ISLAMIC UNIVERSITY OF SCIENCE AND TECHNOLOGY, KASHMIR

CENTRE FOR ARTIFICIAL INTELLIGENCE

HIGH PERFORMANCE COMPUTING LAB

HEAD NODE — 1

- Dual Intel Xeon Gold 6242R CPUs (3.10GHz, 20 cores / 40 threads each)
- 1 TB RAM
- 2x960 GB SSD SATA and 24 TB@7.2K NLSAS Storage

TOTAL COMPUTE NODES — 9

- Three CPU Nodes each having dual Intel Xeon Gold 6242R CPUs, 512 GB RAM, 2x960 GB SSD SATA
- Three GPU Nodes with dual Intel Xeon Gold 6242R, 512 GB RAM, 2x960 GB SSD SATA
- One High End GPU Nodes with dual Intel Xeon Gold 6338, 1 TB RAM, 2 x 960 GB SSD
- Two High End GPU Nodes with dual Intel Xeon Gold 6338, 512 GB, 2 x 960 GB

GPU NODES — 3

- Three GPU Nodes
- Each node has dual Intel Xeon Gold 6242R CPUs
- 512 GB RAM
- 2 x 960 GB SSD SATA
- 1 x Nvidia Tesla V100 32GB Graphics Card

HIGH END GPU NODES — 3

1 (1)

- CPU: 2 × Intel Xeon Gold 6338 (32 Cores / 64 Threads Each) RAM: 1 TB, STORAGE: 2x960 GB SSD
- GPU: 4 × NVIDIA A100 80 GB PCIe

2 (2)

- Dual Intel Xeon Gold 6338 CPUs (32 cores / 64 threads each)
- 512GB RAM, STORAGE: 2X960 GB SSD
- 4 x Nvidia L40 48GB graphics cards with 10 VGPU perpetual Licenses

I/O NODES — 2

- 2 X Intel Xeon Gold 3.1G, 20 Cores / 40 Threads
- RAM: 128 GB (4 X 32 GB)
- Storage: 960 GB (2 X 480 GB SSD SATA)
- Cluster Storage:
  - 240 TB (60 X 4 TB HDD @ 7.2K SAS)
  - 5.4 TB (3 X 1.8 TB HDD @ 10K SAS)
  - Total Available Storage: 160 TB (RAID Configured)

NETWORK — 1

- Mellanox Switch with 100Gb/s speed
- 24-port Ethernet switch with 1 Gb/s
- 48-port Ethernet switch with 1 Gb/s for Management

SMART RACK - VERTIV — 1

- UPS: IGBT 20 kVA capacity in N+ N
- Rack: 2 x 42 U Racks type with 2100 (Height) x 800 (Width) x 1100 (Depth),
- Cooling: Rack based closed loop Air-Conditioning, 14KW N+1
- PDU: 2 PDU with 2 x C13/C20 socket is free in each PDU.
- Fire Safety & Security
- IP based Biometric Based Access Control
- Fire Alarm and Fire Suppression System
- Rodent Repellent System
- Monitoring

SOFTWARE STACK — 1

- OS: CentOS / Rocky Linux
- Schedular: Slurm Job Schedular
- Cluster Management Software: SAMOOH
- File System: PFS (Lustre)
- QEMU / KVM Virtualization

HPC AT A GLANCE

Node Type	Count	FP64 (TFLOPS)	FP32 (TFLOPS)
GPU Node(s) (1x V100 32 GB, Xeon 6242R)	3	35.31	82.50
CPU Node(s) (2x Xeon 6242R)	3	11.91	23.70
GPU MIG Node(s) (1x A100 80 GB, Xeon 6338)	1	77.00	624.00
GPU Node(s) with vGPUs (2x L40 48 GB, Xeon 6338)	2	13.80	364.00
Total Cluster Performance		138.02	1094.20

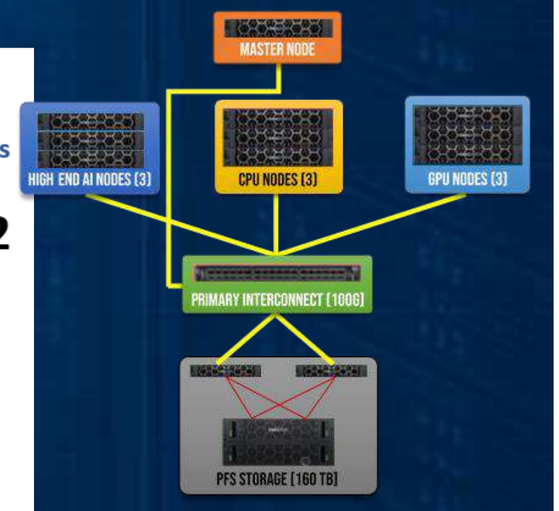
432 Compute Cores

1,15,712 CUDA Cores

1,640 Tensor Cores

11 GPUs

160 TB Storage



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