The OSU College of Engineering DGX System
for Advanced GPU Computing

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Performance Comparison with one of our previous Systems

How to SSH to the DGX Systems

Submitting a CUDA job to the DGX Systems using Slurm

BTW, you can also use the rabbit machine:
ssh rabbit.engr.oregonstate.edu
It is a good place to write your code and get it to compile.
It is not a good place to do the final run of your code.

Note: A single dash (-) is used for a single character flag
A double dash (--) is used for a word (more than a single character) flag
Auto-Notifications via Email

#SBATCH --mail-user=joeparallel@oregonstate.edu

You don’t have to do this, but if you do, please be sure you get your email address right!
The IT people are getting real tired of fielding the bounced emails when people spell their own email address wrong.

What Showed up in my Email (which I spelled correctly)

From: Slurm workload manager
Subject: Job id - Job status: Name=MatrixMul/Exted. Run time 00:00:12, COMPLETED
Submitted 2021-04-18T08:10:11

You don’t have to do this, but if you do, please be sure you get your email address right!
The IT people are getting real tired of fielding the bounced emails when people spell their own email address wrong.

Submitting a Loop

submitloop.bash:

bash code

GigaFlops during Matrix Multiplication

Results for Multiplying two 1024x1024 Matrices

GigaFlops

NUMT

(A CUDA block was actually NUMT\times NUMT threads)

Use slurm's scancel if your Job Needs to Be Killed

Submitting an OpenCL job to the DGX Systems using Slurm

submit.bash:

bash code
Here’s what printinfo got on one graphics card on the DGX System

Number of Platforms = 1

Platform #0:
  Name = NVIDIA CUDA
  Vendor = NVIDIA Corporation
  Version = OpenCL 1.2, CUDA 11.2.153
  Profile = FULL_PROFILE
  Number of Devices = 1

Device #0:
  Type = CL_DEVICE_TYPE_GPU
  Device ID = 0x10de (NVIDIA)
  Device Maximum Compute Units = 80
  Device Maximum Work Item Dimensions = 3
  Device Maximum Work Item Sizes = 1024 x 1024 x 64
  Device Maximum Work Group Size = 1024
  Device Maximum Clock Frequency = 1530 MHz

Device Extensions:
- cl_khr_global_int32_base_atomics
- cl_khr_global_int32_extended_atomics
- cl_khr_local_int32_base_atomics
- cl_khr_local_int32_extended_atomics
- cl_khr_fp64
- cl_khr_byte_addressable_store
- cl_khr_icd
- cl_khr_gl_sharing
- cl_nv_compiler_options
- cl_nv_device_attribute_query
- cl_nv_sparse adultos
- cl_nv_copy_opts
- cl_nv_create_buffer

For reference, rabbit’s graphics card has 55 Compute Units.

[Diagram showing the details of the NVIDIA CUDA device]