Subject: Re: bits from bytes
Posted by Kevin Ivory on Sat, 20 Dec 1997 08:00:00 GMT
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David Fanning wrote:
> Anyway, I wanted to know. So I wrote this IDL program the
> next morning. I guess you could figure out how to use
> it to extract the first three bits from a byte, if you
> wanted to. Or, you could wait for Kevin Ivory to send you
> the *real* answer. :-)

I am a little late today. My answer is the same as the one by
Robert Moss: to extract the first three bits from a byte:
  print, i_byte and 7

David, I like the idea of the function 'BINARY' to return a human
readable representation of numbers. But even a good IDL program
can become a "bit" better by eliminating the loops.
The part I included as a comment about floating point values is
what most people looking at binary representations will actually
want to have.

```
FUNCTION BINARY, number
;+
; PURPOSE:
;   This function returns the binary representation
;   of a number. Numbers are converted to LONG integers
;   if necessary.
; EXAMPLE:
;   Binary representation of 11B:
;     IDL> print, binary(11B)
;     0 0 0 0 1 0 1 1
;   If data extraction is used instead of conversion ->
;   Binary representation of pi (little endian IEEE representation):
;     IDL> print, format='(z9.8,5x,4(1x,8a1))', long(!pi,0), binary(!pi)
;     40490fdb      01000000 01001001 00001111 11011011
;-
  On_Error, 1
  s = SIZE(number)
  type = s[s[0] + 1]
  IF type EQ 0 THEN Message, 'Number parameter must be defined.'
  bit = ['0','1']
  IF type EQ 1 OR type EQ 2 THEN BEGIN
    bitvalue = 2^INDGEN(8*type)
  ENDIF ELSE BEGIN
    Print, 'Converting "number" to LONG...'
    number = LONG(number)       ; data conversion
;   If you want the binary representation of the floating point value,
```

```
;   use extraction instead of conversion:
;   number = LONG(number, 0)    ; data extraction
    bitvalue = 2L^LINDGEN(32)
  ENDELSE

  RETURN, REVERSE(bit((number AND bitvalue) EQ bitvalue))
END
```

Have nice and relaxing holidays,
Kevin
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