NAME
cacos, cacosf, cacosl – complex arc cosine

SYNOPSIS
#include <complex.h>

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

Link with −*lm*.

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

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

EXAMPLE
```
/* Link with "-lm" */

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

COLOPHON

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