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():
    _BSD_SOURCE || _SVID_SOURCE || _XOPEN_SOURCE >= 500 ||
    _XOPEN_SOURCE && _XOPEN_SOURCE_EXTENDED || _ISOC99_SOURCE ||
    _POSIX_C_SOURCE >= 200112L;
    or *cc -std=c99*
logbf(), **logbl**():
    _BSD_SOURCE || _SVID_SOURCE || _XOPEN_SOURCE >= 600 || _ISOC99_SOURCE ||
    _POSIX_C_SOURCE >= 200112L;
    or *cc -std=c99*

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

Multithreading (see pthreads(7))

The **logb**(), **logbf**(), and **logbl**() functions are thread-safe.

CONFORMING TO

C99, POSIX.1-2001.

SEE ALSO

ilogb(3), log(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/.