

Canaan Cluster Configuration

Cluster description

A *head* (or *login*) *node* is the main point of contact for cluster users.

- has editors, compilers, etc. necessary for program development
- runs Ganglia (a web service) to provide cluster monitoring
- Significant computation should not be done on the head node

A *storage* (or *administration*) *node* handles nearly all cluster operations:

- hosts shared file system
- hosts Warewulf cluster management
- hosts cluster resource manager (SLURM)
- user account management

Cluster components

- Head/Login node
 - Supermicro X9SRE-3F
 - Intel Xeon ES-1620 v2 *Sandy Bridge* processor with 4 cores
 - 32GB RAM
- Storage/Administration node
 - Supermicro H8SGL-F
 - AMD Opteron 6320 *Piledriver* processor with 8 cores
 - 32GB RAM
 - LSI MegaRAID SAS 9280-16i4e
- 16 Supermicro X8DTT-HIBQF compute nodes
 - 13 nodes have dual Xeon E5645 2.40GHz 6-core *Nehalem* processors
 - 3 nodes have dual Xeon E5620 2.40GHz 4-core *Nehalem* processors
 - 24GB RAM each
- 2 Dell R520 compute nodes
 - dual Xeon E5-2450 2.10GHz 8-core *Sandy Bridge* processors
 - 64GB RAM
- Interconnects
 - QDR Infiniband connecting all compute nodes
 - 1 Gig Ethernet connecting all compute nodes, storage node, and head node
 - 10Gig Ethernet connecting storage node to Ethernet switch
- Backup Server (not yet set up)

Cluster network and name plan

- Internal network: 192.168.1.0/255.255.255.0
- Interface eth0 is used on each node for the internal cluster network

Node	Internal IP	IPMI IP	External IP	Internal Name	External Name
Head/Login	192.168.1.1 (eth0)	192.168.1.3	10.100.49.1 (eth1)	canaan	canaan.phys.gordon.edu
Storage/ Administration	192.168.1.2 (eth0)	192.168.1.4	10.100.49.2 (eth2)	manna	manna.phys.gordon.edu
Backup			10.100.49.3		NAME.phys.gordon.edu
Compute (Physics)	192.168.1.100 to 192.168.1.115	192.168.1.215 to 192.168.1.217		node00 to node15	
Compute (Chemistry)	192.168.1.116 to 192.168.1.117	192.168.1.216 to 192.168.1.217		node16 to node17	