

NAME

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

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);
```

Link with `-lm`.

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 negative 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 first appeared in glibc in version 2.24.

ATTRIBUTES

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

Interface	Attribute	Value
<code>nextup()</code> , <code>nextupf()</code> , <code>nextupl()</code> , <code>nextdown()</code> , <code>nextdownf()</code> , <code>nextdownl()</code>	Thread safety	MT-Safe

CONFORMING TO

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)`

COLOPHON

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