Subject: Viewing unsigned int images (was: 16 bit / 8 bit depth colors on the mac)
Posted by Peter Mason on Thu, 07 Nov 1996 08:00:00 GMT
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On Tue, 5 Nov 1996, David Fanning wrote:
<cut>
> Read the image data into 16-bit integers (the default
> or short IDL integer size). To convert the signed integer array to an
> unsigned integer array, you will have to convert the array to long integers,
> like this:
>
> image = INTARR(256, 256)
> READU, lun, image
> image = LONG(image) AND 'FFFF'x
<cut>

It just occurred to me that there is a way to view an unsigned int (16-bit)
image without having to convert to LONGs. (Memory may sometimes be an
issue, especially for large multiband images.)
e.g.,

```
image = INTARR(256, 256)
READU, lun, image  ;read in the unsigned int image
f=fix(32768)  ;F is a signed short int, value = -32768
image=temporary(image)+f ;remap "unsigned" values to monotonically
                         ;increasing signed values
tvscl,image
```

The problem with viewing unsigned int data as if they are signed is that
values 32768 .. 65535 get interpreted (backwards!) as -32768 .. -1.
(Values 0 .. 32767 are ok.)
By subtracting 32768 from the data we're mapping to an acceptable signed
int range:
 0 .. 32767 => -32768 .. -1
 32768 .. 65535 => 0 .. 32767
So any operation which is concerned with the RELATIVE data range (like
TVSCL or BYTSCL) stands a chance of working on the remapped data.

Peter Mason