NAME

ldexp, ldexpf, ldexpl − multiply floating-point number by integral power of 2

SYNOPSIS

#include <math.h>

double ldexp(double *x*, **int** *exp*);
float ldexpf(float *x*, **int** *exp*);
long double ldexpl(long double *x*, **int** *exp*);

Link with *−lm*.

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

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

DESCRIPTION

These functions return the result of multiplying the floating-point number *x* by 2 raised to the power *exp*.

RETURN VALUE

On success, these functions return *x * (2^exp)*.

If *exp* is zero, then *x* is returned.

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

If *x* is positive infinity (negative infinity), positive infinity (negative infinity) is returned.

If the result underflows, a range error occurs, and zero is returned.

If the result overflows, a range error occurs, and the functions return **HUGE_VAL**, **HUGE_VALF**, or **HUGE_VALL**, respectively, with a sign the same as *x*.

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:

Range error, overflow
errno is set to **ERANGE**. An overflow floating-point exception (**FE_OVERFLOW**) is raised.

Range error, underflow
errno is set to **ERANGE**. An underflow floating-point exception (**FE_UNDERFLOW**) is raised.

ATTRIBUTES

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

Interface	Attribute	Value
ldexp(), **ldexpf**(), **ldexpl**()	Thread safety	MT-Safe

CONFORMING TO

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

The variant returning *double* also conforms to SVr4, 4.3BSD, C89.

SEE ALSO

frexp(3), modf(3), scalbln(3)

COLOPHON

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