URL: http://cxc.harvard.edu/ciao3.4/fits_bitpix.html
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AHELP for CIAO 3.4

fits_bitpix

Context: varmm

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Synopsis

Converts S−Lang variables and data types to FITS BITPIX values.

Syntax

```
Integer_Type fits_bitpix( [data] )
```

Description

This routine converts from a S−Lang variable or datatype to the FITS BITPIX value − as defined at http://fits.gsfc.nasa.gov/ − that should be used to store the value in a FITS image. If there is no corresponding BITPIX value then −1 is returned.

One example of when this function is useful is when using the S−Lang XPA module to send image data to a ds9 session, as shown below in one of the examples.

Example 1

```
chips> fits_bitpix(23)
32
chips> fits_bitpix(23.3)
-64
chips> x = typecast( [0:9], UChar_Type )
chips> fits_bitpix(x)
8
```

The examples above show the BITPIX values one would use to represent Integer_Type (23), Double_Type (23.3), and an array of UChar_Type variables (x).

Example 2

```
chips> fits_bitpix(Integer_Type)
32
```

```
chips> fits_bitpix(Double_Type)
−64
chips> fits_bitpix(UChar_Type)
8
```

Instead of the actual values, as used in the previous example, here we explicitly specify the S−Lang data type we wish to convert.

Example 3

```
# Create the image
chips> img = sin([1:256*256]*0.1)
chips> reshape( img, [256,256] )
chips> img
Double_Type[256,256]
chips> fits_bitpix(img)
−64
# Start ds9 and ensure the XPA access point is available
chips> require("xpa")
chips> system("ds9 &");
chips> while( xpaaccess("ds9") == 0 ) sleep(1);
# Create a new frame and tell ds9 to display the image
chips> xpaset( "ds9", "frame new")
1
chips> xpaset( "ds9", "cmap heat")
1
chips> xpaset( "ds9", "array [xdim=256,ydim=256,bitpix=−64]", img )
1
```

In this example we use the S−Lang XPA module to tell ds9 to display the two−dimensional image we have just created. The fits_bitpix() routine is used to find out what value to include in the command string we send to ds9 via the xpaset() call.

The S−Lang intrinsic function array_info() can be combined with fits_bitpix() to allow a function to be written that takes in an arbritrary two−dimensional image and sends it to ds9.

For more information on XPA try "ahelp xpa", the SAORD XPA documentation, and − for details of the XPA interface within ds9 − the SAORD ds9 documentation.

Example 4

```
chips> fits_bitpix("a string")
−1
chips> fits_bitpix(Array_Type)
−1
chips> fits_bitpix(NULL)
−1
chips> fits_bitpix()
−1
```

Here the return value is −1 because the input values do not have a corresponding BITPIX value.

Bugs

See the bugs page for the Varmm library on the CIAO website for an up−to−date listing of known bugs.

See Also

modules
varmm
varmm
readarf, readascii, readbintab, readfile, readimage, readpha, readrdb, readrmf, writeascii, writefits

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