

NAME

casinh, casinhf, casinhl - complex arc sine hyperbolic

SYNOPSIS

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

```
double complex casinh(double complex z);
```

```
float complex casinhf(float complex z);
```

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

Link with *-lm*.

DESCRIPTION

The **casinh**(*z*) function calculates the complex arc hyperbolic sine of *z*. If $y = c \operatorname{asinh}(z)$, then $z = \operatorname{csinh}(y)$. The imaginary part of *y* is chosen in the interval $[-\pi/2, \pi/2]$.

One has:

$$\operatorname{casinh}(z) = \operatorname{clog}(z + \operatorname{csqrt}(z * z + 1))$$
VERSIONS

These functions first appeared in glibc in version 2.1.

CONFORMING TO

C99.

SEE ALSO

[asinh\(3\)](#), [cabs\(3\)](#), [cimag\(3\)](#), [csinh\(3\)](#), [complex\(7\)](#)

COLOPHON

This page is part of release 3.74 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 <http://www.kernel.org/doc/man-pages/>.