Subject: Re: Generating N random numbers that add to a TOTAL
Posted by Michael Galloy on Fri, 08 Aug 2014 22:00:03 GMT
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On 8/8/14, 1:32 PM, rryan@stsci.edu wrote:
> Hi Mike, I might be interested in GPULib. I see it's quite pricey
> (at least for my budget) and Tech-X offers a free trial. But before
> I go through the trouble of even getting the free trial, what else
> can you tell me about GPULib?

A couple of resources:

* documentation for GPULib routines:
http://www.txcorp.com/images/docs/gpulib/1.6.2/html/index.ht ml

* I write about GPULib on my website occasionally, see:

michaelgalloy.com/index.php?s=gpulib&submit=Search

* The official blog is at hgpulib.blogspot.com

> Specifically, I was wondering about what hardware/software do I need
> to use GPULib? I use Mac OSX 10.8.5 and IDL 8.2.3 at present, and
> that sounded sufficient. But anything else I should be aware of?
> Such as GPU cards, RAM, etc.?

Currently, you absolutely need to have CUDA-enabled GPU (any modern NVIDIA graphics card). The better the card, the better the performance. Most laptop GPUs can get 2-5x speedup on our demos, while top-end GPUs can get 40x or better speedups.

For software, IDL 8.2 and CUDA 5.0 on OS X (10.7+), Windows (7, Server 2008), or Linux (CentOS5, CentOS6, RedHat Enterprise Linux 5, Fedora 16). If your software doesn't quite match up, I can usually make a custom build for you.

> Can you give any examples of the code usage? Like what will my IDL
> code now look like?

It could be as simple as:

```
gpuinit
dx = gpuFindgen(10)
dy = gpuFindgen(10)
dz = dx + dy
```

That last line could also be done this way:

```
dz = gpuFltarr(10)
dz = gpuAdd(dx, dy, LHS=dz)
```

which can be more efficient in certain situations.

There are basically a bunch of routines with the "gpu" prefix that have a similar interface as the normal IDL library routine, but take GPU variables instead of normal ones. See the API documentation link I gave above for a list of routines available.

There are also several demos in the trial that you can see speedups and browse example code.

> What about if I need to port the code to another workstation?

Should be fine (no modification) as long as the new workstation also meets the requirements above.

> Anything else a GPU newbie (but seasoned IDLer) should know or should
> ask?

Not that I can think of, but feel free to ask if you have any more questions!

Mike

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