## Subject: Re: Decomposing a bit field? Posted by greg.addr on Wed, 21 Jul 2010 10:31:27 GMT View Forum Message <> Reply to Message

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On 21 Jul., 11:40, Rob <rj...@le.ac.uk> wrote:
> Hi all,
>
 I have some data that is contained within a 32-bit field.
> I'm using some code from a colleague which seems to almost do what I
  want but not quite.
 An example of one of the data values is 15982561
>
>
> The following code takes this and creates an array of 1s and 0s for
> whether each bit is set or not.
>
> test=intarr(32)
> for i=0, 31 do begin test[i]=(ISHFT((15982561),-i) AND 1B)
> However, for example bits 1-4 need to be combined (and contain data
> from 0-15). As I don't guite understand what the code above is doing
> I'm not sure how to (or if it can be) modified to not just operate on
> the individual bits but on groups of bits.
> What I need to extract is the information in the following form:
>
> Bit 0: 0 or 1
> Bits 1-4: 0-15
> Bit 5: 0 or 1
> Bits 6-8: 0-8
> etc
> Thanks in advance
The code you have is progressively shifting the bits to the right
(i.e. dividing by 2<sup>h</sup>) and copying the resulting least significant bit
into the test array. You can achieve what you want with something like
this:
```

IDL> a=15982561 IDL> print,(a and ishft(1,indgen(32))) gt 0 ;decomposition like yours (least significant on the left) 1 0 0 0 0 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0

IDL> bit=[0,1,5,6] ;start bit for each group IDL> n bits=[1,4,1,3];no. of bits in each

IDL> print,2^n\_bits-1 ;max values for each group 15 1 IDL> print,2^n\_bits-1 and ishft(a,-bit) ;the result 0 1

regards, Greg