Subject: Re: Fast shear
Posted by Wayne Landsman on Tue, 05 Feb 2002 17:42:53 GMT
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the_cacc@hotmail.com wrote

> Anyone know a way of doing the following as fast as possible:
> for i = 0, n-1 DO array[*,i] = SHIFT(array[*,i],delta[i])
> where delta is an INTARR.

Well, I think a loop over rows is necessary, but the speed can be vastly improved by using the folllowing IDL maxim for efficient programming, which gets my vote in the "IDL maxim most deserving of wider recognition" category.

"Avoid the use of an asterisk on the left-hand side of an assignment."

which in this case means to rewrite the assignment as

for i = 0, n-1 DO array[0,i] = SHIFT(array[*,i],delta[i])

For a fltarr(2048,2048) on my Solaris machine running V5.5, I find a factor of 15 improvement in speed.

I believe that one uses an asterisk on the left hand side, that IDL first creates a temporary variable, places the contents of the right hand side into this temporary variable, and then places the temporary variable back into array. By specifying array[0,i] one directly gives the starting location where to place the contents of the right hand side.

--Wayne Landsman
landsman@mpb.gsfc.nasa.gov

Subject: Re: Fast shear
Posted by the_cacc on Wed, 06 Feb 2002 12:41:36 GMT
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Wayne Landsman <landsman@mpb.gsfc.nasa.gov> wrote in message news:<3C60199D.E4810C70@mpb.gsfc.nasa.gov>...
>
> "Avoid the use of an asterisk on the left-hand side of an assignment."
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> which in this case means to rewrite the assignment as
>
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>
> For a fltarr(2048,2048) on my Solaris machine running V5.5, I find a
> factor of 15 improvement in speed.
>

WOW! Wayne, that's magic. I get 10-15X speed-up. The world *has* to be
told about this. One drawback - the code does not strictly make sense,
hell who cares !?

Cheers.

Subject: Re: Fast shear
Posted by k-bowman on Thu, 07 Feb 2002 17:41:28 GMT
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In article <3C60199D.E4810C70@mpb.gsfc.nasa.gov>, Wayne Landsman
<landsman@mpb.gsfc.nasa.gov> wrote:

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> which in this case means to rewrite the assignment as
>
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> IDL first creates a temporary variable, places the contents of the right
> hand side into this temporary variable, and then places the temporary
> variable back into array. By specifying array[0,i] one directly
> gives the starting location where to place the contents of the right
> hand side.

I thought that using an asterisk on the LHS meant that IDL created a temporary index array, i.e.

for i = 0, n-1 DO array[[0,1,2,3,...,m-1],i] = SHIFT(array[*,i],delta[i])

where m is the size of the first dimension. The slow down is due to the the indirect array indexing.

The fast method (e.g., array[0,i] = ...) specifies where to start storing the RHS, so it only works for the first dimension (that is, in memory order).

Ken
