Subject: Re: Reading real numbers from VMS
Posted by hofer on Sat, 26 Sep 1992 11:37:13 GMT
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In article <1992Sep25.234223.15365@news2.cis.umn.edu>, grad@sparky.drad.umn.edu (Jonathan Grad) writes:
> I have some real numbers (real *4) that were saved on a VAX using VMS, and
> have been imported to a Unix machine. Does anyone have a pvwave
> program to read in real numbers (saved under VMS) to a Unix system?
>
> Thanks in advance.
>
> Jonathan Grad
> grad@sparky.drad.umn.edu

I've written the following routine to convert a VMS F float (4 bytes) to
to pv-wave floats. Hope this helps.

Remo Hofer

--
RFC822: <hofer@urz.unibas.ch> or <hofer%urz.unibas.ch@CERNVAX.BITNET>
X.400: S=hofer;OU=urz;O=unibas;P=SWITCH;A=ARCOM;C=CH
HEPNET/SPAN: CHGATE::YOGI::HOFER or 20579::48130::HOFER
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```
;------------------------------------------------------------ --------------------
; Convert a VAX F float number to WAVE double precision.  RHo
; last modified       29/1/92
;------------------------------------------------------------ --------------------
;
;+
;1 VAXF_WAVE
;!
; Purpose:
;
; This procedure converts a VAX single precision floating point
; number (F float) into a WAVE double precision number.
; The conversion is independent of the exact format used by the
; machine WAVE runs on.
;
; Calling Sequence:
;
; SXM_VAXF_WAVE, buffer, value
;!
;!------------------------------------------------------------ --------------------
;2 Input
; Name  Type  Description
;
```

```
; buffer byte (4) Buffer of four bytes that are to be
;    converted into a double precision number
;!
 ;!------------------------------------------------------- --------------------
;2 Output
; Name  Type  Description
;
; value  dfloat  The result of the conversion
;!
 ;!------------------------------------------------------- --------------------
;2 Procedure
; The procedure tries to convert the four bytes in the buffer into a WAVE
; double precision floating point number. The conversion performs the
; interpretation of the buffer contents independent of the floating point
; architecture of the CPU/FPU on which WAVE is running. The buffer is
; interpreted according to the VAX single precision F floating point speci-
; fication.
;-
 ;------------------------------------------------------- --------------------

PRO sxm_vaxf_wave, buffer, value

  ; check dimensions, size and type of the buffer:

  save = SIZE (buffer)
  IF (save(0) NE 1) OR (save(1) NE 4) OR (save(save(0) + 1) NE 1) THEN $
  BEGIN
    PRINT, 'VAX double precision buffer of wrong data type.'
    value = 0D
    RETURN
  ENDIF

  ; determine sign, exponent and mantissa:

  s = buffer(1)/128B
  e = 2*(buffer(1) AND 127B) + buffer(0)/128B
  f = 65536L*(buffer(0) AND 127B) + 256L*buffer(3) + buffer(2)

  ; buffer represents a valid, finite number:

  IF e EQ 0 THEN value = 0D ELSE value = (2D^(e-129)) * (f/(2D^23) + 1D)
  IF s EQ 1 THEN value = (-1) * value
  RETURN

END
```

Subject: Re: Reading real numbers from VMS
Posted by zawodny on Mon, 28 Sep 1992 11:11:33 GMT
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On some machines (providing that the byte ordering is correct) it is as simple
as dividing by 4 !

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