

**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**

These functions calculate the complex arc hyperbolic sine of  $z$ . If  $y = \text{casinh}(z)$ , then  $z = \text{csinh}(y)$ . The imaginary part of  $y$  is chosen in the interval  $[-\pi/2, \pi/2]$ .

One has:

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

**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
<code>casinh()</code> , <code>casinhf()</code> , <code>casinhl()</code>	Thread safety	MT-Safe

**CONFORMING TO**

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

**SEE ALSO**

**`asinh(3)`**, **`cabs(3)`**, **`cimag(3)`**, **`csinh(3)`**, **`complex(7)`**

**COLOPHON**

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