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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 (OBSOLETE)

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 -Im.

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:

$$x * \text{FLT_RADIX} ^ \text{exp}$$

The definition of `FLT_RADIX` can be obtained by including `<float.h>`.

RETURN VALUE

On success, these functions return $x * \text{FLT_RADIX} ^ \text{exp}$.

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 at?

tributes(7).

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?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/>.