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Red Hat Enterprise Linux Release 9.2 Manual Pages on 'nexttowardf.3' command

$ man nexttowardf.3

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

NAME

nextafter, nextafterf, nextafterl, nexttoward, nexttowardf, nexttowardl

- floating-point number manipulation

SYNOPSIS

```
#include <math.h>

double nextafter(double x, double y);

float nextafterf(float x, float y);

long double nextafterl(long double x, long double y);

double nexttoward(double x, long double y);

float nexttowardf(float x, long double y);

long double nexttowardl(long double x, long double y);

Link with -lm.
```

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

```
nextafter():

    _ISOC99_SOURCE || _POSIX_C_SOURCE >= 200112L

        || _XOPEN_SOURCE >= 500

        || /* Since glibc 2.19: */ _DEFAULT_SOURCE

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

nextafterf(), nextafterl():

    _ISOC99_SOURCE || _POSIX_C_SOURCE >= 200112L

        || /* Since glibc 2.19: */ _DEFAULT_SOURCE

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

nexttoward(), nexttowardf(), nexttowardl():

_XOPEN_SOURCE >= 600 || _ISOC99_SOURCE ||

_POSIX_C_SOURCE >= 200112L

DESCRIPTION

The nextafter(), nextafterf(), and nextafterl() functions return the next representable floating-point value following x in the direction of y. If y is less than x, these functions will return the largest repre? sentable number less than x.

If x equals y, the functions return y.

The nexttoward(), nexttowardf(), and nexttowardl() functions do the same as the corresponding nextafter() functions, except that they have a long double second argument.

RETURN VALUE

On success, these functions return the next representable floating-point value after x in the direction of y.

If x equals y, then y (cast to the same type as x) is returned.

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

If x is finite, and the result would overflow, a range error occurs, and the functions return HUGE_VAL, HUGE_VALF, or HUGE_VALL, respec? tively, with the correct mathematical sign.

If x is not equal to y, and the correct function result would be sub? normal, zero, or underflow, a range error occurs, and either the cor? rect value (if it can be represented), or 0.0, is returned.

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: result overflow

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

Range error: result is subnormal or underflows

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).

??

?Interface ? Attribute ? Value ?

??

?nextafter(), nextafterf(), ? Thread safety ? MT-Safe ?

?nextafterl(), nexttoward(), ? ? ?

?nexttowardf(), nexttowardl() ? ? ?

??

CONFORMING TO

C99, POSIX.1-2001, POSIX.1-2008. This function is defined in IEC 559

(and the appendix with recommended functions in IEEE 754/IEEE 854).

BUGS

In glibc version 2.5 and earlier, these functions do not raise an un?

derflow floating-point (FE_UNDERFLOW) exception when an underflow oc?

curs.

Before glibc version 2.23 these functions did not set errno.

SEE ALSO

nearbyint(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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