

mathieeesingtrans

COLLABORATORS

	<i>TITLE :</i> mathieeesingtrans		
<i>ACTION</i>	<i>NAME</i>	<i>DATE</i>	<i>SIGNATURE</i>
WRITTEN BY		March 28, 2025	

REVISION HISTORY

NUMBER	DATE	DESCRIPTION	NAME

Contents

1	mathieeesingtrans	1
1.1	mathieeesingtrans.doc	1
1.2	mathieeesingtrans.library/IEEESPAcos	1
1.3	mathieeesingtrans.library/IEEESPAasin	1
1.4	mathieeesingtrans.library/IEEESPAatan	2
1.5	mathieeesingtrans.library/IEEESPCos	2
1.6	mathieeesingtrans.library/IEEESPCosh	3
1.7	mathieeesingtrans.library/IEEESPExp	3
1.8	mathieeesingtrans.library/IEEESPFieee	4
1.9	mathieeesingtrans.library/IEEESPLog	4
1.10	mathieeesingtrans.library/IEEESPLog10	5
1.11	mathieeesingtrans.library/IEEESPPow	5
1.12	mathieeesingtrans.library/IEEESPSin	6
1.13	mathieeesingtrans.library/IEEESPSincos	6
1.14	mathieeesingtrans.library/IEEESPSinh	7
1.15	mathieeesingtrans.library/IEEESPSqrt	7
1.16	mathieeesingtrans.library/IEEESPTan	8
1.17	mathieeesingtrans.library/IEEESPTanh	8
1.18	mathieeesingtrans.library/IEEESPTieee	9

Chapter 1

mathieeesingtrans

1.1 mathieeesingtrans.doc

IEEESPAcos()	IEEESPExp()	IEEESPSin()	IEEESTanh()
IEEESPAsin()	IEEESPFieee()	IEEESPSincos()	IEEESTieee()
IEEESPAtan()	IEEESPLog()	IEEESPSinh()	
IEEESPCos()	IEEESPLog10()	IEEESPSqrt()	
IEEESPCosh()	IEEESPPow()	IEEESPTan()	

1.2 mathieeesingtrans.library/IEEESPAcos

NAME

IEEESPAcos -- compute the arc cosine of a number

SYNOPSIS

```
x = IEEESPAcos( y );  
d0
```

```
float x,y;
```

FUNCTION

Compute arc cosine of y in IEEE single precision

INPUTS

y - IEEE single precision floating point value

RESULT

x - IEEE single precision floating point value

BUGS

SEE ALSO

IEEESPCos(), IEEESPAtan(), IEEESPAsin()

1.3 mathieeesingtrans.library/IEEESPAsin

NAME

IEEESPAsin -- compute the arcsine of a number

SYNOPSIS

```
    x    = IEEESPAsin(  y  );  
    d0    d0
```

```
float    x,y;
```

FUNCTION

Compute the arc sine of y in IEEE single precision

INPUTS

y - IEEE single precision floating point value

RESULT

x - IEEE single precision floating point value

BUGS

SEE ALSO

IEEESPSin(), IEEESPAtan(), IEEESPAcos()

1.4 mathieeesingtrans.library/IEEESPAtan

NAME

IEEESPAtan -- compute the arc tangent of number

SYNOPSIS

```
    x    = IEEESPAtan(  y  );  
    d0    d0
```

```
single   x,y;
```

FUNCTION

Compute arctangent of y in IEEE single precision

INPUTS

y - IEEE single precision floating point value

RESULT

x - IEEE single precision floating point value

BUGS

SEE ALSO

1.5 mathieeesingtrans.library/IEEESPCos

NAME

IEEESPCos -- compute the cosine of a floating point number

SYNOPSIS

```
    x    = IEEESPCos(  y  );  
    d0                      d0
```

```
float    x,y;
```

FUNCTION

Compute cosine of y in IEEE single precision

INPUTS

y - IEEE single precision floating point value

RESULT

x - IEEE single precision floating point value

BUGS

SEE ALSO

IEEESPAcos(), IEEESPSin(), IEEESPTan()

1.6 mathieeesingtrans.library/IEEESPCosh

NAME

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

SYNOPSIS

```
    x    = IEEESPCosh(  y  );  
    d0                      d0
```

```
float    x,y;
```

FUNCTION

Compute hyperbolic cosine of y in IEEE single precision

INPUTS

y - IEEE single precision floating point value

RESULT

x - IEEE single precision floating point value

BUGS

SEE ALSO

IEEESPSinh(), IEEESPTanh()

1.7 mathieeesingtrans.library/IEEESPExp

NAME

IEEESPExp -- compute the exponential of e

SYNOPSIS

```

    x    = IEEESExp( y );
d0          d0

```

```

float    x,y;

```

FUNCTION

Compute e^y in IEEE single precision

INPUTS

y - IEEE single precision floating point value

RESULT

x - IEEE single precision floating point value

BUGS

SEE ALSO

IEEESELog()

1.8 mathieeesingtrans.library/IEEESEFieee

NAME

IEEESEFieee -- convert IEEE single to IEEE single

SYNOPSIS

```

    x    = IEEESEFieee( y );
d0          d0

```

```

float    y;
float    x;

```

FUNCTION

Convert IEEE single precision number to IEEE single precision. These are included for completeness although they just return the input parameter. A good way to remember how these functions work is: They convert to and from the local format to Single Precision IEEE. The local format for this library happens to also be Single Precision IEEE.

INPUTS

y - IEEE single precision floating point value

RESULT

x - IEEE single precision floating point value

BUGS

SEE ALSO

IEEESEPTieee()

1.9 mathieeesingtrans.library/IEEESELog

NAME

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

SYNOPSIS

```
    x    = IEEEESLog( y );  
    d0          d0
```

```
float    x,y;
```

FUNCTION

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

INPUTS

y - IEEE single precision floating point value

RESULT

x - IEEE single precision floating point value

BUGS

SEE ALSO

IEEEESPExp()

1.10 mathieeesingtrans.library/IEEEESLog10

NAME

IEEEESLog10 -- compute logarithm base 10 of a number

SYNOPSIS

```
    x    = IEEEESLog10( y );  
    d0          d0
```

```
float    x,y;
```

FUNCTION

Compute the logarithm base 10 of y in IEEE single precision

INPUTS

y - IEEE single precision floating point value

RESULT

x - IEEE single precision floating point value

BUGS

SEE ALSO

IEEEESLog()

1.11 mathieeesingtrans.library/IEEEESPPow

NAME

IEEEESPow -- raise a number to another number power

SYNOPSIS

```
z = IEEEESPow( x , y );
d0          d1 d0
```

```
float x,y,z;
```

FUNCTION

Compute y^x in IEEE single precision

INPUTS

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

RESULT

z - IEEE single precision floating point value

BUGS

SEE ALSO

1.12 mathieeesingtrans.library/IEEESPSin

NAME

IEEESPSin -- compute the sine of a floating point number

SYNOPSIS

```
x = IEEESPSin( y );
d0          d0
```

```
float x,y;
```

FUNCTION

Compute sine of y in IEEE single precision

INPUTS

y - IEEE single precision floating point value

RESULT

x - IEEE single precision floating point value

BUGS

SEE ALSO

IEEESPAsin(), IEEESPTan(), IEEESPCos()

1.13 mathieeesingtrans.library/IEEESPSincos

NAME

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

SYNOPSIS

```

    x    = IEEEESPSincos( z , y );
    d0          a0 d0

```

```

float    x,y,*z;

```

FUNCTION

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

INPUTS

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

RESULT

x - IEEE single precision floating point value

BUGS

SEE ALSO

IEEEESPSin(), IEEEESPCos()

1.14 mathieeesingtrans.library/IEEEESPSinh

NAME

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

SYNOPSIS

```

    x    = IEEEESPSinh( y );
    d0          d0

```

```

float    x,y;

```

FUNCTION

Compute hyperbolic sine of y in IEEE single precision

INPUTS

y - IEEE single precision floating point value

RESULT

x - IEEE single precision floating point value

BUGS

SEE ALSO

IEEEESPCosh, IEEEESPTanh

1.15 mathieeesingtrans.library/IEEEESPSqrt

NAME

IEEEESPSqrt -- compute the square root of a number

SYNOPSIS

```

    x    = IEEEESPsqrt( y );
    d0           d0

```

```

float    x,y;

```

FUNCTION

Compute square root of y in IEEE single precision

INPUTS

y - IEEE single precision floating point value

RESULT

x - IEEE single precision floating point value

BUGS

SEE ALSO

1.16 mathieeesingtrans.library/IEEESTan

NAME

IEEESTan -- compute the tangent of a floating point number

SYNOPSIS

```

    x    = IEEESTan( y );
    d0           d0

```

```

float    x,y;

```

FUNCTION

Compute tangent of y in IEEE single precision

INPUTS

y - IEEE single precision floating point value

RESULT

x - IEEE single precision floating point value

BUGS

SEE ALSO

IEEESPatan(), IEEESPSin(), IEEESPCos()

1.17 mathieeesingtrans.library/IEEESTanh

NAME

IEEESTanh -- compute the hyperbolic tangent of a floating point number

SYNOPSIS

```

    x    = IEEESTanh( y );
    d0           d0

```

```
float    x,y;
```

FUNCTION

Compute hyperbolic tangent of y in IEEE single precision

INPUTS

y - IEEE single precision floating point value

RESULT

x - IEEE single precision floating point value

BUGS**SEE ALSO**

IEEEESPSinh(), IEEEESPCosh()

1.18 mathieeesingtrans.library/IEEEESPTieee

NAME

IEEEESPTieee -- convert IEEE single to IEEE single

SYNOPSIS

```
    x    = IEEEESPTieee( y );  
    d0           d0
```

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

FUNCTION

Convert IEEE single precision number to IEEE single precision. These are included for completeness although they just return the input parameter. A good way to remember how these functions work is: They convert to and from the local format to Single Precision IEEE. The local format for this library happens to also be Single Precision IEEE.

INPUTS

y - IEEE single precision floating point value

RESULT

x - IEEE single precision floating point value

BUGS**SEE ALSO**

IEEEESPFieee()
