Lab 0

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1 Objective

The purpose of this lab is to check your environment settings and to make sure you can compile and run CUDA programs on the environment you'll be using throughout the course. In this lab, you will:

- Get a copy of the assignment package and walk through the directory structure
- Set up the environment for executing the assignments
- Test the environment with a simple program that just queries what GPU device is attached

2 Activity

1. Login to kodiak3. On a Mac or Linux system open a terminal and type `ssh kodiak3.baylor.edu`, then enter your login information. On a Windows system, launch a secure shell app (in the Network Apps folder in the start menu) then use connect (sometimes called quick connect).
2. Now that you are in. We need to fix our default environment to allow us to support the latest version of cuda.
   (a) type `module list`.
   (b) If you see a cuda toolkit later than 10 you are good to go. If you don't then type `module avail`, and find the most recent cuda toolkit (highest revision number) and copy the full string (module name).
   (c) Edit your bash profile (`nano .bash_profile`) and add the following at the end of the file: `module load <module name you copied>`.
3. Type `mkdir code` then `cd code`. You will now clone the lab from github by typing

```
git clone https://github.com/Baylor-Massively-Parallel-Programming/mpplabs.git
```

4. Now type `cd mpplabs` and `ls`. We want to use the code in lab 0, so `cd lab0*` (note star is a regular expression that stands for anything).

5. We will now make the executable by typing `make`.

6. First trying running the executable on the login node (generally don't do this): `./device-query`. It will tell you there is no cuda device, since the login node of kodiak doesn't have any gpus.

7. We will now submit to one of the gpu queues using the `mpprun` script I described in the course videos.

3 Turn in

Copy the output from kodiak and put them in a pdf. This is very easy to do in LaTeX, for instance you could cut and paste the text from the file. Upload this to the course Canvas site. Note in this case you haven't modified any code so you don't need to upload anything. This is a Pass/Fail lab, that shows you could get the code from GitHub, run it on Kodiak, and produce a simple report in LaTeX.

4 Further Reading

In the class video on logging into Kodiak has a number of Kodiak References. They are very easy to read and will get you up to speed on using Kodiak.