The Cephes Reference Manual

Wrapper for the Cephes Mathematical Library, version 1.1

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1 Systems

The main system appears first, followed by any subsystem dependency.

1.1 cephes

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Description
Wrapper for the Cephes Mathematical Library

Version 1.1

Dependency
cffi

Source [cephes.asd], page 3, (file)

Directory s:/src/cephes/

Components

- [package.lisp], page 3, (file)
- [init.lisp], page 3, (file)
- [cephes.lisp], page 3, (file)

2 Files

Files are sorted by type and then listed depth-first from the systems components trees.

2.1 Lisp

2.1.1 cephes.asd

Location `cephes.asd`

Systems [cephes], page 1, (system)

2.1.2 cephes/package.lisp

Parent [cephes], page 1, (system)

Location `package.lisp`

Packages [cephes], page 7,

2.1.3 cephes/init.lisp

Dependency
[package.lisp], page 3, (file)

Parent [cephes], page 1, (system)

Location `init.lisp`

2.1.4 cephes/cephes.lisp

Dependency
[init.lisp], page 3, (file)

Parent [cephes], page 1, (system)

Location `cephes.lisp`

Exported Definitions

- [airy], page 11, (function)
- [bdtr], page 11, (function)
- [bdtrc], page 11, (function)
- [bdtri], page 11, (function)
- [besselpoly], page 11, (function)
- [beta], page 11, (function)
- [btdtr], page 11, (function)
- [cbrt], page 12, (function)
- [chdtr], page 12, (function)
- [chdtrc], page 12, (function)
- [chdtri], page 12, (function)
- [cosdg], page 12, (function)
- [cosm1], page 12, (function)
- [cospi], page 12, (function)
- [cotdg], page 12, (function)
- [dawsn], page 13, (function)

- [ellie], page 13, (function)
- [ellik], page 13, (function)
- [ellpe], page 13, (function)
- [ellpk], page 13, (function)
- [erf], page 13, (function)
- [erfc], page 13, (function)
- [erfcinv], page 13, (function)
- [erfinv], page 13, (function)
- [exp10], page 13, (function)
- [exp2], page 14, (function)
- [expm1], page 14, (function)
- [expn], page 14, (function)
- [fdtr], page 14, (function)
- [fdtrc], page 14, (function)
- [fdtri], page 14, (function)
- [fresnl], page 14, (function)
- [gamma], page 14, (function)
- [gdtr], page 14, (function)
- [gdtrc], page 14, (function)
- [gdtri], page 15, (function)
- [hyp2f1], page 15, (function)
- [hyperg], page 15, (function)
- [i0], page 15, (function)
- [i0e], page 15, (function)
- [i1], page 15, (function)
- [i1e], page 15, (function)
- [igam], page 15, (function)
- [igamc], page 15, (function)
- [igamci], page 15, (function)
- [igami], page 16, (function)
- [incbet], page 16, (function)
- [incbi], page 16, (function)
- [iv], page 16, (function)
- [j0], page 16, (function)
- [j1], page 16, (function)
- [jacobian-elliptic], page 16, (function)
- [jv], page 16, (function)
- [k0], page 16, (function)
- [k0e], page 17, (function)
- [k1], page 17, (function)
- [k1e], page 17, (function)
- [kn], page 17, (function)
- [lanczos-sum], page 17, (function)

- [lanczos-sum-near-1], page 17, (function)
- [lanczos-sum-near-2], page 17, (function)
- [lanczos-sum-scaled], page 17, (function)
- [lbeta], page 17, (function)
- [lgam1p], page 17, (function)
- [log-gamma], page 18, (function)
- [log-ndtr], page 18, (function)
- [log1p], page 18, (function)
- [log1pmx], page 18, (function)
- [nbdtr], page 18, (function)
- [nbdtrc], page 18, (function)
- [nbdtri], page 18, (function)
- [ndtr], page 18, (function)
- [ndtri], page 18, (function)
- [owens-t], page 19, (function)
- [pdtr], page 19, (function)
- [pdtrc], page 19, (function)
- [pdtri], page 19, (function)
- [poch], page 19, (function)
- [psi], page 19, (function)
- [rgamma], page 19, (function)
- [shichi], page 19, (function)
- [sici], page 19, (function)
- [sindg], page 19, (function)
- [sinpi], page 20, (function)
- [spence], page 20, (function)
- [stdtr], page 20, (function)
- [stdtri], page 20, (function)
- [tandg], page 20, (function)
- [y0], page 20, (function)
- [y1], page 20, (function)
- [yn], page 20, (function)
- [yv], page 20, (function)
- [zeta], page 20, (function)
- [zetac], page 20, (function)

Internal Definitions

- [cephes-airy], page 21, (function)
- [cephes-ellpj], page 21, (function)
- [cephes-fresnl], page 21, (function)
- [cephes-shichi], page 21, (function)
- [cephes-sici], page 21, (function)
- [sign-gamma], page 21, (function)

3 Packages

Packages are listed by definition order.

3.1 cephes

Source [package.lisp], page 3, (file)

Use List common-lisp

Exported Definitions

- [airy], page 11, (function)
- [bdtr], page 11, (function)
- [bdtrc], page 11, (function)
- [bdtri], page 11, (function)
- [besselpoly], page 11, (function)
- [beta], page 11, (function)
- [btdtr], page 11, (function)
- [cbrt], page 12, (function)
- [chdtr], page 12, (function)
- [chdtrc], page 12, (function)
- [chdtri], page 12, (function)
- [cosdg], page 12, (function)
- [cosm1], page 12, (function)
- [cospi], page 12, (function)
- [cotdg], page 12, (function)
- [dawsn], page 13, (function)
- [ellie], page 13, (function)
- [ellik], page 13, (function)
- [ellpe], page 13, (function)
- [ellpk], page 13, (function)
- [erf], page 13, (function)
- [erfc], page 13, (function)
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- [erfinv], page 13, (function)
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- [exp2], page 14, (function)
- [expm1], page 14, (function)
- [expn], page 14, (function)
- [fdtr], page 14, (function)
- [fdtrc], page 14, (function)
- [fdtri], page 14, (function)
- [fresnl], page 14, (function)
- [gamma], page 14, (function)
- [gdtr], page 14, (function)

- [gdtrc], page 14, (function)
- [gdtri], page 15, (function)
- [hyp2f1], page 15, (function)
- [hyperg], page 15, (function)
- [i0], page 15, (function)
- [i0e], page 15, (function)
- [i1], page 15, (function)
- [i1e], page 15, (function)
- [igam], page 15, (function)
- [igamc], page 15, (function)
- [igamci], page 15, (function)
- [igami], page 16, (function)
- [incbet], page 16, (function)
- [incbi], page 16, (function)
- [iv], page 16, (function)
- [j0], page 16, (function)
- [j1], page 16, (function)
- [jacobian-elliptic], page 16, (function)
- [jv], page 16, (function)
- [k0], page 16, (function)
- [k0e], page 17, (function)
- [k1], page 17, (function)
- [k1e], page 17, (function)
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- [lanczos-sum], page 17, (function)
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- [lanczos-sum-near-2], page 17, (function)
- [lanczos-sum-scaled], page 17, (function)
- [lbeta], page 17, (function)
- [lgam1p], page 17, (function)
- [log-gamma], page 18, (function)
- [log-ndtr], page 18, (function)
- [log1p], page 18, (function)
- [log1pmx], page 18, (function)
- [nbdtr], page 18, (function)
- [nbdtrc], page 18, (function)
- [nbdtri], page 18, (function)
- [ndtr], page 18, (function)
- [ndtri], page 18, (function)
- [owens-t], page 19, (function)
- [pdtr], page 19, (function)
- [pdtrc], page 19, (function)
- [pdtri], page 19, (function)

- [poch], page 19, (function)
- [psi], page 19, (function)
- [rgamma], page 19, (function)
- [shichi], page 19, (function)
- [sici], page 19, (function)
- [sindg], page 19, (function)
- [sinpi], page 20, (function)
- [spence], page 20, (function)
- [stdtr], page 20, (function)
- [stdtri], page 20, (function)
- [tandg], page 20, (function)
- [y0], page 20, (function)
- [y1], page 20, (function)
- [yn], page 20, (function)
- [yv], page 20, (function)
- [zeta], page 20, (function)
- [zetac], page 20, (function)

Internal Definitions

- [cephes-airy], page 21, (function)
- [cephes-ellpj], page 21, (function)
- [cephes-fresnl], page 21, (function)
- [cephes-shichi], page 21, (function)
- [cephes-sici], page 21, (function)
- [sign-gamma], page 21, (function)

4 Definitions

Definitions are sorted by export status, category, package, and then by lexicographic order.

4.1 Exported definitions

4.1.1 Functions

`airy` *X* [Function]

Solution of the differential equation y"(x) = xy
The function returns the two independent solutions Ai, Bi and their first derivatives Ai'(x), Bi'(x), as VALUES (Ai Bi Aip Bip)

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`bdtr` *K N P* [Function]

Returns the sum of the terms 0 through k of the Binomial probability density

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`bdtrc` *K N P* [Function]

Returns the sum of the terms k+1 through n of the Binomial probability density

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`bdtri` *K N Y* [Function]

Finds the event probability p such that the sum of the terms 0 through k of the Binomial probability densityis equal to the given cumulative probability y.

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`besselpoly` *A LAMBDA NU* [Function]

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`beta` *A B* [Function]

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`btdtr` *A B X* [Function]

Returns the area from zero to x under the beta density function.

x
- -
| (a+b) | | a-1 b-1
P(x) = ———- | t (1-t) dt
- - | |
| (a) | (b) -

0

This function is identical to the incomplete beta integral function incbet(a, b, x).

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`cbrt` *X* [Function]

Returns the cube root of the argument, which may be negative.

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`chdtr` *DF X* [Function]

Returns the area under the left hand tail (from 0 to x) of the Chi square probability density function with DF degrees of freedom.

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`chdtrc` *DF X* [Function]

Returns the area under the right hand tail (from x to infinity) of the Chi square probability density function with DF degrees of freedom

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`chdtri` *DF Y* [Function]

Finds the Chi-square argument x such that the integral from x to infinity of the Chi-square density is equal to the given cumulative probability y

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`cosdg` *D M S* [Function]

Range reduction is into intervals of 45 degrees.

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`cosm1` *X* [Function]

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`cospi` *X* [Function]

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`cotdg` *X* [Function]

Returns the circular cotangent of the argument x in degrees

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`dawsn` *XX* [Function]

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`ellie` *PHI M* [Function]

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`ellik` *PHI M* [Function]

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`ellpe` *X* [Function]

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`ellpk` *X* [Function]

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`erf` *X* [Function]

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`erfc` *A* [Function]

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`erfcinv` *Y* [Function]

Computes the inverse of the complimentary error function on the restricted domain 0 < y < 2. This restriction ensures the existence of a unique result such that erfc(erfcinv(y)) = y.

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`erfinv` *Y* [Function]

Inverse of the error function.
Computes the inverse of the error function on the restricted domain -1 < y < 1. This restriction ensures the existence of a unique result such that erf(erfinv(y)) = y.

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`exp10` *X* [Function]

Returns 10 raised to the x power.

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`exp2` *X* [Function]
Returns 2 raised to the x power.

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`expm1` *X* [Function]

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`expn` *N X* [Function]
Evaluates the exponential integral

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`fdtr` *A B X* [Function]
Returns the area from zero to x under the F density function

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`fdtrc` *A B X* [Function]
Returns the area from x to infinity under the F density function

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`fdtri` *A B Y* [Function]
Finds the F density argument x such that the integral from -infinity to x of the F density is equal to the given probability p

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`fresnl` *XXA* [Function]

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`gamma` *X* [Function]
Returns Gamma function of the argument. The result is correctly signed.

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`gdtr` *A B X* [Function]
Returns the integral from zero to x of the Gamma probability density function

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`gdtrc` *A B X* [Function]
Returns the integral from x to infinity of the Gamma probability density function

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`gdtri` *A B Y* [Function]

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`hyp2f1` *A B C X* [Function]

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`hyperg` *A B X* [Function]

Computes the confluent hypergeometric function

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`i0` *X* [Function]

Returns modified Bessel function of order zero of the argument

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`i0e` *X* [Function]

Returns exponentially scaled modified Bessel function of order zero of the argument

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`i1` *X* [Function]

Returns modified Bessel function of order one of the argument

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`i1e` *X* [Function]

Returns exponentially scaled modified Bessel function of order one of the argument

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`igam` *A X* [Function]

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`igamc` *A X* [Function]

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`igamci` *A Q* [Function]

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`igami` *A P* [Function]
Returns the x such that: igamc(a, x) = p
The input argument a must be positive and p must be between 0 and 1.

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`incbet` *AA BB XX* [Function]
Returns incomplete beta integral of the arguments, evaluated from zero to x.

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`incbi` *AA BB YY0* [Function]
Given y, the function finds x such that incbet(a, b, x) = y

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`iv` *V X* [Function]
Returns modified Bessel function of order v of the argument. If x is negative, v must be integer valued.

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`j0` *X* [Function]
Returns Bessel function of order zero of the argument

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`j1` *X* [Function]
Returns Bessel function of order one of the argument.

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`jacobian-elliptic` *U M* [Function]
Evaluates the Jacobian elliptic functions sn(u|m), cn(u|m), and dn(u|m) of parameter m between 0 and 1, and real argument u. Returns VALUES (sn cn dn)

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`jv` *V X* [Function]
Returns Bessel function of order v of the argument, where v is real. Negative x is allowed if v is an integer.

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`k0` *X* [Function]
Returns modified Bessel function of the third kind of order zero of the argument.

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`k0e` *X* [Function]
Returns exponentially scaled modified Bessel function of the third kind of order zero of the argument.

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`k1` *X* [Function]
Computes the modified Bessel function of the third kind of order one of the argument.

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`k1e` *X* [Function]
Returns exponentially scaled modified Bessel function of the third kind of order one of the argument

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`kn` *NN X* [Function]
Returns modified Bessel function of the third kind of order n of the argument

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`lanczos-sum` *X* [Function]

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`lanczos-sum-near-1` *X* [Function]

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`lanczos-sum-near-2` *X* [Function]

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`lanczos-sum-scaled` *X* [Function]

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`lbeta` *A B* [Function]

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`lgam1p` *X* [Function]

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`log-gamma` *X* [Function]
Returns the base e logarithm of the absolute value of the Gamma function of the argument.

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`log-ndtr` *A* [Function]

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`log1p` *X* [Function]

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`log1pmx` *X* [Function]

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`nbdtr` *K N P* [Function]
Returns the sum of the terms 0 through k of the negative binomial distribution

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`nbdtrc` *K N P* [Function]
Returns the sum of the terms k+1 to infinity of the negative binomial distribution

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`nbdtri` *K N P* [Function]
Returns the sum of the terms k+1 to infinity of the negative binomial distribution

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`ndtr` *A* [Function]
Returns the area under the Gaussian probability density function, integrated from minus infinity to x

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`ndtri` *Y0* [Function]
Returns the argument, x, for which the area under the Gaussian probability density function (integrated from minus infinity to x) is equal to y.
For small arguments 0 < y < exp(-2), the program computes z = sqrt(-2.0 * log(y)); then the approximation is x = z - log(z)/z - (1/z) P(1/z) / Q(1/z).

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`owens-t` *H A* [Function]

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`pdtr` *K M* [Function]

Returns the sum of the first k terms of the Poisson distribution

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`pdtrc` *K M* [Function]

Returns the sum of the terms k+1 to infinity of the Poisson distribution

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`pdtri` *K Y* [Function]

Finds the Poisson variable x such that the integral from 0 to x of the Poisson density is equal to the given probability y

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`poch` *X M* [Function]

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`psi` *X* [Function]

Returns the logarithmic derivative of the gamma function

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`rgamma` *X* [Function]

Returns one divided by the Gamma function of the argument

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`shichi` *X* [Function]

Returns VALUES (si ci)

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`sici` *X* [Function]

Returns VALUES (si ci)

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`sindg` *D M S* [Function]

Range reduction is into intervals of 45 degrees.

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`sinpi` *X* [Function]

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`spence` *X* [Function]

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`stdtr` *K T1* [Function]

Computes the integral from minus infinity to t of the Student t distribution with integer k > 0 degrees of freedom

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`stdtri` *K P* [Function]

Given probability p, finds the argument t such that stdtr(k,t) is equal to p

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`tandg` *X* [Function]

Returns the circular tangent of the argument x in degrees

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`y0` *X* [Function]

Bessel function of the second kind, order zero

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`y1` *X* [Function]

Returns Bessel function of the second kind of order one of the argument.

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`yn` *N X* [Function]

Returns Bessel function of order n, where n is a (possibly negative) integer

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`yv` *V X* [Function]

Package [cephes], page 7,

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`zeta` *X Q* [Function]

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

`zetac` *X* [Function]

Package [cephes], page 7,

Source [cephes.lisp], page 3, (file)

4.2 Internal definitions

4.2.1 Functions

`cephes-airy` *X AI AIP BI BIP* [Function]

Solution of the differential equation y"(x) = xy
The function returns the two independent solutions Ai, Bi and their first derivatives Ai'(x), Bi'(x).

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`cephes-ellpj` *U M SN CN DN PHI* [Function]

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`cephes-fresnl` *XXA SSA CCA* [Function]

Evaluates S and C fresnel integrals and returns VALUES (S C)

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`cephes-shichi` *X SI CI* [Function]

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`cephes-sici` *X SI CI* [Function]

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

`sign-gamma` *X* [Function]

Package [`cephes`], page 7,

Source [`cephes.lisp`], page 3, (file)

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