NAME

cacos, cacosf, cacosl − complex arc cosine

LIBRARY

Math library (*libm*, *−lm*)

SYNOPSIS

#include <complex.h>

double complex cacos(double complex *z***);**
float complex cacosf(float complex *z***);**
long double complex cacosl(long double complex *z***);**

DESCRIPTION

These functions calculate the complex arc cosine of *z*. If*y* = *cacos(z)*, then *z* = *ccos(y)*. The real part of*y* is chosen in the interval [0,pi].

One has:

cacos(z) = −i * clog(z + i * csqrt(1 − z * z))

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**
cacos(), **cacosf**(), **cacosl**()	Thread safety	MT-Safe

STANDARDS

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

EXAMPLES

```
/* Link with "−lm" */

#include <complex.h>
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>

int
main(int argc, char *argv[])
{
    double complex z, c, f;
    double complex i = I;

    if (argc != 3) {
        fprintf(stderr, "Usage: %s <real> <imag>\n", argv[0]);
        exit(EXIT_FAILURE);
    }

    z = atof(argv[1]) + atof(argv[2]) * I;

    c = cacos(z);

    printf("cacos() = %6.3f %6.3f*i\n", creal(c), cimag(c));

    f = −i * clog(z + i * csqrt(1 − z * z));
```

```
           printf("formula = %6.3f %6.3f*i\n", creal(f), cimag(f));

           exit(EXIT_SUCCESS);
       }
```

SEE ALSO

ccos(3), **clog**(3), **complex**(7)