Subject: Re: Can I do this without using loops?
Posted by bowman on Sat, 15 Jun 1996 07:00:00 GMT
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In article <31C17DE4.50C@zibmt.uni-ulm.de>, David Ritscher
<david.ritscher@zibmt.uni-ulm.de> wrote:

> The algorithms:
> 1. array = fltarr(rows, columns, /nozero)
> for j = 0L, columns-1 do array(*, j) = float(j)

> 3. array = FINDGEN(rows) # REPLICATE(1, columns)

> Here are the execution times, in seconds, under IDL and PV-Wave, for
> the specified array sizes, for each of the algorithms above. The left
> two columns show the times for inserting columns, the second two
> columns involve inserting rows.
>
> Tested using the following number of rows and columns: 3000, 3000
>
> Insert columns Insert rows
> IDL PV-Wave IDL PV-Wave
> 1. 22.84 17.58 30.48 21.31

> 3. 3.88 9.73 3.87 9.70
>
> Tested using the following number of rows and columns: 1000, 30000
>
> Insert columns Insert rows
> IDL PV-Wave IDL PV-Wave
> 1. 84.95 71.09 Inf Inf

> 3. 27.65 42.95 30.88 50.10

I confess to being surprised by how fast (3) is compared to (1). I always thought these tricks using the # operator to avoid loops were 'too clever by half'. At least on the face of it, (3) creates an unnecessary temporary vector and does useless multiply operations. The multiplies can probably be perfectly overlapped with the stores on a RISC machine (and so lead to no additional cost), but even so it seems more complicated. There may still be aspects of (1) that are interpreted, (the loop probably is), but it would seem to be the simplest possible operation to write as optimized code.

Thanks for the lesson.

This does point out how useful a good IDL profiling tool would be.

Ken Bowman

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