

**NAME**

`ilogb`, `ilogbf`, `ilogbl` - get integer exponent of a floating-point value

**SYNOPSIS**

```
#include <math.h>
```

```
int ilogb(double x);
```

```
int ilogbf(float x);
```

```
int ilogbl(long double x);
```

Link with `-lm`.

Feature Test Macro Requirements for glibc (see [feature\\_test\\_macros\(7\)](#)):

`ilogb()`:

```
_BSD_SOURCE || _SVID_SOURCE || _XOPEN_SOURCE >= 500 ||
_XOPEN_SOURCE && _XOPEN_SOURCE_EXTENDED || _ISOC99_SOURCE ||
_POSIX_C_SOURCE >= 200112L;
or cc -std=c99
```

`ilogbf()`, `ilogbl()`:

```
_BSD_SOURCE || _SVID_SOURCE || _XOPEN_SOURCE >= 600 || _ISOC99_SOURCE ||
_POSIX_C_SOURCE >= 200112L;
or cc -std=c99
```

**DESCRIPTION**

These functions return the exponent part of their argument as a signed integer. When no error occurs, these functions are equivalent to the corresponding [logb\(3\)](#) functions, cast to `int`.

**RETURN VALUE**

On success, these functions return the exponent of  $x$ , as a signed integer.

If  $x$  is zero, then a domain error occurs, and the functions return **FP\_ILOGB0**.

If  $x$  is a NaN, then a domain error occurs, and the functions return **FP\_ILOGBNAN**.

If  $x$  is negative infinity or positive infinity, then a domain error occurs, and the functions return **INT\_MAX**.

**ERRORS**

See [math\\_error\(7\)](#) for information on how to determine whether an error has occurred when calling these functions.

The following errors can occur:

Domain error:  $x$  is 0 or a NaN

An invalid floating-point exception (**FE\_INVALID**) is raised.

These functions do not set `errno` for this case.

Domain error:  $x$  is an infinity

These functions do not set `errno` or raise an exception for this case.

**ATTRIBUTES**

**Multithreading (see [pthreads\(7\)](#))**

The `ilogb()`, `ilogbf()`, and `ilogbl()` functions are thread-safe.

**CONFORMING TO**

C99, POSIX.1-2001.

**SEE ALSO**

[log\(3\)](#), [logb\(3\)](#), [significand\(3\)](#)

**COLOPHON**

This page is part of release 3.74 of the Linux *man-pages* project. A description of the project, information about reporting bugs, and the latest version of this page, can be found at

<http://www.kernel.org/doc/man-pages/>.