NAME

carg, cargf, cargl − calculate the complex argument

LIBRARY

Math library (*libm*, *−lm*)

SYNOPSIS

#include <complex.h>

double carg(double complex *z***);**
float cargf(float complex *z***);**
long double cargl(long double complex *z***);**

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 = creal(z)* and *y = cimag(z)*.

Or one may use polar coordinates and gets

```
z = r * cexp(I * a)
```

where *r = cabs(z)* is the "radius", the "modulus", the absolute value of *z*, and *a = carg(z)* is the "phase angle", the argument of *z*.

One has:

```
tan(carg(z)) = cimag(z) / creal(z)
```

RETURN VALUE

The return value is in the range of [−pi,pi].

VERSIONS

These functions were added in glibc 2.1.

ATTRIBUTES

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

Interface	Attribute	Value
carg(), **cargf**(), **cargl**()	Thread safety	MT-Safe

STANDARDS

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

SEE ALSO

cabs(3), **complex**(7)