NAME

nextup, nextupf, nextupl, nextdown, nextdownf, nextdownl − return next floating-point number toward positive/negative infinity

LIBRARY

Math library (*libm*, *−lm*)

SYNOPSIS

```
#define _GNU_SOURCE     /* See feature_test_macros(7) */
#include <math.h>

double nextup(double x);
float nextupf(float x);
long double nextupl(long double x);

double nextdown(double x);
float nextdownf(float x);
long double nextdownl(long double x);
```

DESCRIPTION

The **nextup**(), **nextupf**(), and **nextupl**() functions return the next representable floating-point number greater than *x*.

If *x* is the smallest representable negative number in the corresponding type, these functions return −0. If *x* is 0, the returned value is the smallest representable positive number of the corresponding type.

If *x* is positive infinity, the returned value is positive infinity. If*x* is ne gative infinity, the returned value is the largest representable finite negative number of the corresponding type.

If *x* is Nan, the returned value is NaN.

The value returned by *nextdown(x)* is *−nextup(−x)*, and similarly for the other types.

RETURN VALUE

See DESCRIPTION.

VERSIONS

These functions were added in glibc 2.24.

ATTRIBUTES

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

Interface	Attribute	Value
nextup(), **nextupf**(), **nextupl**(), **nextdown**(), **nextdownf**(), **nextdownl**()	Thread safety	MT-Safe

STANDARDS

These functions are described in *IEEE Std 754-2008 - Standard for Floating-Point Arithmetic* and *ISO/IEC TS 18661*.

SEE ALSO

nearbyint(3), **nextafter**(3)