

NAME

`carg`, `cargf`, `cargl` – calculate the complex argument

SYNOPSIS

```
#include <complex.h>
```

```
double carg(double complex z);
```

```
float cargf(float complex z);
```

```
long double cargl(long double complex z);
```

Link with `-lm`.

DESCRIPTION

These functions calculate the complex argument (also called phase angle) of z , with a branch cut along the negative real axis.

A complex number can be described by two real coordinates. One may use rectangular coordinates and gets

$$z = x + I * y$$

where $x = \text{creal}(z)$ and $y = \text{cimag}(z)$.

Or one may use polar coordinates and gets

$$z = r * \text{cexp}(I * a)$$

where $r = \text{cabs}(z)$ is the "radius", the "modulus", the absolute value of z , and $a = \text{carg}(z)$ is the "phase angle", the argument of z .

One has:

$$\tan(\text{carg}(z)) = \text{cimag}(z) / \text{creal}(z)$$

RETURN VALUE

The return value is the range of $[-\pi, \pi]$.

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
<code>carg()</code> , <code>cargf()</code> , <code>cargl()</code>	Thread safety	MT-Safe

CONFORMING TO

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

SEE ALSO

`cabs(3)`, `complex(7)`

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/>.