

**NAME**

sincos, sincosf, sincosl – calculate sin and cos simultaneously

**SYNOPSIS**

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

void sincos(double x, double *sin, double *cos);
void sincosf(float x, float *sin, float *cos);
void sincosl(long double x, long double *sin, long double *cos);
```

Link with *-lm*.

**DESCRIPTION**

Several applications need sine and cosine of the same angle *x*. These functions compute both at the same time, and store the results in *\*sin* and *\*cos*. Using this function can be more efficient than two separate calls to **sin(3)** and **cos(3)**.

If *x* is a NaN, a NaN is returned in *\*sin* and *\*cos*.

If *x* is positive infinity or negative infinity, a domain error occurs, and a NaN is returned in *\*sin* and *\*cos*.

**RETURN VALUE**

These functions return *void*.

**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 an infinity

An invalid floating-point exception (**FE\_INVALID**) is raised.

These functions do not set *errno*.

**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)**.

Interface	Attribute	Value
<b>sincos()</b> , <b>sincosf()</b> , <b>sincosl()</b>	Thread safety	MT-Safe

**CONFORMING TO**

These functions are GNU extensions.

**NOTES**

To see the performance advantage of **sincos()**, it may be necessary to disable **gcc(1)** built-in optimizations, using flags such as:

```
cc -O -lm -fno-builtin prog.c
```

**SEE ALSO**

**cos(3)**, **sin(3)**, **tan(3)**

**COLOPHON**

This page is part of release 5.02 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/>.