



AHELP for CIAO 3.4

fits_bitpix

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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 arbitrary 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 Varrrm library](#) on the CIAO website for an up–to–date listing of known bugs.

See Also

modules

[varrrm](#)

Ahelp: fits_bitpix – CIAO 3.4

varmm

[readarf](#), [readascii](#), [readbintab](#), [readfile](#), [readimage](#), [readpha](#), [readrdb](#), [readrmf](#), [writeascii](#), [writefits](#)

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URL:
http://cxc.harvard.edu/ciao3.4/fits_bitpix.html
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