Subject: Re: Getting array indices
Posted by Brian Larsen on Tue, 23 Sep 2008 20:41:43 GMT
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Interesting what you learn when you dig into a routine...

array_indices.pro
<<snip>>
```
for d=ndim-1, 1, -1 do begin
   ; Remove indices from even higher dimensions.
   if (d lt ndim-1) then $
      temp mod= dimProduct[d]
   ; Indices for higher dimensions.
      result[d, *] = temp/dimProduct[d-1]
endfor
```
<</snip>>

of course some people say that all you get when you dig that deep is
dirty :)

Brian

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Brian Larsen
Boston University
Center for Space Physics
http://people.bu.edu/balarsen/Home/IDL

Subject: Re: Getting array indices
Posted by pgrigis on Tue, 23 Sep 2008 20:47:26 GMT
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On Sep 23, 4:23 pm, Vince Hradil <hrad...@yahoo.com> wrote:
> On Sep 23, 12:53 pm, Jean H <jghas...@DELTHIS.ucalgary.ANDTHIS.ca>
> wrote:
>
>>> Here's a way to get verts:
>
>>> sz = size(array)
>>> nx = sz[0]
>>> ny = sz[1]
>>> nz = sz[2]
>>> ns = sz[sz[0]+2]
>>> verts = findgen(ns)
>
>> Shouldn't it be indgen() ...
>

>>> verts = transpose([[verts mod nx], [verts/nx mod ny], [verts/nx/
>>> ny]])
>
>>> BTW, I'd like to find a faster way, if there is one.
>
>> what about this:
>> print, array_indices(arr, indgen(ns))
>
>> Jean
>
> That takes about twice as long as the "MOD" method on my machine:
> x86_64 Win32 Windows Microsoft Windows 7.0 Oct 25 2007   64   64

Because of "indgen(ns)" or because of array_indices?

Paolo

Subject: Re: Getting array indices
Posted by Jean H. on Tue, 23 Sep 2008 21:07:53 GMT
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> That takes about twice as long as the "MOD" method on my machine:
> x86_64 Win32 Windows Microsoft Windows 7.0 Oct 25 2007   64   64

Interesting... indeed, for small arrays, it is about the same speed...
but the mod method is much faster on bigger arrays! (same speed with the
/dim keyword or not, 'verts' is used in both methods, so there is no
penalty for re-creating the index array)

Jean

Subject: Re: Getting array indices
Posted by Brian Larsen on Tue, 23 Sep 2008 21:17:46 GMT
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> Because of "indgen(ns)" or because of array_indices?

Because of array_indices according to this test:
;; .run test.pro
array = findgen(15, 3)
ind_in = lindgen(n_elements(array))

t1 = systime(/sec)
FOR i = 0UL, 1e5 DO BEGIN
   ind = array_indices(array, ind_in

```
ENDFOR
print, systime(/sec)-t1

t1 = systime(/sec)
FOR i = 0UL, 1e5 DO BEGIN
  sz = size(array)
  nx = sz[1]
  ny = sz[2]
  verts = lindgen(nx*ny)
  verts = transpose( [ [verts mod nx], [verts/nx] ] )
ENDFOR
print, systime(/sec)-t1
END

IDL> .run test
% Compiled module: $MAIN$.
       1.2473059
      0.50232387
IDL> print, !version
{ i386 darwin unix Mac OS X 6.4.1 Sep 25 2007      32      64}
```

For closure I whipped this together into a quick function
all_array_indices.pro so I don't have to remember how to do this
again.
http://people.bu.edu/balarsen/IDLdoc/all_array_indices.html

Brian

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http://people.bu.edu/balarsen/Home/IDL