



Rocky Enterprise Linux 9.2 Manual Pages on command 'scalbn.3'

\$ man scalbn.3

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

NAME

scalbn, scalbnf, scalbnl, scalbln, scalblnf, scalblnl - multiply float?

ing-point number by integral power of radix

SYNOPSIS

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

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

```
float scalbnf(float x, long exp);
```

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

```
double scalbn(double x, int exp);
```

```
float scalbnf(float x, int exp);
```

```
long double scalbnl(long double x, int exp);
```

Link with -lm.

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

```
scalbn(), scalbnf(), scalbnl():
```

```
_ISOC99_SOURCE || _POSIX_C_SOURCE >= 200112L
```

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

```
scalbn(), scalbnf(), scalbnl():
```

```
_ISOC99_SOURCE || _POSIX_C_SOURCE >= 200112L
|| /* 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 is a NaN, a NaN is returned.

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

If x is +0 (-0), +0 (-0) 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:

Range error, overflow

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.

VERSIONS

These functions first appeared in glibc in version 2.1.

ATTRIBUTES

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

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?Interface ? Attribute ? Value ?

??

?scalbn(), scalbnf(), scalbnl(), ? Thread safety ? MT-Safe ?

?scalbln(), scalblnf(), scalblnl() ? ? ?

??

CONFORMING TO

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

NOTES

These functions differ from the obsolete functions described in `scalb(3)` in the type of their second argument. The functions described on this page have a second argument of an integral type, while those in `scalb(3)` have a second argument of type `double`.

If `FLT_RADIX` equals 2 (which is usual), then `scalbn()` is equivalent to `ldexp(3)`.

BUGS

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

SEE ALSO

`ldexp(3)`, `scalb(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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