

mathtrans

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Chapter 1

mathtrans

1.1 mathtrans.doc

```
SPAcos ()
SPAsin ()
SPAtan ()
SPCos ()
SPCosh ()
SPExp ()
SPFieee ()
SPLog ()
SPLog10 ()
SPPow ()
SPSin ()
SPSincos ()
SPSinh ()
SPSqrt ()
SPTan ()
SPTanh ()
SPTieee ()
```

1.2 mathtrans.library/SPAcos

NAME

SPAcos - obtain the arccosine of the floating point number

SYNOPSIS

```
fnum2 = SPAcos(fnum1);
                                d0.l
float fnum2;
float fnum1;
```

FUNCTION

Accepts a floating point number representing the cosine of an angle and returns the value of said angle in

radians

INPUTS

fnum1 - Motorola fast floating point number

RESULT

fnum2 - Motorola fast floating point number

BUGS

None

SEE ALSO

SPSin()

1.3 mathtrans.library/SPAsin

NAME

SPAsin - obtain the arcsine of the floating point number

SYNOPSIS

```
fnum2 = SPAsin(fnum1);  
                                d0.l  
float fnum2;  
float fnum1;
```

FUNCTION

Accepts a floating point number representing the sine of an angle and returns the value of said angle in radians

INPUTS

fnum1 - Motorola fast floating point number

RESULT

fnum2 - Motorola fast floating point number

BUGS

None

SEE ALSO

SPCos()

1.4 mathtrans.library/SPAtan

NAME

SPAtan - obtain the arctangent of the floating point number

SYNOPSIS

```
fnum2 = SPAtan(fnum1);  
                                d0.1  
float fnum2;  
float fnum1;
```

FUNCTION

Accepts a floating point number representing the tangent of an angle and returns the value of said angle in radians

INPUTS

fnum1 - Motorola fast floating point number

RESULT

fnum2 - Motorola fast floating point number

BUGS

None

SEE ALSO

SPTan()

1.5 mathtrans.library/SPCos

NAME

SPCos - obtain the cosine of the floating point number

SYNOPSIS

```
fnum2 = SPCos(fnum1);  
                                d0.1  
float fnum2;  
float fnum1;
```

FUNCTION

Accepts a floating point number representing an angle in radians and returns the cosine of said angle.

INPUTS

fnum1 - Motorola fast floating point number

RESULT

fnum2 - Motorola fast floating point number

BUGS

None

SEE ALSO

SPAcos()

1.6 mathtrans.library/SPCosh

NAME

SPCosh - obtain the hyperbolic cosine of the floating point number

SYNOPSIS

```
fnum2 = SPCosh(fnum1);  
                                d0.l  
float fnum2;  
float fnum1;
```

FUNCTION

Accepts a floating point number representing an angle in radians and returns the hyperbolic cosine of said angle.

INPUTS

fnum1 - Motorola fast floating point number

RESULT

fnum2 - Motorola fast floating point number

BUGS

None

SEE ALSO

SPSinh()

1.7 mathtrans.library/SPExp

NAME

SPExp - obtain the exponential (e^{**X}) of the floating point number

SYNOPSIS

```
fnum2 = SPExp(fnum1);  
                                d0.l  
float fnum2;  
float fnum1;
```

FUNCTION

Accepts a floating point number and returns the value of e raised to the fnum1 power

INPUTS

fnum1 - Motorola fast floating point number

RESULT

fnum2 - Motorola fast floating point number

BUGS

None

SEE ALSO

SPLog()

1.8 mathtrans.library/SPFieee

NAME

SPFieee - convert single precision ieee to FFP number

SYNOPSIS

```
fnum = SPFieee(ieeeenum);  
                                d0.l  
float fnum;  
float ieeeenum;
```

FUNCTION

Accepts a standard single precision format
returns the same number, converted to Motorola
fast floating point number

INPUTS

ieeeenum - IEEE Single Precision Floating Point

RESULT

fnum - Motorola fast floating point number

BUGS

None

SEE ALSO

SPTieee()

1.9 mathtrans.library/SPLog

NAME

SPLog - obtain the natural logarithm of the floating point number

SYNOPSIS

```
fnum2 = SPLog(fnum1);  
                                d0.l  
float fnum2;  
float fnum1;
```

FUNCTION

Accepts a floating point number and returns the natural logarithm (base e) of said number

INPUTS

fnum1 - Motorola fast floating point number

RESULT

fnum2 - Motorola fast floating point number

BUGS

None

SEE ALSO

SPExp()

1.10 mathtrans.library/SPLog10

NAME

SPLog10 - obtain the naperian logarithm(base 10) of the

floating point number

SYNOPSIS

```
fnum2 = SPLog10(fnum1);  
                                d0.l  
float fnum2;  
float fnum1;
```

FUNCTION

Accepts a floating point number and returns the naperian logarithm (base 10) of said number

INPUTS

fnum1 - Motorola fast floating point number

RESULT

fnum2 - Motorola fast floating point number

BUGS

None

SEE ALSO

SPExp(), SpLog()

1.11 mathtrans.library/SPPow

NAME

SPPow - raise a number to a power

SYNOPSIS

```
result = SPPow(fnum1, fnum2);  
                                d1.l    d0.l  
float fnum1, fnum2;  
float result;
```

FUNCTION

Accepts two floating point numbers and returns the result of fnum2 raised to the fnum1 power

INPUTS

fnum1 - Motorola fast floating point number
fnum2 - Motorola fast floating point number

RESULT

result - Motorola fast floating point number

BUGS

None

SEE ALSO

SPExp(), SPLog()

1.12 mathtrans.library/SPSin

NAME

SPSin - obtain the sine of the floating point number

SYNOPSIS

```
fnum2 = SPSin(fnum1);  
                                d0.l  
float fnum2;  
float fnum1;
```

FUNCTION

Accepts a floating point number representing an angle in radians and returns the sine of said angle.

INPUTS

fnum1 - Motorola fast floating point number

RESULT

fnum2 - Motorola fast floating point number

BUGS

None

SEE ALSO

SPAsin()

1.13 mathtrans.library/SPSincos

NAME

SPSincos - obtain the sine and cosine of a number

SYNOPSIS

```
fnum3 = SPSincos(pfnum2, fnum1);  
                                d1.l,    d0.l  
float *pfnum2;  
float fnum1;  
float fnum3;
```

FUNCTION

Accepts a floating point number (fnum1) representing an angle in radians and a pointer to another floating point number (pfnum2). It computes the cosine and places it in *pfnum2. It computes the sine and returns it as a result.

INPUTS

fnum1 - Motorola fast floating point number
pfnum2 - pointer to Motorola fast floating point number

RESULT

*pfnum2 - Motorola fast floating point number (cosine)
fnum3 - Motorola fast floating point number (sine)

BUGS

None

SEE ALSO

SPSin(), SPCos()

1.14 mathtrans.library/SPSinh

NAME

SPSinh - obtain the hyperbolic sine of the floating point number

SYNOPSIS

```
fnum2 = SPSinh(fnum1);  
                                d0.l  
float fnum2;  
float fnum1;
```

FUNCTION

Accepts a floating point number representing an angle in radians and returns the hyperbolic sine of said angle.

INPUTS

fnum1 - Motorola fast floating point number

RESULT

fnum2 - Motorola fast floating point number

BUGS

None

SEE ALSO

SPCosh()

1.15 mathtrans.library/SPSqrt

NAME

SPSqrt - obtain the square root of the floating point number

SYNOPSIS

```
fnum2 = SPSqrt(fnum1);  
                                d0.l  
float fnum2;  
float fnum1;
```

FUNCTION

Accepts a floating point number and returns the square root of said number

INPUTS

fnum1 - Motorola fast floating point number

RESULT

fnum2 - Motorola fast floating point number

BUGS

None

SEE ALSO

SPPow(), SPMul()

1.16 mathtrans.library/SPTan

NAME

SPTan - obtain the tangent of the floating point number

SYNOPSIS

```
fnum2 = SPTan(fnum1);  
                                d0.1  
float fnum2;  
float fnum1;
```

FUNCTION

Accepts a floating point number representing an angle in radians and returns the tangent of said angle.

INPUTS

fnum1 - Motorola fast floating point number

RESULT

fnum2 - Motorola fast floating point number

BUGS

None

SEE ALSO

SPAtan()

1.17 mathtrans.library/SPTanh

NAME

SPTanh - obtain the hyperbolic tangent of the floating point number

SYNOPSIS

```
fnum2 = SPTanh(fnum1);  
                                d0.1  
float fnum2;  
float fnum1;
```

FUNCTION

Accepts a floating point number representing an angle in radians and returns the hyperbolic tangent of said angle.

INPUTS

fnum1 - Motorola fast floating point number

RESULT

fnum2 - Motorola fast floating point number

BUGS

None

SEE ALSO

`SPSinh()`, `SPCosh()`

1.18 mathtrans.library/SPTieee

NAME

SPTieee - convert FFP number to single precision ieee

SYNOPSIS

```
ieeenum = SPTieee(fnum);  
                                d0.l  
float ieeenum;  
float fnum;
```

FUNCTION

Accepts a Motorola fast floating point number and
returns the same number, converted into IEEE
standard single precision format

INPUTS

fnum - Motorola fast floating point number

RESULT

ieeenum - IEEE Single Precision Floating Point

BUGS

None

SEE ALSO

`SPFieee()`
