

mathieeedoubtrans

COLLABORATORS

	<i>TITLE :</i> mathieeedoubtrans		
<i>ACTION</i>	<i>NAME</i>	<i>DATE</i>	<i>SIGNATURE</i>
WRITTEN BY		July 18, 2024	

REVISION HISTORY

NUMBER	DATE	DESCRIPTION	NAME

Contents

1	mathieeedoubtrans	1
1.1	mathieeedoubtrans.doc	1
1.2	mathieeedoubtrans.library/IEEEEDPAcos	1
1.3	mathieeedoubtrans.library/IEEEEDPAsin	1
1.4	mathieeedoubtrans.library/IEEEEDPAtan	2
1.5	mathieeedoubtrans.library/IEEEEDPCos	2
1.6	mathieeedoubtrans.library/IEEEEDPCosh	3
1.7	mathieeedoubtrans.library/IEEEEDPExp	3
1.8	mathieeedoubtrans.library/IEEEEDPFieee	4
1.9	mathieeedoubtrans.library/IEEEEDPLog	4
1.10	mathieeedoubtrans.library/IEEEEDPLog10	5
1.11	mathieeedoubtrans.library/IEEEEDPPow	5
1.12	mathieeedoubtrans.library/IEEEEDPSin	6
1.13	mathieeedoubtrans.library/IEEEEDPSincos	6
1.14	mathieeedoubtrans.library/IEEEEDPSinh	7
1.15	mathieeedoubtrans.library/IEEEEDPSqrt	7
1.16	mathieeedoubtrans.library/IEEEEDPTan	8
1.17	mathieeedoubtrans.library/IEEEEDPTanh	8
1.18	mathieeedoubtrans.library/IEEEEDPTieee	9

Chapter 1

mathieeedoubtrans

1.1 mathieeedoubtrans.doc

IEEEDPAcos()	IEEEDPExp()	IEEEDPSin()	IEEEDPTanh()
IEEEDPAsin()	IEEEDPFieee()	IEEEDPSincos()	IEEEDPTieee()
IEEEDPAtan()	IEEEDPLog()	IEEEDPSinh()	
IEEEDPCos()	IEEEDPLog10()	IEEEDPSqrt()	
IEEEDPCosh()	IEEEDPPow()	IEEEDPTan()	

1.2 mathieeedoubtrans.library/IEEEDPAcos

NAME

IEEEDPAcos -- compute the arc cosine of a number

SYNOPSIS

```
x      = IEEEDPAcos( y );  
d0/d1      d0/d1
```

```
double  x,y;
```

FUNCTION

Compute arc cosine of y in IEEE double precision

INPUTS

y - IEEE double precision floating point value

RESULT

x - IEEE double precision floating point value

BUGS

SEE ALSO

IEEEDPCos(), IEEEDPAtan(), IEEEDPAsin()

1.3 mathieeedoubtrans.library/IEEEDPAsin

NAME

IEEEEDPAsin -- compute the arcsine of a number

SYNOPSIS

```
x      = IEEEEDPAsin( y );  
d0/d1      d0/d1
```

```
double x,y;
```

FUNCTION

Compute the arc sine of y in IEEE double precision

INPUTS

y - IEEE double precision floating point value

RESULT

x - IEEE double precision floating point value

BUGS

SEE ALSO

IEEEEDPSin(), IEEEEDPAtan(), IEEEEDPACos()

1.4 mathieeedoubtrans.library/IEEEEDPAtan

NAME

IEEEEDPAtan -- compute the arctangent of a floating point number

SYNOPSIS

```
x      = IEEEEDPAtan( y );  
d0/d1      d0/d1
```

```
double x,y;
```

FUNCTION

Compute arctangent of y in IEEE double precision

INPUTS

y - IEEE double precision floating point value

RESULT

x - IEEE double precision floating point value

BUGS

SEE ALSO

IEEEEDPTan(), IEEEEDPAsin(), IEEEEDPACos()

1.5 mathieeedoubtrans.library/IEEEEDPCos

NAME

IEEEEDPCos -- compute the cosine of a floating point number

SYNOPSIS

```
x      = IEEEEDPCos( y );
d0/d1      d0/d1
```

```
double x,y;
```

FUNCTION

Compute cosine of y in IEEE double precision

INPUTS

y - IEEE double precision floating point value

RESULT

x - IEEE double precision floating point value

BUGS

SEE ALSO

IEEEEDPAcos(), IEEEEDPSin(), IEEEEDPTan()

1.6 mathieeedoubtrans.library/IEEEEDPCosh

NAME

IEEEEDPCosh -- compute the hyperbolic cosine of a floating point number

SYNOPSIS

```
x      = IEEEEDPCosh( y );
d0/d1      d0/d1
```

```
double x,y;
```

FUNCTION

Compute hyperbolic cosine of y in IEEE double precision

INPUTS

y - IEEE double precision floating point value

RESULT

x - IEEE double precision floating point value

BUGS

SEE ALSO

IEEEEDPSinh(), IEEEEDPTanh()

1.7 mathieeedoubtrans.library/IEEEEDPExp

NAME

IEEEEDPExp -- compute the exponential of e

SYNOPSIS

```

    x      = IEEEEDPExp(  y  );
    d0/d1      d0/d1

```

```

double  x,y;

```

FUNCTION

Compute e^y in IEEE double precision

INPUTS

y - IEEE double precision floating point value

RESULT

x - IEEE double precision floating point value

BUGS

SEE ALSO

IEEEEDPLog()

1.8 mathieeedoubtrans.library/IEEEDPFieee

NAME

IEEEDPFieee -- convert IEEE single to IEEE double

SYNOPSIS

```

    x      = IEEEDPFieee(  y  );
    d0/d1      d0

```

```

float  y;
double x;

```

FUNCTION

Convert IEEE single precision number to IEEE double precision.

INPUTS

y - IEEE single precision floating point value

RESULT

x - IEEE double precision floating point value

BUGS

SEE ALSO

IEEEEDPTieee()

1.9 mathieeedoubtrans.library/IEEEDPLog

NAME

IEEEDPLog -- compute the natural logarithm of a floating point number

SYNOPSIS

```

    x    = IEEEEDPLog( y );
d0/d1      d0/d1

```

```
double x,y;
```

FUNCTION

Compute $\ln(y)$ in IEEE double precision

INPUTS

y - IEEE double precision floating point value

RESULT

x - IEEE double precision floating point value

BUGS

SEE ALSO

IEEEEDPExp()

1.10 mathieeedoubtrans.library/IEEEEDPLog10

NAME

IEEEEDPLog10 -- compute logarithm base 10 of a number

SYNOPSIS

```

    x    = IEEEEDPLog10( y );
d0/d1      d0/d1

```

```
double x,y;
```

FUNCTION

Compute the logarithm base 10 of y in IEEE double precision

INPUTS

y - IEEE double precision floating point value

RESULT

x - IEEE double precision floating point value

BUGS

SEE ALSO

IEEEEDPLog()

1.11 mathieeedoubtrans.library/IEEEEDPPow

NAME

IEEEEDPPow -- raise a number to another number power

SYNOPSIS

```

    z    = IEEEEDPPow( x , y );
d0/d1      d2/d3 d0/d1

```



```
double x,y,z;
```

FUNCTION

Compute y^x in IEEE double precision

INPUTS

x - IEEE double precision floating point value
y - IEEE double precision floating point value

RESULT

z - IEEE double precision floating point value

BUGS

SEE ALSO

1.12 mathieeedoubtrans.library/IEEEDPSin

NAME

IEEEDPSin -- compute the sine of a floating point number

SYNOPSIS

```
x      = IEEEDPSin( y );
d0/d1      d0/d1
```

```
double x,y;
```

FUNCTION

Compute sine of y in IEEE double precision

INPUTS

y - IEEE double precision floating point value

RESULT

x - IEEE double precision floating point value

BUGS

SEE ALSO

IEEEDPAsin(), IEEEDPTan(), IEEEDPCos()

1.13 mathieeedoubtrans.library/IEEEDPSincos

NAME

IEEEDPSincos -- compute the arc tangent of a floating point number

SYNOPSIS

```
x      = IEEEDPSincos( z , y );
d0/d1      a0 d0/d1
```

```
double x,y,*z;
```

FUNCTION

Compute sin and cosine of y in IEEE double precision.
Store the cosine in *z. Return the sine of y.

INPUTS

y - IEEE double precision floating point value
z - pointer to IEEE double precision floating point number

RESULT

x - IEEE double precision floating point value

BUGS**SEE ALSO**

IEEEEDPSin(), IEEEEDPCos()

1.14 mathieeedoubtrans.library/IEEEEDPSinh

NAME

IEEEEDPSinh -- compute the hyperbolic sine of a floating point number

SYNOPSIS

```
x      = IEEEEDPSinh( y );  
d0/d1      d0/d1
```

```
double x,y;
```

FUNCTION

Compute hyperbolic sine of y in IEEE double precision

INPUTS

y - IEEE double precision floating point value

RESULT

x - IEEE double precision floating point value

BUGS**SEE ALSO**

IEEEEDPCosh, IEEEEDPTanh

1.15 mathieeedoubtrans.library/IEEEEDPSqrt

NAME

IEEEEDPSqrt -- compute the square root of a number

SYNOPSIS

```
x      = IEEEEDPSqrt( y );  
d0/d1      d0/d1
```

```
double x,y;
```

FUNCTION
 Compute square root of y in IEEE double precision

INPUTS
 y - IEEE double precision floating point value

RESULT
 x - IEEE double precision floating point value

BUGS

SEE ALSO

1.16 mathieeedoubtrans.library/IEEEDPTan

NAME
 IEEEDPTan -- compute the tangent of a floating point number

SYNOPSIS

```

    x      = IEEEDPTan( y );
    d0/d1      d0/d1

    double x,y;
```

FUNCTION
 Compute tangent of y in IEEE double precision

INPUTS
 y - IEEE double precision floating point value

RESULT
 x - IEEE double precision floating point value

BUGS

SEE ALSO
 IEEEDPatan(), IEEEDPSin(), IEEEDPCos()

1.17 mathieeedoubtrans.library/IEEEDPTanh

NAME
 IEEEDPTanh -- compute the hyperbolic tangent of a floating point number

SYNOPSIS

```

    x      = IEEEDPTanh( y );
    d0/d1      d0/d1

    double x,y;
```

FUNCTION
 Compute hyperbolic tangent of y in IEEE double precision

INPUTS

y - IEEE double precision floating point value

RESULT

x - IEEE double precision floating point value

BUGS

SEE ALSO

IEEEEDPSinh(), IEEEEDPCosh()

1.18 mathieeedoubtrans.library/IEEEEDPTieee

NAME

IEEEEDPTieee -- convert IEEE double to IEEE single

SYNOPSIS

```
x    = IEEEEDPTieee( y );
d0    d0/d1
```

```
double y;
float x;
```

FUNCTION

Convert IEEE double precision number to IEEE single precision.

INPUTS

y - IEEE double precision floating point value

RESULT

x - IEEE single precision floating point value

BUGS

SEE ALSO

IEEEEDPFieee()