

## Hardware Configuration

Our final hardware configuration has been decided as the following.

- Dell PowerEdge R7515 (qty 5)
  - 2u Rack Mount Servers
  - Single AMD Epyc 7502P 2.5GHz 32-core processor
  - 128GB of DDR4 memory
  - Dell 1.6TB NVMe U.2 Drives (qty 12)
  - Mellanox ConnectX-6 HDR Adapter (HDR100 @ 100Gbps)
  - NVIDIA V100 Accelerator (qty 1)
- Mellanox HDR Fabric
  - Mellanox Quantum QM8700 Switch (qty 1)
  - Copper HDR Cables
- Ubiquiti EdgeRouter X

This hardware was chosen after careful consideration with Dell's HPC Innovation Lab personale after the application set was released. It is designed to straddle the power limit during the main portion of the competition and the team has tested various running parameters for the benchmarks to keep the system reigned in during that phase of the competition.

## Software Configuration

The AMD Rome hardware is hot off the presses. The cluster will run the latest patches from Centos 7, Mellanox, and Dell's firmware. The HPC Innovation Lab has assisted us with tuning the NUMA domains and fabric components for the best performance.

In addition to the operation system, we will attempt to run all the applications with AMD's latest version of the AOCC suite. However, we are also benchmarking with Intel's compiler as well.

Additional software components installed will be Slurm for workflow management and the BeeGFS file system for its ease of use and striped metadata performance.