Rocky Enterprise Linux 9.2 Manual Pages on command 'cacosh.3'

C:\>man cacosh.3

CACOSH(3) Linux Programmer's Manual CACOSH(3)

NAME

cacosh, cacoshf, cacoshl - complex arc hyperbolic cosine

SYNOPSIS

#include <complex.h>

double complex cacosh(double complex z);

float complex cacoshf(float complex z);

long double complex cacoshl(long double complex z);

Link with -lm.

DESCRIPTION

These functions calculate the complex arc hyperbolic cosine of z. If y = ca? cosh(z), then z = ccosh(y). The imaginary part of y is chosen in the interval [-pi,pi]. The real part of y is chosen nonnegative.

One has:

cacosh(z) = 2 * clog(csqrt((z + 1) / 2) + csqrt((z - 1) / 2))

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).

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?Interface ? Attribute ? Value ?

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?cacosh(), cacoshf(), cacoshl() ? 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;

    if (argc != 3) {

        fprintf(stderr, "Usage: %s <real> <imag>\n", argv[0]);

        exit(EXIT_FAILURE);

    }

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

    c = cacosh(z);

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

    f = 2 * clog(csqrt((z + 1)/2) + csqrt((z - 1)/2));

    printf("formula  = %6.3f %6.3f*i\n", creal(f2), cimag(f2));

    exit(EXIT_SUCCESS);

}
```

SEE ALSO

acosh(3), cabs(3), ccosh(3), cimag(3), complex(7)

COLOPHON

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