NAME

logb, logbf, logbl − get exponent of a floating-point value

SYNOPSIS

#include <math.h>

double logb(double *x***);**
float logbf(float *x***);**
long double logbl(long double *x***);**

Link with *−lm*.

Feature Test Macro Requirements for glibc (see **feature_test_macros**(7)):

logb():
_ISOC99_SOURCE || _POSIX_C_SOURCE >= 200112L
|| _XOPEN_SOURCE >= 500
|| /* Since glibc 2.19: */ _DEFAULT_SOURCE
|| /* Glibc versions <= 2.19: */ _BSD_SOURCE || _SVID_SOURCE

logbf(), **logbl**():
_ISOC99_SOURCE || _POSIX_C_SOURCE >= 200112L
|| /* Since glibc 2.19: */ _DEFAULT_SOURCE
|| /* Glibc versions <= 2.19: */ _BSD_SOURCE || _SVID_SOURCE

DESCRIPTION

These functions extract the exponent from the internal floating-point representation of *x* and return it as a floating-point value. The integer constant **FLT_RADIX**, defined in *<float.h>*, indicates the radix used for the system's floating-point representation. If **FLT_RADIX** is 2, **logb(***x***)** is equal to **floor(log2(***x***))**, except that it is probably faster.

If *x* is subnormal, **logb**() returns the exponent *x* would have if it were normalized.

RETURN VALUE

On success, these functions return the exponent of *x*.

If *x* is a NaN, a NaN is returned.

If *x* is zero, then a pole error occurs, and the functions return -**HUGE_VAL**, -**HUGE_VALF**, or -**HUGE_VALL**, respectively.

If *x* is negative infinity or positive infinity, then positive infinity is returned.

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:

Pole error: *x* is 0
A divide-by-zero floating-point exception (**FE_DIVBYZERO**) is raised.

These functions do not set *errno*.

ATTRIBUTES

For an explanation of the terms used in this section, see **attributes**(7).

Interface	Attribute	Value
logb(), **logbf**(), **logbl**()	Thread safety	MT-Safe

CONFORMING TO

C99, POSIX.1-2001, POSIX.1-2008.

SEE ALSO

ilogb(3), **log**(3)

COLOPHON

This page is part of release 5.05 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 https://www.kernel.org/doc/man−pages/.