

**NAME**

**ilogb**, **ilogbf**, **ilogbl**, **logb**, **logbf**, **logbl** - extract exponent

**LIBRARY**

Math Library (libm, -lm)

**SYNOPSIS**

**#include** <math.h>

*int*

**ilogb**(*double x*);

*int*

**ilogbf**(*float x*);

*int*

**ilogbl**(*long double x*);

*double*

**logb**(*double x*);

*float*

**logbf**(*float x*);

*long double*

**logbl**(*long double x*);

**DESCRIPTION**

**ilogb**(), **ilogbf**() and **ilogbl**() return  $x$ 's exponent in integer format. **ilogb**( $+\infty$ ) returns INT\_MAX, **ilogb**( $-\infty$ ) returns FP\_ILOGBNAN, and **ilogb**(0) returns FP\_ILOGB0.

**logb**( $x$ ), **logbf**( $x$ ), and **logbl**( $x$ ) return  $x$ 's exponent in floating-point format with the same precision as  $x$ . **logb**( $+\infty$ ) returns  $+\infty$ , and **logb**(0) returns  $-\infty$  with a division by zero exception.

**SEE ALSO**

frexp(3), ieee(3), math(3), scalbn(3)

**STANDARDS**

The **ilogb**(), **ilogbf**(), **ilogbl**(), **logb**(), **logbf**(), and **logbl**() routines conform to ISO/IEC 9899:1999 ("ISO C99"). The latter three implement the logb function recommended by IEEE Std 754-1985.

**HISTORY**

*Function* *First Appeared In*

**logb()** 4.3BSD

**ilogb()** FreeBSD 1.1.5

**ilogbf()** FreeBSD 2.0

**logbf()** FreeBSD 2.0

**ilogbl()** FreeBSD 5.4

**logbl()** FreeBSD 8.0