBC_2.2)[LSB] | wscmp(GLIBC_2.2)[SUSv3] |
| fread_unlocked(GLIBC_2.2)[LSB] | ptsname(GLIBC_2.2)[SUSv3] | wscoll(GLIBC_2.2)[SUSv3] |
| free(GLIBC_2.2)[SUSv3] | putc(GLIBC_2.2)[SUSv3] | wscpy(GLIBC_2.2)[SUSv3] |
| freeaddrinfo(GLIBC_2.2)[SUSv3] | putc_unlocked(GLIBC_2.2)[SUSv3] | wscspn(GLIBC_2.2)[SUSv3] |
| freopen(GLIBC_2.2)[SUSv3] | putchar(GLIBC_2.2)[SUSv3] | wcsdup(GLIBC_2.2)[LSB] |
| freopen64(GLIBC_2.2)[LFS] | putchar_unlocked(GLIBC_2.2)[SUSv3] | wcsftime(GLIBC_2.2)[SUSv3] |
| fscanf(GLIBC_2.2)[LSB] | putenv(GLIBC_2.2)[SUSv3] | wcslen(GLIBC_2.2)[SUSv3] |
| fscanf(GLIBC_2.4)[LSB] | puts(GLIBC_2.2)[SUSv3] | wcsncasecmp(GLIBC_2.2)[LSB] |
| fseek(GLIBC_2.2)[SUSv3] | pututxline(GLIBC_2.2)[SUSv3] | wcsncat(GLIBC_2.2)[SUSv3] |
| fseeko(GLIBC_2.2)[SUSv3] | putw(GLIBC_2.2)[SUSv2] | wcsncmp(GLIBC_2.2)[SUSv3] |
| fseeko64(GLIBC_2.2)[LFS] | putwc(GLIBC_2.2)[SUSv3] | wcsncpy(GLIBC_2.2)[SUSv3] |
| fsetpos(GLIBC_2.2)[SUSv3] | putwc_unlocked(GLIBC_2.2)[LSB] | wcsnlen(GLIBC_2.2)[LSB] |
| fsetpos64(GLIBC_2.2)[LFS] | putwchar(GLIBC_2.2)[SUSv3] | wcsnrtombs(GLIBC_2.2)[LSB] |
| fstatfs(GLIBC_2.2)[LSB] | putwchar_unlocked(GLIBC_2.2)[LSB] | wcspbrk(GLIBC_2.2)[SUSv3] |
| fstatfs64(GLIBC_2.2)[LSB] | pwrite(GLIBC_2.2)[SUSv3] | wcsrchr(GLIBC_2.2)[SUSv3] |

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| fstatvfs(GLIBC_2.2)[SU Sv3] | pwrite64(GLIBC_2.2)[L SB] | wcsrtombs(GLIBC_2.2)[SUSv3] |
| fstatvfs64(GLIBC_2.2)[L FS] | qsort(GLIBC_2.2)[SUSv3] | wcsspn(GLIBC_2.2)[SU Sv3] |
| fsync(GLIBC_2.2)[SUSv3] | raise(GLIBC_2.2)[SUSv3] | wcsstr(GLIBC_2.2)[SUSv3] |
| ftell(GLIBC_2.2)[SUSv3] | rand(GLIBC_2.2)[SUSv3] | wcstod(GLIBC_2.2)[SU Sv3] |
| ftello(GLIBC_2.2)[SUSv3] | rand_r(GLIBC_2.2)[SUSv3] | wcstof(GLIBC_2.2)[SUSv3] |
| ftello64(GLIBC_2.2)[LFS] | random(GLIBC_2.2)[SU Sv3] | wcstoimax(GLIBC_2.2)[SUSv3] |
| ftime(GLIBC_2.2)[SUSv3] | random_r(GLIBC_2.2)[LSB] | wcstok(GLIBC_2.2)[SUSv3] |
| ftok(GLIBC_2.2)[SUSv3] | read(GLIBC_2.2)[SUSv3] | wcstol(GLIBC_2.2)[SUSv3] |
| ftruncate(GLIBC_2.2)[SUSv3] | readdir(GLIBC_2.2)[SU Sv3] | wcstold(GLIBC_2.2)[SU Sv3] |
| ftruncate64(GLIBC_2.2)[LFS] | readdir64(GLIBC_2.2)[LFS] | wcstold(GLIBC_2.4)[SU Sv3] |
| ftrylockfile(GLIBC_2.2)[SUSv3] | readdir64_r(GLIBC_2.2)[LSB] | wcstoll(GLIBC_2.2)[SU Sv3] |
| ftw(GLIBC_2.2)[SUSv3] | readdir_r(GLIBC_2.2)[SUSv3] | wcstombs(GLIBC_2.2)[SUSv3] |
| ftw64(GLIBC_2.2)[LFS] | readlink(GLIBC_2.2)[SUSv3] | wcstoq(GLIBC_2.2)[LSB] |
| funlockfile(GLIBC_2.2)[SUSv3] | readv(GLIBC_2.2)[SUSv3] | wcstoul(GLIBC_2.2)[SU Sv3] |
| fwide(GLIBC_2.2)[SUSv3] | realloc(GLIBC_2.2)[SUSv3] | wcstoull(GLIBC_2.2)[SUSv3] |
| fwprintf(GLIBC_2.2)[SUSv3] | realpath(GLIBC_2.3)[SUSv3] | wcstoumax(GLIBC_2.2)[SUSv3] |
| fwprintf(GLIBC_2.4)[SUSv3] | recv(GLIBC_2.2)[SUSv3] | wcstouq(GLIBC_2.2)[LSB] |
| fwrite(GLIBC_2.2)[SUSv3] | recvfrom(GLIBC_2.2)[SUSv3] | wcswcs(GLIBC_2.2)[SUSv3] |
| fwrite_unlocked(GLIBC_2.2)[LSB] | recvmsg(GLIBC_2.2)[SUSv3] | wcswidth(GLIBC_2.2)[SUSv3] |
| fwscanf(GLIBC_2.2)[LSB] | regcomp(GLIBC_2.2)[SUSv3] | wcsxfrm(GLIBC_2.2)[SUSv3] |
| fwscanf(GLIBC_2.4)[LSB] | regerror(GLIBC_2.2)[SUSv3] | wctob(GLIBC_2.2)[SUSv3] |

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| gai_strerror(GLIBC_2.2)[SUSv3] | regexec(GLIBC_2.3.4)[LSB] | wctomb(GLIBC_2.2)[SUSv3] |
| gcvt(GLIBC_2.2)[SUSv3] | regfree(GLIBC_2.2)[SUSv3] | wctrans(GLIBC_2.2)[SUSv3] |
| getaddrinfo(GLIBC_2.2)[SUSv3] | remove(GLIBC_2.2)[SUSv3] | wctype(GLIBC_2.2)[SUSv3] |
| getc(GLIBC_2.2)[SUSv3] | remque(GLIBC_2.2)[SUSv3] | wcwidth(GLIBC_2.2)[SUSv3] |
| getc_unlocked(GLIBC_2.2)[SUSv3] | rename(GLIBC_2.2)[SUSv3] | wmemchr(GLIBC_2.2)[SUSv3] |
| getchar(GLIBC_2.2)[SUSv3] | rewind(GLIBC_2.2)[SUSv3] | wmemcmp(GLIBC_2.2)[SUSv3] |
| getchar_unlocked(GLIBC_2.2)[SUSv3] | rewinddir(GLIBC_2.2)[SUSv3] | wmemcpy(GLIBC_2.2)[SUSv3] |
| getcontext(GLIBC_2.2)[SUSv3] | rindex(GLIBC_2.2)[SUSv3] | wmemmove(GLIBC_2.2)[SUSv3] |
| getcwd(GLIBC_2.2)[SUSv3] | rmdir(GLIBC_2.2)[SUSv3] | wmemset(GLIBC_2.2)[SUSv3] |
| getdate(GLIBC_2.2)[SUSv3] | sbrk(GLIBC_2.2)[SUSv2] | wordexp(GLIBC_2.2)[SUSv3] |
| getdelim(GLIBC_2.2)[SUSv4] | scandir(GLIBC_2.2)[SUSv4] | wordfree(GLIBC_2.2)[SUSv3] |
| getdomainname(GLIBC_2.2)[LSB] | scandir64(GLIBC_2.2)[LSB] | wprintf(GLIBC_2.2)[SUSv3] |
| getdtablesize(GLIBC_2.2)[LSB] | scanf(GLIBC_2.2)[LSB] | wprintf(GLIBC_2.4)[SUSv3] |
| getegid(GLIBC_2.2)[SUSv3] | scanf(GLIBC_2.4)[LSB] | write(GLIBC_2.2)[SUSv3] |
| getenv(GLIBC_2.2)[SUSv3] | sched_get_priority_max(GLIBC_2.2)[SUSv3] | writev(GLIBC_2.2)[SUSv3] |
| geteuid(GLIBC_2.2)[SUSv3] | sched_get_priority_min(GLIBC_2.2)[SUSv3] | wscanf(GLIBC_2.2)[LSB] |
| getgid(GLIBC_2.2)[SUSv3] | sched_getparam(GLIBC_2.2)[SUSv3] | wscanf(GLIBC_2.4)[LSB] |
| getgrent(GLIBC_2.2)[SUSv3] | sched_getscheduler(GLIBC_2.2)[SUSv3] | xdr_accepted_reply(GLIBC_2.2)[SVID.4] |
| getgrent_r(GLIBC_2.2)[LSB] | sched_rr_get_interval(GLIBC_2.2)[SUSv3] | xdr_array(GLIBC_2.2)[SVID.4] |
| getgrgid(GLIBC_2.2)[SUSv3] | sched_setparam(GLIBC_2.2)[SUSv3] | xdr_bool(GLIBC_2.2)[SVID.4] |
| getgrgid_r(GLIBC_2.2)[SUSv3] | sched_setscheduler(GLIBC_2.2)[LSB] | xdr_bytes(GLIBC_2.2)[SVID.4] |

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| getgrnam(GLIBC_2.2)[SUSv3] | sched_yield(GLIBC_2.2)[SUSv3] | xdr_callhdr(GLIBC_2.2)[SVID.4] |
| getgrnam_r(GLIBC_2.2)[SUSv3] | seed48(GLIBC_2.2)[SUSv3] | xdr_callmsg(GLIBC_2.2)[SVID.4] |
| getgrouplist(GLIBC_2.2.4)[LSB] | seed48_r(GLIBC_2.2)[LSB] | xdr_char(GLIBC_2.2)[SVID.4] |
| getgroups(GLIBC_2.2)[SUSv3] | seekdir(GLIBC_2.2)[SUSv3] | xdr_double(GLIBC_2.2)[SVID.4] |
| gethostbyaddr(GLIBC_2.2)[SUSv3] | select(GLIBC_2.2)[SUSv3] | xdr_enum(GLIBC_2.2)[SVID.4] |
| gethostbyaddr_r(GLIBC_2.2)[LSB] | semctl(GLIBC_2.2)[SUSv3] | xdr_float(GLIBC_2.2)[SVID.4] |
| gethostbyname(GLIBC_2.2)[SUSv3] | semget(GLIBC_2.2)[SUSv3] | xdr_free(GLIBC_2.2)[SVID.4] |
| gethostbyname2(GLIBC_2.2)[LSB] | semop(GLIBC_2.2)[SUSv3] | xdr_int(GLIBC_2.2)[SVID.4] |
| gethostbyname2_r(GLIBC_2.2)[LSB] | send(GLIBC_2.2)[SUSv4] | xdr_long(GLIBC_2.2)[SVID.4] |
| gethostbyname_r(GLIBC_2.2)[LSB] | sendfile(GLIBC_2.2)[LSB] | xdr_opaque(GLIBC_2.2)[SVID.4] |
| gethostid(GLIBC_2.2)[SUSv3] | sendmsg(GLIBC_2.2)[SUSv4] | xdr_opaque_auth(GLIBC_2.2)[SVID.4] |
| gethostname(GLIBC_2.2)[SUSv3] | sendto(GLIBC_2.2)[SUSv4] | xdr_pointer(GLIBC_2.2)[SVID.4] |
| getitimer(GLIBC_2.2)[SUSv3] | setbuf(GLIBC_2.2)[SUSv3] | xdr_reference(GLIBC_2.2)[SVID.4] |
| getline(GLIBC_2.2)[SUSv4] | setbuffer(GLIBC_2.2)[LSB] | xdr_rejected_reply(GLIBC_2.2)[SVID.4] |
| getloadavg(GLIBC_2.2)[LSB] | setcontext(GLIBC_2.2)[SUSv3] | xdr_replymsg(GLIBC_2.2)[SVID.4] |
| getlogin(GLIBC_2.2)[SUSv3] | setegid(GLIBC_2.2)[SUSv3] | xdr_short(GLIBC_2.2)[SVID.4] |
| getlogin_r(GLIBC_2.2)[SUSv3] | setenv(GLIBC_2.2)[SUSv3] | xdr_string(GLIBC_2.2)[SVID.4] |
| getnameinfo(GLIBC_2.2)[SUSv3] | seteuid(GLIBC_2.2)[SUSv3] | xdr_u_char(GLIBC_2.2)[SVID.4] |
| getopt(GLIBC_2.2)[LSB] | setgid(GLIBC_2.2)[SUSv3] | xdr_u_int(GLIBC_2.2)[LSB] |
| getopt_long(GLIBC_2.2)[LSB] | setgrent(GLIBC_2.2)[SUSv3] | xdr_u_long(GLIBC_2.2)[SVID.4] |
| getopt_long_only(GLIBC_2.2)[LSB] | setgroups(GLIBC_2.2)[LSB] | xdr_u_short(GLIBC_2.2)[SVID.4] |

| | | |
|------------------------------------|-------------------------------|--|
| getpagesize(GLIBC_2.2)[LSB] | sethostname(GLIBC_2.2)[LSB] | xdr_union(GLIBC_2.2)[SVID.4] |
| getpeername(GLIBC_2.2)[SUSv3] | setitimer(GLIBC_2.2)[SUSv3] | xdr_vector(GLIBC_2.2)[SVID.4] |
| getpgid(GLIBC_2.2)[SUSv3] | setlocale(GLIBC_2.2)[SUSv3] | xdr_void(GLIBC_2.2)[SVID.4] |
| getpgrp(GLIBC_2.2)[SUSv3] | setlogmask(GLIBC_2.2)[SUSv3] | xdr_wrapstring(GLIBC_2.2)[SVID.4] |
| getpid(GLIBC_2.2)[SUSv3] | setpgid(GLIBC_2.2)[SUSv3] | xdrmem_create(GLIBC_2.2)[SVID.4] |
| getppid(GLIBC_2.2)[SUSv3] | setpgrp(GLIBC_2.2)[SUSv3] | xdrrec_create(GLIBC_2.2)[SVID.4] |
| getpriority(GLIBC_2.2)[SUSv3] | setpriority(GLIBC_2.2)[SUSv3] | xdrrec_endofrecord(GLIBC_2.2)[RPC & XDR] |
| getprotobyname(GLIBC_2.2)[SUSv3] | setprotoent(GLIBC_2.2)[SUSv3] | xdrrec_eof(GLIBC_2.2)[SVID.4] |
| getprotobyname_r(GLIBC_2.2)[LSB] | setpwent(GLIBC_2.2)[SUSv3] | xdrrec_skiprecord(GLIBC_2.2)[RPC & XDR] |
| getprotobynumber(GLIBC_2.2)[SUSv3] | setregid(GLIBC_2.2)[SUSv3] | xdrstdio_create(GLIBC_2.2)[LSB] |
| getprotobynumber_r(GLIBC_2.2)[LSB] | setreuid(GLIBC_2.2)[SUSv3] | |
| getprotoent(GLIBC_2.2)[SUSv3] | setrlimit(GLIBC_2.2)[SUSv3] | |

Table A-2 libc Data Interfaces

| | | |
|-----------------|--------------------|-------------------------|
| __daylight[LSB] | __tzname[LSB] | in6addr_loopback[SUSv3] |
| __environ[LSB] | _sys_errlist[LSB] | |
| __timezone[LSB] | in6addr_any[SUSv3] | |

A.2 libcrypt

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

POSIX 1003.1-2001 (ISO/IEC 9945-2003) [SUSv3]

Table A-3 libcrypt Function Interfaces

| | | |
|-------------------------|---------------------------|--------------------------|
| crypt(GLIBC_2.2)[SUSv3] | encrypt(GLIBC_2.2)[SUSv3] | setkey(GLIBC_2.2)[SUSv3] |
|-------------------------|---------------------------|--------------------------|

A.3 libdl

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

ISO/IEC 23360 Part 1 [LSB]
 POSIX 1003.1-2001 (ISO/IEC 9945-2003) [SUSv3]

Table A-4 libdl Function Interfaces

| | | |
|---------------------------|----------------------------|------------------------|
| dladdr(GLIBC_2.2)[LSB] | dlderror(GLIBC_2.2)[SUSv3] | dlsym(GLIBC_2.2)[LSB] |
| dlclose(GLIBC_2.2)[SUSv3] | dlopen(GLIBC_2.2)[LSB] | dlvsym(GLIBC_2.2)[LSB] |

A.4 libgcc_s

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

ISO/IEC 23360 Part 1 [LSB]

Table A-5 libgcc_s Function Interfaces

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

A.5 libm

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

ISO/IEC 23360 Part 1 [LSB]
 POSIX 1003.1-2001 (ISO/IEC 9945-2003) [SUSv3]

Table A-6 libm Function Interfaces

| | | |
|---------------------------|--------------------------|--------------------------|
| __finite(GLIBC_2.2)[LSB] | csinl(GLIBC_2.2)[SUSv3] | log10(GLIBC_2.2)[SUSv3] |
| __finitef(GLIBC_2.2)[LSB] | csinl(GLIBC_2.4)[SUSv3] | log10f(GLIBC_2.2)[SUSv3] |
| __finitel(GLIBC_2.2)[LSB] | csqrt(GLIBC_2.2)[SUSv3] | log10l(GLIBC_2.2)[SUSv3] |
| __finitel(GLIBC_2.4)[LSB] | csqrtf(GLIBC_2.2)[SUSv3] | log10l(GLIBC_2.4)[SUSv3] |

| | | |
|-------------------------------|--------------------------|---------------------------|
| __fpclassify(GLIBC_2.2)[LSB] | csqrtl(GLIBC_2.2)[SUSv3] | log1p(GLIBC_2.2)[SUSv3] |
| __fpclassifyf(GLIBC_2.2)[LSB] | csqrtl(GLIBC_2.4)[SUSv3] | log1pf(GLIBC_2.2)[SUSv3] |
| __fpclassifyl(GLIBC_2.4)[LSB] | ctan(GLIBC_2.2)[SUSv3] | log1pl(GLIBC_2.2)[SUSv3] |
| __signbit(GLIBC_2.2)[LSB] | ctanf(GLIBC_2.2)[SUSv3] | log1pl(GLIBC_2.4)[SUSv3] |
| __signbitf(GLIBC_2.2)[LSB] | ctanh(GLIBC_2.2)[SUSv3] | log2(GLIBC_2.2)[SUSv3] |
| __signbitl(GLIBC_2.4)[LSB] | ctanhf(GLIBC_2.2)[SUSv3] | log2f(GLIBC_2.2)[SUSv3] |
| acos(GLIBC_2.2)[SUSv3] | ctanhl(GLIBC_2.2)[SUSv3] | log2l(GLIBC_2.2)[SUSv3] |
| acosf(GLIBC_2.2)[SUSv3] | ctanhl(GLIBC_2.4)[SUSv3] | log2l(GLIBC_2.4)[SUSv3] |
| acosh(GLIBC_2.2)[SUSv3] | ctanl(GLIBC_2.2)[SUSv3] | logb(GLIBC_2.2)[SUSv3] |
| acoshf(GLIBC_2.2)[SUSv3] | ctanl(GLIBC_2.4)[SUSv3] | logbf(GLIBC_2.2)[SUSv3] |
| acoshl(GLIBC_2.2)[SUSv3] | drem(GLIBC_2.2)[LSB] | logbl(GLIBC_2.2)[SUSv3] |
| acoshl(GLIBC_2.4)[SUSv3] | dremf(GLIBC_2.2)[LSB] | logbl(GLIBC_2.4)[SUSv3] |
| acosl(GLIBC_2.2)[SUSv3] | dreml(GLIBC_2.2)[LSB] | logf(GLIBC_2.2)[SUSv3] |
| acosl(GLIBC_2.4)[SUSv3] | dreml(GLIBC_2.4)[LSB] | logl(GLIBC_2.2)[SUSv3] |
| asin(GLIBC_2.2)[SUSv3] | erf(GLIBC_2.2)[SUSv3] | logl(GLIBC_2.4)[SUSv3] |
| asinf(GLIBC_2.2)[SUSv3] | erfc(GLIBC_2.2)[SUSv3] | lrint(GLIBC_2.2)[SUSv3] |
| asinh(GLIBC_2.2)[SUSv3] | erfcf(GLIBC_2.2)[SUSv3] | lrintf(GLIBC_2.2)[SUSv3] |
| asinhf(GLIBC_2.2)[SUSv3] | erfcl(GLIBC_2.2)[SUSv3] | lrintl(GLIBC_2.2)[SUSv3] |
| asinhf(GLIBC_2.4)[SUSv3] | erfcl(GLIBC_2.4)[SUSv3] | lrintl(GLIBC_2.4)[SUSv3] |
| asinhf(GLIBC_2.4)[SUSv3] | erff(GLIBC_2.2)[SUSv3] | lround(GLIBC_2.2)[SUSv3] |
| asinl(GLIBC_2.2)[SUSv3] | erfl(GLIBC_2.2)[SUSv3] | lroundf(GLIBC_2.2)[SUSv3] |

| | | |
|---------------------------|--------------------------|------------------------------|
| asinl(GLIBC_2.4)[SUSv3] | erfl(GLIBC_2.4)[SUSv3] | lroundl(GLIBC_2.2)[SUSv3] |
| atan(GLIBC_2.2)[SUSv3] | exp(GLIBC_2.2)[SUSv3] | lroundl(GLIBC_2.4)[SUSv3] |
| atan2(GLIBC_2.2)[SUSv3] | exp10(GLIBC_2.2)[LSB] | matherr(GLIBC_2.2)[LSB] |
| atan2f(GLIBC_2.2)[SUSv3] | exp10f(GLIBC_2.2)[LSB] | modf(GLIBC_2.2)[SUSv3] |
| atan2l(GLIBC_2.2)[SUSv3] | exp10l(GLIBC_2.2)[LSB] | modff(GLIBC_2.2)[SUSv3] |
| atan2l(GLIBC_2.4)[SUSv3] | exp10l(GLIBC_2.4)[LSB] | modfl(GLIBC_2.2)[SUSv3] |
| atanf(GLIBC_2.2)[SUSv3] | exp2(GLIBC_2.2)[SUSv3] | modfl(GLIBC_2.4)[SUSv3] |
| atanh(GLIBC_2.2)[SUSv3] | exp2f(GLIBC_2.2)[SUSv3] | nan(GLIBC_2.2)[SUSv3] |
| atanhf(GLIBC_2.2)[SUSv3] | exp2l(GLIBC_2.4)[SUSv3] | nanf(GLIBC_2.2)[SUSv3] |
| atanhl(GLIBC_2.2)[SUSv3] | expf(GLIBC_2.2)[SUSv3] | nanl(GLIBC_2.2)[SUSv3] |
| atanhl(GLIBC_2.4)[SUSv3] | expl(GLIBC_2.2)[SUSv3] | nanl(GLIBC_2.4)[SUSv3] |
| atanl(GLIBC_2.2)[SUSv3] | expl(GLIBC_2.4)[SUSv3] | nearbyint(GLIBC_2.2)[SUSv3] |
| atanl(GLIBC_2.4)[SUSv3] | expm1(GLIBC_2.2)[SUSv3] | nearbyintf(GLIBC_2.2)[SUSv3] |
| cabs(GLIBC_2.2)[SUSv3] | expm1f(GLIBC_2.2)[SUSv3] | nearbyintl(GLIBC_2.2)[SUSv3] |
| cabsf(GLIBC_2.2)[SUSv3] | expm1l(GLIBC_2.2)[SUSv3] | nearbyintl(GLIBC_2.4)[SUSv3] |
| cabsl(GLIBC_2.2)[SUSv3] | expm1l(GLIBC_2.4)[SUSv3] | nextafter(GLIBC_2.2)[SUSv3] |
| cabsl(GLIBC_2.4)[SUSv3] | fabs(GLIBC_2.2)[SUSv3] | nextafterf(GLIBC_2.2)[SUSv3] |
| cacos(GLIBC_2.2)[SUSv3] | fabsf(GLIBC_2.2)[SUSv3] | nextafterl(GLIBC_2.2)[SUSv3] |
| cacosf(GLIBC_2.2)[SUSv3] | fabsl(GLIBC_2.2)[SUSv3] | nextafterl(GLIBC_2.4)[SUSv3] |
| cacosh(GLIBC_2.2)[SUSv3] | fabsl(GLIBC_2.4)[SUSv3] | nexttoward(GLIBC_2.2)[SUSv3] |
| cacoshf(GLIBC_2.2)[SUSv3] | fdim(GLIBC_2.2)[SUSv3] | nexttoward(GLIBC_2.4)[SUSv3] |

| | | |
|----------------------------|-----------------------------------|-------------------------------|
| cacoshl(GLIBC_2.2)[SU Sv3] | fdimf(GLIBC_2.2)[SUSv3] | nexttowardf(GLIBC_2.2)[SUSv3] |
| cacoshl(GLIBC_2.4)[SU Sv3] | fdiml(GLIBC_2.2)[SUSv3] | nexttowardf(GLIBC_2.4)[SUSv3] |
| cacosl(GLIBC_2.2)[SUSv3] | fdiml(GLIBC_2.4)[SUSv3] | nexttowardl(GLIBC_2.2)[SUSv3] |
| cacosl(GLIBC_2.4)[SUSv3] | feclearexcept(GLIBC_2.2)[SUSv3] | nexttowardl(GLIBC_2.4)[SUSv3] |
| carg(GLIBC_2.2)[SUSv3] | fedisableexcept(GLIBC_2.2)[LSB] | pow(GLIBC_2.2)[SUSv3] |
| cargf(GLIBC_2.2)[SUSv3] | feenableexcept(GLIBC_2.2)[LSB] | pow10(GLIBC_2.2)[LSB] |
| cargl(GLIBC_2.2)[SUSv3] | fegetenv(GLIBC_2.2)[SUSv3] | pow10f(GLIBC_2.2)[LSB] |
| cargl(GLIBC_2.4)[SUSv3] | fegetexcept(GLIBC_2.2)[LSB] | pow10l(GLIBC_2.2)[LSB] |
| casin(GLIBC_2.2)[SUSv3] | fegetexceptflag(GLIBC_2.2)[SUSv3] | pow10l(GLIBC_2.4)[LSB] |
| casinf(GLIBC_2.2)[SUSv3] | fegetround(GLIBC_2.2)[SUSv3] | powf(GLIBC_2.2)[SUSv3] |
| casinh(GLIBC_2.2)[SUSv3] | feholdexcept(GLIBC_2.2)[SUSv3] | powl(GLIBC_2.2)[SUSv3] |
| casinhf(GLIBC_2.2)[SU Sv3] | feraiseexcept(GLIBC_2.2)[SUSv3] | powl(GLIBC_2.4)[SUSv3] |
| casinhl(GLIBC_2.2)[SUSv3] | fesetenv(GLIBC_2.2)[SUSv3] | remainder(GLIBC_2.2)[SUSv3] |
| casinhl(GLIBC_2.4)[SUSv3] | fesetexceptflag(GLIBC_2.2)[SUSv3] | remainderf(GLIBC_2.2)[SUSv3] |
| casinl(GLIBC_2.2)[SUSv3] | fesetround(GLIBC_2.2)[SUSv3] | remainderl(GLIBC_2.2)[SUSv3] |
| casinl(GLIBC_2.4)[SUSv3] | fetestexcept(GLIBC_2.2)[SUSv3] | remainderl(GLIBC_2.4)[SUSv3] |
| catan(GLIBC_2.2)[SUSv3] | feupdateenv(GLIBC_2.2)[SUSv3] | remquo(GLIBC_2.2)[SUSv3] |
| catanf(GLIBC_2.2)[SUSv3] | finite(GLIBC_2.2)[LSB] | remquof(GLIBC_2.2)[SUSv3] |
| catanh(GLIBC_2.2)[SUSv3] | finitf(GLIBC_2.2)[LSB] | remquol(GLIBC_2.2)[SUSv3] |
| catanhf(GLIBC_2.2)[SU Sv3] | finitel(GLIBC_2.2)[LSB] | remquol(GLIBC_2.4)[SUSv3] |
| catanhl(GLIBC_2.2)[SU Sv3] | finitel(GLIBC_2.4)[LSB] | rint(GLIBC_2.2)[SUSv3] |

| | | |
|---------------------------|--------------------------|------------------------------|
| catanhl(GLIBC_2.4)[SUSv3] | floor(GLIBC_2.2)[SUSv3] | rintf(GLIBC_2.2)[SUSv3] |
| catanl(GLIBC_2.2)[SUSv3] | floorf(GLIBC_2.2)[SUSv3] | rintl(GLIBC_2.2)[SUSv3] |
| catanl(GLIBC_2.4)[SUSv3] | floorl(GLIBC_2.2)[SUSv3] | rintl(GLIBC_2.4)[SUSv3] |
| cbrt(GLIBC_2.2)[SUSv3] | floorl(GLIBC_2.4)[SUSv3] | round(GLIBC_2.2)[SUSv3] |
| cbrtf(GLIBC_2.2)[SUSv3] | fma(GLIBC_2.2)[SUSv3] | roundf(GLIBC_2.2)[SUSv3] |
| cbrtl(GLIBC_2.2)[SUSv3] | fmaf(GLIBC_2.2)[SUSv3] | roundl(GLIBC_2.2)[SUSv3] |
| cbrtl(GLIBC_2.4)[SUSv3] | fmal(GLIBC_2.2)[SUSv3] | roundl(GLIBC_2.4)[SUSv3] |
| ccos(GLIBC_2.2)[SUSv3] | fmal(GLIBC_2.4)[SUSv3] | scalb(GLIBC_2.2)[SUSv3] |
| ccosf(GLIBC_2.2)[SUSv3] | fmax(GLIBC_2.2)[SUSv3] | scalbf(GLIBC_2.2)[LSB] |
| ccosh(GLIBC_2.2)[SUSv3] | fmaxf(GLIBC_2.2)[SUSv3] | scalbl(GLIBC_2.2)[LSB] |
| ccoshf(GLIBC_2.2)[SUSv3] | fmaxl(GLIBC_2.2)[SUSv3] | scalbl(GLIBC_2.4)[LSB] |
| ccoshl(GLIBC_2.2)[SUSv3] | fmaxl(GLIBC_2.4)[SUSv3] | scalbln(GLIBC_2.2)[SUSv3] |
| ccoshl(GLIBC_2.4)[SUSv3] | fmin(GLIBC_2.2)[SUSv3] | scalblnf(GLIBC_2.2)[SUSv3] |
| ccosl(GLIBC_2.2)[SUSv3] | fminf(GLIBC_2.2)[SUSv3] | scalblnl(GLIBC_2.2)[SUSv3] |
| ccosl(GLIBC_2.4)[SUSv3] | fminl(GLIBC_2.2)[SUSv3] | scalblnl(GLIBC_2.4)[SUSv3] |
| ceil(GLIBC_2.2)[SUSv3] | fminl(GLIBC_2.4)[SUSv3] | scalbn(GLIBC_2.2)[SUSv3] |
| ceilf(GLIBC_2.2)[SUSv3] | fmod(GLIBC_2.2)[SUSv3] | scalbnf(GLIBC_2.2)[SUSv3] |
| ceill(GLIBC_2.2)[SUSv3] | fmodf(GLIBC_2.2)[SUSv3] | scalbnl(GLIBC_2.2)[SUSv3] |
| ceill(GLIBC_2.4)[SUSv3] | fmodl(GLIBC_2.2)[SUSv3] | scalbnl(GLIBC_2.4)[SUSv3] |
| cexp(GLIBC_2.2)[SUSv3] | fmodl(GLIBC_2.4)[SUSv3] | significand(GLIBC_2.2)[LSB] |
| cexpf(GLIBC_2.2)[SUSv3] | frexp(GLIBC_2.2)[SUSv3] | significandf(GLIBC_2.2)[LSB] |

| | | |
|-----------------------------|--------------------------|------------------------------|
| cexpl(GLIBC_2.2)[SUSv3] | frexpf(GLIBC_2.2)[SUSv3] | significandl(GLIBC_2.2)[LSB] |
| cexpl(GLIBC_2.4)[SUSv3] | frexpl(GLIBC_2.2)[SUSv3] | significandl(GLIBC_2.4)[LSB] |
| cimag(GLIBC_2.2)[SUSv3] | frexpl(GLIBC_2.4)[SUSv3] | sin(GLIBC_2.2)[SUSv3] |
| cimagf(GLIBC_2.2)[SUSv3] | gamma(GLIBC_2.2)[LSB] | sincos(GLIBC_2.2)[LSB] |
| cimagl(GLIBC_2.2)[SUSv3] | gammaf(GLIBC_2.2)[LSB] | sincosf(GLIBC_2.2)[LSB] |
| cimagl(GLIBC_2.4)[SUSv3] | gammal(GLIBC_2.2)[LSB] | sincosl(GLIBC_2.2)[LSB] |
| clog(GLIBC_2.2)[SUSv3] | gammal(GLIBC_2.4)[LSB] | sincosl(GLIBC_2.4)[LSB] |
| clog10(GLIBC_2.2)[LSB] | hypot(GLIBC_2.2)[SUSv3] | sinf(GLIBC_2.2)[SUSv3] |
| clog10f(GLIBC_2.2)[LSB] | hypotf(GLIBC_2.2)[SUSv3] | sinh(GLIBC_2.2)[SUSv3] |
| clog10l(GLIBC_2.2)[LSB] | hypotl(GLIBC_2.2)[SUSv3] | sinhf(GLIBC_2.2)[SUSv3] |
| clog10l(GLIBC_2.4)[LSB] | hypotl(GLIBC_2.4)[SUSv3] | sinhl(GLIBC_2.2)[SUSv3] |
| clogf(GLIBC_2.2)[SUSv3] | ilogb(GLIBC_2.2)[SUSv3] | sinhl(GLIBC_2.4)[SUSv3] |
| clogl(GLIBC_2.2)[SUSv3] | ilogbf(GLIBC_2.2)[SUSv3] | sinl(GLIBC_2.2)[SUSv3] |
| clogl(GLIBC_2.4)[SUSv3] | ilogbl(GLIBC_2.2)[SUSv3] | sinl(GLIBC_2.4)[SUSv3] |
| conj(GLIBC_2.2)[SUSv3] | ilogbl(GLIBC_2.4)[SUSv3] | sqrt(GLIBC_2.2)[SUSv3] |
| conjf(GLIBC_2.2)[SUSv3] | j0(GLIBC_2.2)[SUSv3] | sqrtf(GLIBC_2.2)[SUSv3] |
| conjl(GLIBC_2.2)[SUSv3] | j0f(GLIBC_2.2)[LSB] | sqrtl(GLIBC_2.2)[SUSv3] |
| conjl(GLIBC_2.4)[SUSv3] | j0l(GLIBC_2.2)[LSB] | sqrtl(GLIBC_2.4)[SUSv3] |
| copysign(GLIBC_2.2)[SUSv3] | j0l(GLIBC_2.4)[LSB] | tan(GLIBC_2.2)[SUSv3] |
| copysignf(GLIBC_2.2)[SUSv3] | j1(GLIBC_2.2)[SUSv3] | tanf(GLIBC_2.2)[SUSv3] |
| copysignl(GLIBC_2.2)[SUSv3] | j1f(GLIBC_2.2)[LSB] | tanh(GLIBC_2.2)[SUSv3] |

| | | |
|--|---|---|
| <code>copysignl(GLIBC_2.4)[SUSv3]</code> | <code>j1l(GLIBC_2.2)[LSB]</code> | <code>tanhf(GLIBC_2.2)[SUSv3]</code> |
| <code>cos(GLIBC_2.2)[SUSv3]</code> | <code>j1l(GLIBC_2.4)[LSB]</code> | <code>tanhf(GLIBC_2.2)[SUSv3]</code> |
| <code>cosf(GLIBC_2.2)[SUSv3]</code> | <code>jnl(GLIBC_2.2)[SUSv3]</code> | <code>tanhf(GLIBC_2.4)[SUSv3]</code> |
| <code>cosh(GLIBC_2.2)[SUSv3]</code> | <code>jnf(GLIBC_2.2)[LSB]</code> | <code>tanl(GLIBC_2.2)[SUSv3]</code> |
| <code>coshf(GLIBC_2.2)[SUSv3]</code> | <code>jnl(GLIBC_2.2)[LSB]</code> | <code>tanl(GLIBC_2.4)[SUSv3]</code> |
| <code>coshl(GLIBC_2.2)[SUSv3]</code> | <code>jnl(GLIBC_2.4)[LSB]</code> | <code>tgamma(GLIBC_2.2)[SUSv3]</code> |
| <code>coshl(GLIBC_2.4)[SUSv3]</code> | <code>ldexp(GLIBC_2.2)[SUSv3]</code> | <code>tgammalf(GLIBC_2.2)[SUSv3]</code> |
| <code>cosl(GLIBC_2.2)[SUSv3]</code> | <code>ldexpf(GLIBC_2.2)[SUSv3]</code> | <code>tgammal(GLIBC_2.2)[SUSv3]</code> |
| <code>cosl(GLIBC_2.4)[SUSv3]</code> | <code>ldexpl(GLIBC_2.2)[SUSv3]</code> | <code>tgammal(GLIBC_2.4)[SUSv3]</code> |
| <code>cpow(GLIBC_2.2)[SUSv3]</code> | <code>ldexpl(GLIBC_2.4)[SUSv3]</code> | <code>trunc(GLIBC_2.2)[SUSv3]</code> |
| <code>cpowf(GLIBC_2.2)[SUSv3]</code> | <code>lgamma(GLIBC_2.2)[SUSv3]</code> | <code>truncf(GLIBC_2.2)[SUSv3]</code> |
| <code>cpowl(GLIBC_2.2)[SUSv3]</code> | <code>lgamma_r(GLIBC_2.2)[LSB]</code> | <code>truncl(GLIBC_2.2)[SUSv3]</code> |
| <code>cpowl(GLIBC_2.4)[SUSv3]</code> | <code>lgammalf(GLIBC_2.2)[SUSv3]</code> | <code>truncl(GLIBC_2.4)[SUSv3]</code> |
| <code>cproj(GLIBC_2.2)[SUSv3]</code> | <code>lgammaf_r(GLIBC_2.2)[LSB]</code> | <code>y0(GLIBC_2.2)[SUSv3]</code> |
| <code>cprojf(GLIBC_2.2)[SUSv3]</code> | <code>lgammal(GLIBC_2.2)[SUSv3]</code> | <code>y0f(GLIBC_2.2)[LSB]</code> |
| <code>cprojl(GLIBC_2.2)[SUSv3]</code> | <code>lgammal(GLIBC_2.4)[SUSv3]</code> | <code>y0l(GLIBC_2.2)[LSB]</code> |
| <code>cprojl(GLIBC_2.4)[SUSv3]</code> | <code>lgammal_r(GLIBC_2.2)[LSB]</code> | <code>y0l(GLIBC_2.4)[LSB]</code> |
| <code>creal(GLIBC_2.2)[SUSv3]</code> | <code>lgammal_r(GLIBC_2.4)[LSB]</code> | <code>y1(GLIBC_2.2)[SUSv3]</code> |
| <code>crealf(GLIBC_2.2)[SUSv3]</code> | <code>llrint(GLIBC_2.2)[SUSv3]</code> | <code>y1f(GLIBC_2.2)[LSB]</code> |
| <code>creall(GLIBC_2.2)[SUSv3]</code> | <code>llrintf(GLIBC_2.2)[SUSv3]</code> | <code>y1l(GLIBC_2.2)[LSB]</code> |
| <code>creall(GLIBC_2.4)[SUSv3]</code> | <code>llrintl(GLIBC_2.2)[SUSv3]</code> | <code>y1l(GLIBC_2.4)[LSB]</code> |

| | | |
|--------------------------|----------------------------|----------------------|
| csin(GLIBC_2.2)[SUSv3] | llrintl(GLIBC_2.4)[SUSv3] | yn(GLIBC_2.2)[SUSv3] |
| csinf(GLIBC_2.2)[SUSv3] | llround(GLIBC_2.2)[SUSv3] | ynf(GLIBC_2.2)[LSB] |
| csinh(GLIBC_2.2)[SUSv3] | llroundf(GLIBC_2.2)[SUSv3] | ynl(GLIBC_2.2)[LSB] |
| csinhf(GLIBC_2.2)[SUSv3] | llroundl(GLIBC_2.2)[SUSv3] | ynl(GLIBC_2.4)[LSB] |
| csinhl(GLIBC_2.2)[SUSv3] | llroundl(GLIBC_2.4)[SUSv3] | |
| csinhl(GLIBC_2.4)[SUSv3] | log(GLIBC_2.2)[SUSv3] | |

Table A-7 libm Data Interfaces

| | | |
|----------------|--|--|
| signgam[SUSv3] | | |
|----------------|--|--|

A.6 libpthread

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

Large File Support [LFS]
ISO/IEC 23360 Part 1 [LSB]
POSIX 1003.1-2001 (ISO/IEC 9945-2003) [SUSv3]

Table A-8 libpthread Function Interfaces

| | | |
|--|--|---|
| _pthread_cleanup_pop(GLIBC_2.2)[LSB] | pthread_cond_wait(GLIBC_2.3.2)[SUSv3] | pthread_rwlock_timedwrlock(GLIBC_2.2)[SUSv3] |
| _pthread_cleanup_push(GLIBC_2.2)[LSB] | pthread_condattr_destroy(GLIBC_2.2)[SUSv3] | pthread_rwlock_tryrdlock(GLIBC_2.2)[SUSv3] |
| lseek64(GLIBC_2.2)[LFS] | pthread_condattr_getspshared(GLIBC_2.2)[SUSv3] | pthread_rwlock_trywrlock(GLIBC_2.2)[SUSv3] |
| open64(GLIBC_2.2)[LFS] | pthread_condattr_init(GLIBC_2.2)[SUSv3] | pthread_rwlock_unlock(GLIBC_2.2)[SUSv3] |
| pread(GLIBC_2.2)[SUSv3] | pthread_condattr_setspshared(GLIBC_2.2)[SUSv3] | pthread_rwlock_wrlock(GLIBC_2.2)[SUSv3] |
| pread64(GLIBC_2.2)[LSB] | pthread_create(GLIBC_2.2)[SUSv3] | pthread_rwlockattr_destroy(GLIBC_2.2)[SUSv3] |
| pthread_attr_destroy(GLIBC_2.2)[SUSv3] | pthread_detach(GLIBC_2.2)[SUSv3] | pthread_rwlockattr_getkind_np(GLIBC_2.2)[LSB] |
| pthread_attr_getdetach | pthread_equal(GLIBC_2.2)[SUSv3] | pthread_rwlockattr_get |

| | | |
|--|---|---|
| state(GLIBC_2.2)[SUSv3] | 2.2)[SUSv3] | pshared(GLIBC_2.2)[SUSv3] |
| pthread_attr_getguardsize(GLIBC_2.2)[SUSv3] | pthread_exit(GLIBC_2.2)[SUSv3] | pthread_rwlockattr_init(GLIBC_2.2)[SUSv3] |
| pthread_attr_getinheritsched(GLIBC_2.2)[SUSv3] | pthread_getattr_np(GLIBC_2.2.3)[LSB] | pthread_rwlockattr_setkind_np(GLIBC_2.2)[LSB] |
| pthread_attr_getschedparam(GLIBC_2.2)[SUSv3] | pthread_getconcurrency(GLIBC_2.2)[SUSv3] | pthread_rwlockattr_setpshared(GLIBC_2.2)[SUSv3] |
| pthread_attr_getschedpolicy(GLIBC_2.2)[SUSv3] | pthread_getcpuclockid(GLIBC_2.2)[SUSv3] | pthread_self(GLIBC_2.2)[SUSv3] |
| pthread_attr_getscope(GLIBC_2.2)[SUSv3] | pthread_getschedparam(GLIBC_2.2)[SUSv3] | pthread_setcancelstate(GLIBC_2.2)[SUSv3] |
| pthread_attr_getstack(GLIBC_2.2)[SUSv3] | pthread_getspecific(GLIBC_2.2)[SUSv3] | pthread_setcanceltype(GLIBC_2.2)[SUSv3] |
| pthread_attr_getstackaddr(GLIBC_2.2)[SUSv3] | pthread_join(GLIBC_2.2)[SUSv3] | pthread_setconcurrency(GLIBC_2.2)[SUSv3] |
| pthread_attr_getstacksize(GLIBC_2.2)[SUSv3] | pthread_key_create(GLIBC_2.2)[SUSv3] | pthread_setschedparam(GLIBC_2.2)[SUSv3] |
| pthread_attr_init(GLIBC_2.2)[SUSv3] | pthread_key_delete(GLIBC_2.2)[SUSv3] | pthread_setspecific(GLIBC_2.2)[SUSv3] |
| pthread_attr_setdetachstate(GLIBC_2.2)[SUSv3] | pthread_kill(GLIBC_2.2)[SUSv3] | pthread_sigmask(GLIBC_2.2)[SUSv3] |
| pthread_attr_setguardsize(GLIBC_2.2)[SUSv3] | pthread_mutex_consistent_np(GLIBC_2.4)[LSB] | pthread_spin_destroy(GLIBC_2.2)[SUSv3] |
| pthread_attr_setinheritsched(GLIBC_2.2)[SUSv3] | pthread_mutex_destroy(GLIBC_2.2)[SUSv3] | pthread_spin_init(GLIBC_2.2)[SUSv3] |
| pthread_attr_setschedparam(GLIBC_2.2)[SUSv3] | pthread_mutex_init(GLIBC_2.2)[SUSv3] | pthread_spin_lock(GLIBC_2.2)[SUSv3] |
| pthread_attr_setschedpolicy(GLIBC_2.2)[SUSv3] | pthread_mutex_lock(GLIBC_2.2)[SUSv3] | pthread_spin_trylock(GLIBC_2.2)[SUSv3] |
| pthread_attr_setscope(GLIBC_2.2)[SUSv3] | pthread_mutex_timedlock(GLIBC_2.2)[SUSv3] | pthread_spin_unlock(GLIBC_2.2)[SUSv3] |
| pthread_attr_setstack(GLIBC_2.2)[SUSv3] | pthread_mutex_trylock(GLIBC_2.2)[SUSv3] | pthread_testcancel(GLIBC_2.2)[SUSv3] |
| pthread_attr_setstackaddr(GLIBC_2.2)[SUSv3] | pthread_mutex_unlock(GLIBC_2.2)[SUSv3] | pwrite(GLIBC_2.2)[SUSv3] |
| pthread_attr_setstacksize(GLIBC_2.2)[SUSv3] | pthread_mutexattr_dest | pwrite64(GLIBC_2.2)[L |

| | | |
|--|--|---------------------------------|
| e(GLIBC_2.2)[SUSv3] | roy(GLIBC_2.2)[SUSv3] | SB] |
| pthread_barrier_destroy(GLIBC_2.2)[SUSv3] | pthread_mutexattr_getpshared(GLIBC_2.2)[SUSv3] | sem_close(GLIBC_2.2)[SUSv3] |
| pthread_barrier_init(GLIBC_2.2)[SUSv3] | pthread_mutexattr_getrobust_np(GLIBC_2.4)[LSB] | sem_destroy(GLIBC_2.2)[SUSv3] |
| pthread_barrier_wait(GLIBC_2.2)[SUSv3] | pthread_mutexattr_gettype(GLIBC_2.2)[SUSv3] | sem_getvalue(GLIBC_2.2)[SUSv3] |
| pthread_barrierattr_destroy(GLIBC_2.2)[SUSv3] | pthread_mutexattr_init(GLIBC_2.2)[SUSv3] | sem_init(GLIBC_2.2)[SUSv3] |
| pthread_barrierattr_init(GLIBC_2.2)[SUSv3] | pthread_mutexattr_setpshared(GLIBC_2.2)[SUSv3] | sem_open(GLIBC_2.2)[SUSv3] |
| pthread_barrierattr_setpshared(GLIBC_2.2)[SUSv3] | pthread_mutexattr_setrobust_np(GLIBC_2.4)[LSB] | sem_post(GLIBC_2.2)[SUSv3] |
| pthread_cancel(GLIBC_2.2)[SUSv3] | pthread_mutexattr_settype(GLIBC_2.2)[SUSv3] | sem_timedwait(GLIBC_2.2)[SUSv3] |
| pthread_cond_broadcast(GLIBC_2.3.2)[SUSv3] | pthread_once(GLIBC_2.2)[SUSv3] | sem_trywait(GLIBC_2.2)[SUSv3] |
| pthread_cond_destroy(GLIBC_2.3.2)[SUSv3] | pthread_rwlock_destroy(GLIBC_2.2)[SUSv3] | sem_unlink(GLIBC_2.2)[SUSv3] |
| pthread_cond_init(GLIBC_2.3.2)[SUSv3] | pthread_rwlock_init(GLIBC_2.2)[SUSv3] | sem_wait(GLIBC_2.2)[SUSv3] |
| pthread_cond_signal(GLIBC_2.3.2)[SUSv3] | pthread_rwlock_rdlock(GLIBC_2.2)[SUSv3] | |
| pthread_cond_timedwait(GLIBC_2.3.2)[SUSv3] | pthread_rwlock_timedrdlock(GLIBC_2.2)[SUSv3] | |

A.7 librt

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

POSIX 1003.1-2001 (ISO/IEC 9945-2003) [SUSv3]

Table A-9 librt Function Interfaces

| | | |
|---------------------------------------|---------------------------------|--------------------------------------|
| clock_getcpuclockid(GLIBC_2.2)[SUSv3] | clock_settime(GLIBC_2.2)[SUSv3] | timer_delete(GLIBC_2.3.3)[SUSv3] |
| clock_getres(GLIBC_2.2)[SUSv3] | shm_open(GLIBC_2.2)[SUSv3] | timer_getoverrun(GLIBC_2.3.3)[SUSv3] |
| clock_gettime(GLIBC_2.2)[SUSv3] | shm_unlink(GLIBC_2.2)[SUSv3] | timer_gettime(GLIBC_2.3.3)[SUSv3] |

| | | |
|-----------------------------------|--------------------------------|-----------------------------------|
| clock_nanosleep(GLIBC_2.2)[SUSv3] | timer_create(GLIBC_2.3)[SUSv3] | timer_settime(GLIBC_2.3.3)[SUSv3] |
|-----------------------------------|--------------------------------|-----------------------------------|

A.8 libutil

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

ISO/IEC 23360 Part 1 [LSB]

Table A-10 libutil Function Interfaces

| | | |
|-------------------------|---------------------------|-------------------------|
| forkpty(GLIBC_2.2)[LSB] | login_tty(GLIBC_2.2)[LSB] | logwtmp(GLIBC_2.2)[LSB] |
| login(GLIBC_2.2)[LSB] | logout(GLIBC_2.2)[LSB] | openpty(GLIBC_2.2)[LSB] |

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