Harness the Power of GPUs: An Introduction to GPGPU Programming

Lab 1: Introduction

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Goal

- Access “BlueWaters” as a leadership computing resource offering GPU acceleration
- Compile a sample CUDA program
- Run the sample program
Access to Blue Waters

- Every participant receives one training account

- Use your ssh client and login using traXXX account into bwbay.ncsa.illinois.edu

- It will ask for your name and email and connect you to Blue Waters

- Note: You cannot scp data onto Blue Waters, you can only push/pull data from the login node
Grab and unpack the lab material

• Pull the lab material from the IU website
  wget http://go.iu.edu/cn7

• Unpack the material
  tar xzvf course-material.tar.gz
Run a sample program

- **Grab an interactive session**
  
  ```
  qsub -I -l nodes=1:ppn=16:xk -l walltime=01:30:00
  ```

- **Load the CUDA toolkit**
  
  ```
  module load cudatoolkit
  ```

- **Go to lab 1**
  
  ```
  cd lab1
  ```

- **Compile the sample program**
  
  ```
  nvcc sample.cu
  ```

- **Run the sample program**
  
  ```
  aprun ./a.out
  ```