Subject: Re: strange behaviour of bytscl by large arrays
Posted by lecacheux.alain on Tue, 24 Apr 2012 14:50:46 GMT
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On 23 avr, 22:22, Chris Torrence <gorth...@gmail.com> wrote:
> On Monday, April 23, 2012 10:14:21 AM UTC-6, fawltyl...@gmail.com wrote:
>
>> I think IDL's FINDGEN() implementation is wrong: it uses a float counter instead of an integer one. The following test shows the difference:
>
>> pro test
>> cpu, tpool_nthreads=1
>> n=10l^8
>> nn=n-1
>> a1=findgen(n) ; real FINDGEN()
>> a2=fltarr(n)
>> count=0.0
>> for j=0l, nn do a2[j]=count++ ; IDL's implementation
>> a3=fltarr(n)
>> count=0ll
>> for j=0l, nn do a3[j]=count++ ; better implementation
>> print, a1[nn], a2[nn], a3[nn], format='(3F15.3)'
>> end
>
>> (Multithreading must be disabled because the starting values for the threads are calculated as an integer. So the result of FINDGEN() depends on the number of your CPU cores, too :-)
>
>> regards,
>> Lajos
>
> Well, wrong is perhaps too strong of a word. The real word is "fast". I just did a test where I changed the internal implementation of FINDGEN to use an integer counter. The "float" counter is 4 times faster than using an integer counter and converting it to floats.
>
> However, perhaps we could look at the size of the input array, and switch to using the slower integer counter if it was absolutely necessary. I'll give it a thought.
>
> Thanks for reporting this!
>
> Cheers,
> Chris
> Exelis VIS
>
>

It is risky to write a statement like "findgen(n)" while n is larger
than the inverse of the floating point precision (given in IDL by
long(1/machar().eps)). This is true in any programming language. It is

mathematically incorrect to assume that such a "findgen" will behave
as a "lindgen".
IDL is not "wrong" here, but rather clever. Is'nt it ?
alx.
