Subject: Re: An optimisation question
Posted by Matt Francis on Tue, 27 Mar 2012 22:45:32 GMT
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Okay, just probing my original approach further to understand what is going on and I'm going completely insane. Have a look at this test code:

```
function do_3d,arr,lat,lon,indx
  temp = reform(arr[indx,*,*])
  return,temp[lat,lon]
end

function do_2d_first,arr,lat,lon
  return,arr[lat,lon]
end

function do_2d_second,arr,lat,lon
  return,arr[lat,lon]
end

pro crazy_idl
  lat = intarr(10000)
  lon = intarr(10000)

  arr3d = fltarr(10,1000,1000)
  arr2d = fltarr(1000,1000)

  for i=0,100 do begin
    res3d = do_3d(arr3d,lat,lon,0)
    res2d = do_2d_first(arr2d,lat,lon)
    res2d = do_2d_second(reform(arr3d[0,*,*]),lat,lon)
  endfor
end
```

The '3d' version first uses REFORM to obtain a 2d matrix and then does the same thing as the '2d' version. The second call to the 2d version does the REFORM command before sending the array to the subroutine. All three approaches are essentially the same, apart from some minor overhead coming from using REFORM. Well, no. Apparently these are all very different! Check out the profiler report:

Module	Type	Count	Only(s)	Avg.(s)	Time(s)	Avg.(s)
CRAZY_IDL	(U)	1	0.967564	0.967564	1.963462	1.963462
DO_2D_FIRST	(U)	101	0.003964	0.000039	0.003964	0.000039
DO_2D_SECOND	(U)	101	0.004870	0.000048	0.004870	0.000048
DO_3D	(U)	101	0.973172	0.009635	0.973531	0.009639
FLTARR	(S)	2	0.013167	0.006583	0.013167	0.006583

```
INTARR       (S)      2    0.000012  0.000006    0.000012  0.000006
PROFILER     (S)      2    1.007490  0.503745    1.007490  0.503745
REFORM       (S)    202    0.000711  0.000004    0.000711  0.000004
```

What the hell?? One of either me or IDL is doing something completely screwy and frankly I don't care which it is, I just want to understand what is going on. I guess the other possibility is that the profiler is getting this completely wrong a misreporting the times in some weird way?
