
Subject: Re: using GpuLib in IDL

Posted by [Mort Canty](#) on Thu, 05 Jun 2008 17:36:35 GMT

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Allard de Wit schrieb:

> Dear all,
>
> After Davids report on the Numerical Analysis Techniques Session, I
> have been trying to get the GpuLib from TechX working on linux (Fedora
> 6). I post my findings here, maybe they are useful to others.
>
> 1. First of all you may want to check if your NVIDIA GPU is supported
> (http://www.nvidia.com/object/cuda_learn_products.html), in the end I
> found out mine wasn't ;-(.
>
> 2. Install the CUDA library from http://www.nvidia.com/object/cuda_get.html,
> I used the CUDA Toolkit version 1.1 for Fedora 7. Add '/usr/local/cuda/
> bin' to your shell path and '/usr/local/cuda/lib' to your ldconfig
> path.
>
> 3. Untar the gpulib package. You will end up with folder
> 'gpulib-0.3p1' with a couple of folders in there related to MatLab,
> IDL, Python and some library routines. There is also a folder 'doc'
> which contains the install-notes. Please ignore these, Peter Messner
> from TechX told me they are a leftover from another project. Instead
> relevant installation details are in the 'IDL/doc' folder
>
> 4. Run the configure script in the gpulib root folder, then run the
> make command. In my case the make failed at the following statement
> because of some dependencies to OpenGL:
> g++ -fPIC -shared -Bsymbolic --warn-once -o gpulib.so gpulib.o ../
> vectorOp/gpuVectorOp.o ../vectorOp/gpuMT.o ../physicsOp/
> gpuPhysicsOp.o -L/usr/local/cuda/lib -lcudart -lcublas -lcufft -IGL -
> IGLU
>
> According to Peter Messner the dependency on OpenGL wasn't necessary,
> therefore I run the following command manually (-IGL and -IGLU
> dependencies removed):
> g++ -fPIC -shared -Bsymbolic --warn-once -o gpulib.so gpulib.o ../
> vectorOp/gpuVectorOp.o ../vectorOp/gpuMT.o ../physicsOp/
> gpuPhysicsOp.o -L/usr/local/cuda/lib -lcudart -lcublas -lcufft
>
> This compiled succesfully.
>
> 5. Move to the 'IDL' folder and add it to your IDL_DLM_PATH variable.
> Start IDL and compile 'gpunit.pro'. Check whether your device is
> recognized with:
> IDL> Print, gpuDectectDevice()

>
> In my case IDL printed -1, showing that no GPU was detected and
> hardware emulation was enabled. Therefore I cannot show you any
> performance tests.
>
> Peter Messner made the following remark on suitable hardware:
> "Regarding hardware: We have had pretty good experience with the
> GeForce 8800 GTX or Ultra models. They are a bit on the expensive side
> (\$400-\$600) but they are worth the money. You would probably also need
> to upgrade your power supply."
>
> Hope this is useful.
>
> Allard

I was also inspired by David's report to look at GPULib. I'm running IDL 7 on Windows XP with a GeForce 8600GT card (CUDA compatible and cheap). Peter kindly sent me a build for IDL 7 on XP and, after mistakenly installing the CUDA Toolkit 2.0 beta (no joy), I got it up and running in hardware mode pretty quickly. Now I'm keen to start re-coding some of my routines and see what happens. Unfortunately, I have to go on a long weekend vacation and can't start playing around again till Monday. Rats :-(

Cheers anyway,

Mort

Subject: Re: using GpuLib in IDL
Posted by [russell.grew](#) on Tue, 10 Jun 2008 03:38:18 GMT
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Dear all,

Just incase anyone is interested, I got GPULib running on Gentoo linux using the ebuild from

http://bugs.gentoo.org/show_bug.cgi?id=167685

to install CUDA.

When configuring GPULib, I added the --disable-MATLAB option and --with-cuda-dir=/opt/cuda

No surprises after that.

The GPULib includes a few benchmarks, one of them, spiral.pro which displays a spiral on screen, unwraps it and coils it up again ran 50

times faster (256 MB nvidia card, a few years old).

Fun.

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Posted by [russell.grew](#) on Tue, 10 Jun 2008 03:55:59 GMT
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Subject: Re: using GpuLib in IDL
Posted by [russell.grew](#) on Tue, 10 Jun 2008 03:58:51 GMT
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Also, my card is only a 6800 GT, not listed on

http://www.nvidia.com/object/cuda_learn_products.html

If I do a

```
print, gpudetectdevice()
```

I get -1, but don't get any errors if I try and load hardware mode, eg:

```
gpuinit, /hardware
```

I am still seeing significant speed advantages. The benchmark, 'gpu_bench' has a speedup of ~1600 [and spiral.pro, ~50 as previously posted].
