Subject: Re: Can you do 'unions' with pv-wave?
Posted by hahn on Tue, 22 Nov 1994 01:08:26 GMT
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In article <1994Nov19.012318.9400@mksol.dseg.ti.com> jgavin@mksol.dseg.ti.com (Jeffrey S. Gavin) writes:
> From: jgavin@mksol.dseg.ti.com (Jeffrey S. Gavin)
> Subject: Can you do 'unions' with pv-wave?
> Date: Sat, 19 Nov 1994 01:23:18 GMT

> Is there a way to have a single variable viewed as multiple types, similar
> to the way unions work in C. For example:

[example deleted]

> Our brute-force approach is to read the 50MB file in once as an array of bytes, then again as an array of int, float, then double. This takes time and space
> when actually, we simply want to view the same exact data in different ways.
> Again, the 'C' union structure is the best way I can describe the problem.

> Thanks for any help.

> Regards,

> Jeff

> --
> Jeff Gavin Jeff.Gavin@dseg.ti.com
> Texas Instruments MSG: JGAV / (214) 462-5496

The predefined approach to this problem is to read the data in pieces into a string array or string and use reads to retrieve data from the string using a fortran style format. Example (not tested) which assumes your data file on disk is open:

```
temp_s = String ('*', format='(A200)')     ; declare a 200 byte string
c2 = '**'           ; declare a 2 byte character item
i2 = 0              ; declare a short integer variable

readu, iunit, temp_s     ; read 200 bytes from disk

reads, temp_s, c2  ; read into a string variable

reads, temp_s, i2  ; read the same data into a short integer variable
```

... hope this helps

Norbert

Subject: Re: Can you do 'unions' with pv-wave?
Posted by sterner on Tue, 22 Nov 1994 01:47:17 GMT
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jgavin@mksol.dseg.ti.com (Jeffrey S. Gavin) writes:

> Is there a way to have a single variable viewed as multiple types, similar
> to the way unions work in C. For example:
. . .
> In other words, the characters '\0','A' were interpreted as a single integer.
> I'm trying to reference a single variable (i.e. 'm') as different types, without
> having to make a copy.

You can come close. Check out Type Conversion in the User's Guide.
A subsection called Extracting Fields describes how to do what you
want (or as close as possible in IDL).

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Subject: Re: Can you do 'unions' with pv-wave?
Posted by thompson on Tue, 22 Nov 1994 15:22:15 GMT
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jgavin@mksol.dseg.ti.com (Jeffrey S. Gavin) writes:

> Is there a way to have a single variable viewed as multiple types, similar
> to the way unions work in C. For example:

(rest deleted for brevity)

You can always do type conversions on the fly. For example, if you read in a
100 bytes from a file (e.g. into B), and want to treat bytes 20-29 as ten short
integers, you can say

PRINT, FIX(B,20,10)

Where 20 is the starting point in the B array, and 10 is the number of values
to extract.

The same is true for the functions BYTE, LONG, FLOAT, DOUBLE, and COMPLEX. If you want to extract strings, then you simply say something like

```
PRINT, STRING(B(30:35))
```

Bill Thompson
