Godelieve Deblonde & Ivan L'Heureux <godelivan@hawk.igs.net> wrote:

> Hello,

> I have written a binary file using fortran code:

[snip]

> Some of the numbers are read in correctly, but some strange numbers appear
> also. I have also added the keyword f77_unformatted but it still did not work.

Well, you had the right thoughts, but the place was wrong:
Writing a file sequentially with unformatted i/o causes the Fortran run time
system to add the record length both before and after the data. Altho not
required by the Fortran standard, this is usefull for the BACKSPACE function
for *variable* length records.

When you read such a file *sequentially* in IDL you must add the keyword
f77_unformatted, as you did. So, this was the right part of your thoughts.

Using the ASSOC function causes IDL to randomly access data in *fixed*
records. As the records are assumed to be fixed, the record length is not
expected, neither by IDL nor by Fortran.

To make ASSOC work you must write the Fortran records as direct access
records! The Fortran run time system does not add anything when writing
DA records. So IDL and Fortran is pretty compatible.

> On a HP, I have managed to read the binary file using a direct access mode for
> the fortran open statement. This does not work on an SGI machine though.

I don't know why this workedd on a HP system, but I assume that you got both
the data and the record lenght words as data because all your records have
the same length. To be on the save side I would always use the same
technique for writing and reading:

If you are going to read the data by using IDL's ASSOC function, thus by
direct access, I recommend to write the data as a direct access file from
Fortran.

> Has anybody out there tried this before? I am quite sure that somebody
> must have run into this problem.

Yes, everybody can fall into this pit on every Unix system: This may be

different on other operating systems!

> I don't think that RSI will be of much help
> answering this question, they don't have a fortran compiler on an SGI! So they
> told me.

It's not the lack of a Fortran compiler but the lack of clear thoughts in the
IDL user's manual. Chapter 17 describes the difference between Unformatted
i/o and Formatted i/o but simply ignores differences between Sequentiel i/o
and Direct Access i/o. And XDR is not mentioned as an additional format!!

Things can get even more complicated when you write a file with IDL and
plan to read it in Fortran: Once a file is open for output IDL allows you to
write the same file formatted and unformatted:

```
  OpenW, 27, 'test.dat'
  WriteU, 27, !DPI
  PrintF, 27, 2*!pi, format='(F10.6)'
  Close, 27
```

This example works quite well, but you cannot read this file with a Fortran
program without doing some tricks: When opening a file in Fortran you
must specify to read it either formatted or unformatted!

> Thanks,
> Godelieve

Hope this helps
Norbert