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***Rocky Enterprise Linux 9.2 Manual Pages on command 'scalb.3'***

**\$ man scalb.3**

SCALB(3)                      Linux Programmer's Manual                      SCALB(3)

NAME

scalb, scalbf, scalbl - multiply floating-point number by integral power of radix (OBSO?

LETE)

SYNOPSIS

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

```
double scalb(double x, double exp);
```

```
float scalbf(float x, float exp);
```

```
long double scalbl(long double x, long double exp);
```

Link with -lm.

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

scalb():

```
_XOPEN_SOURCE >= 500
```

```
  /* Since glibc 2.19: */ _DEFAULT_SOURCE
```

```
  /* Glibc versions <= 2.19: */ _BSD_SOURCE || _SVID_SOURCE
```

scalbf(), scalbl():

```
_XOPEN_SOURCE >= 600
```

```
  /* Since glibc 2.19: */ _DEFAULT_SOURCE
```

```
  /* Glibc versions <= 2.19: */ _BSD_SOURCE || _SVID_SOURCE
```

DESCRIPTION

These functions multiply their first argument  $x$  by FLT\_RADIX (probably 2) to the power of  $exp$ , that is:

```
 $x * FLT\_RADIX ** exp$ 
```

The definition of FLT\_RADIX can be obtained by including <float.h>.

## RETURN VALUE

On success, these functions return  $x * FLT\_RADIX^{exp}$ .

If x or exp is a NaN, a NaN is returned.

If x is positive infinity (negative infinity), and exp is not negative infinity, positive infinity (negative infinity) is returned.

If x is +0 (-0), and exp is not positive infinity, +0 (-0) is returned.

If x is zero, and exp is positive infinity, a domain error occurs, and a NaN is returned.

If x is an infinity, and exp is negative infinity, a domain error occurs, and a NaN 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.

If the result underflows, a range error occurs, and the functions return zero, 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:

Domain error: x is 0, and exp is positive infinity, or x is positive infinity and exp is negative infinity and the other argument is not a NaN

    errno is set to EDOM. An invalid floating-point exception (FE\_INVALID) is raised.

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   ?

??

?scalb(), scalbf(), scalbl() ? Thread safety ? MT-Safe ?

??

## CONFORMING TO

scalb() is specified in POSIX.1-2001, but marked obsolescent. POSIX.1-2008 removes the specification of scalb(), recommending the use of scalbln(3), scalblnf(3), or scalblnl(3) instead. The scalb() function is from 4.3BSD.

scalbf() and scalbl() are unstandardized; scalbf() is nevertheless present on several other systems

## BUGS

Before glibc 2.20, these functions did not set errno for domain and range errors.

## SEE ALSO

ldexp(3), scalbln(3)

## COLOPHON

This page is part of release 5.10 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/>.

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