# PARAM SHIVAY Software Environment

## C-CHAKSHU
MULTI CLUSTER MONITORING PLATFORM

SUM

CHReME

Suparikshan

Geo-spatial

CFD CSM
& SDP

Computational
Biology

Earth Sciences

## HPC Applications


Email: hpcs@cdac.in

प्रगत संगणन विकास केंद्र
CENTRE FOR DEVELOPMENT OF ADVANCED COMPUTING
सी-डैक इनोवेशन पार्क, स. न. 34/ब/1, पंचवटी, पाषाण, पुणे – 411008, भारत
C-DAC Innovation Park, S.No. 34/B/1, Panchavati, Pashan Pune - 411008, India.
फ़ोन / Tel: +91-20-2550 3100, 549, 544, 567 फैक्स / Fax : +91-20-2550 3131

www.cdac.in

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# *Defining Extreme Science & Engineering*


परम शिवाय

PARAM SHIVAY

# PARAM SHIVAY System Configuration

## System Specifications

| | |
|---|---|
| **Theoretical Peak Floating-point Performance Total (Rpeak)** | 837 TFLOPS |
| **Sustained Performance (Rmax)** | 425 TFLOPS (CPU only Nodes) + 100 TFLOPS (GPU Nodes) |
| **Base Specifications (Compute Nodes)** | 2 X Intel Xeon Skylake 6148, 20 Cores, 2.4 GHz, Processors per node, 192 GB Memory, 480 GB SSD |
| **Master/Service/Login Nodes** | 10 nos. |
| **CPU only Compute Nodes (Memory)** | 192 nos. (192GB) |
| **High Memory Nodes** | 20 nos. (768GB) |
| **GPU Compute Nodes** | 11 nos. (22 Nvidia V100 PCIe) |
| **Total Memory** | 54.3 TB |
| **Interconnect** | Primary:100Gbps Mellanox Infiniband Interconnect network 100% non blocking, fat tree topology<br>Secondary: 10G/1G Ethernet Network<br>Management network: 1G Ethernet |
| **Primary Storage** | Lustre based Primary storage 750 TiB usable with 25 GB/Sec write throughput |
| **Archival Storage** | Archival Storage 250 TiB usable capacity based on DDN Gridscaler (GPFS) with 1GB/sec write throughput |

## CPU only Compute Nodes

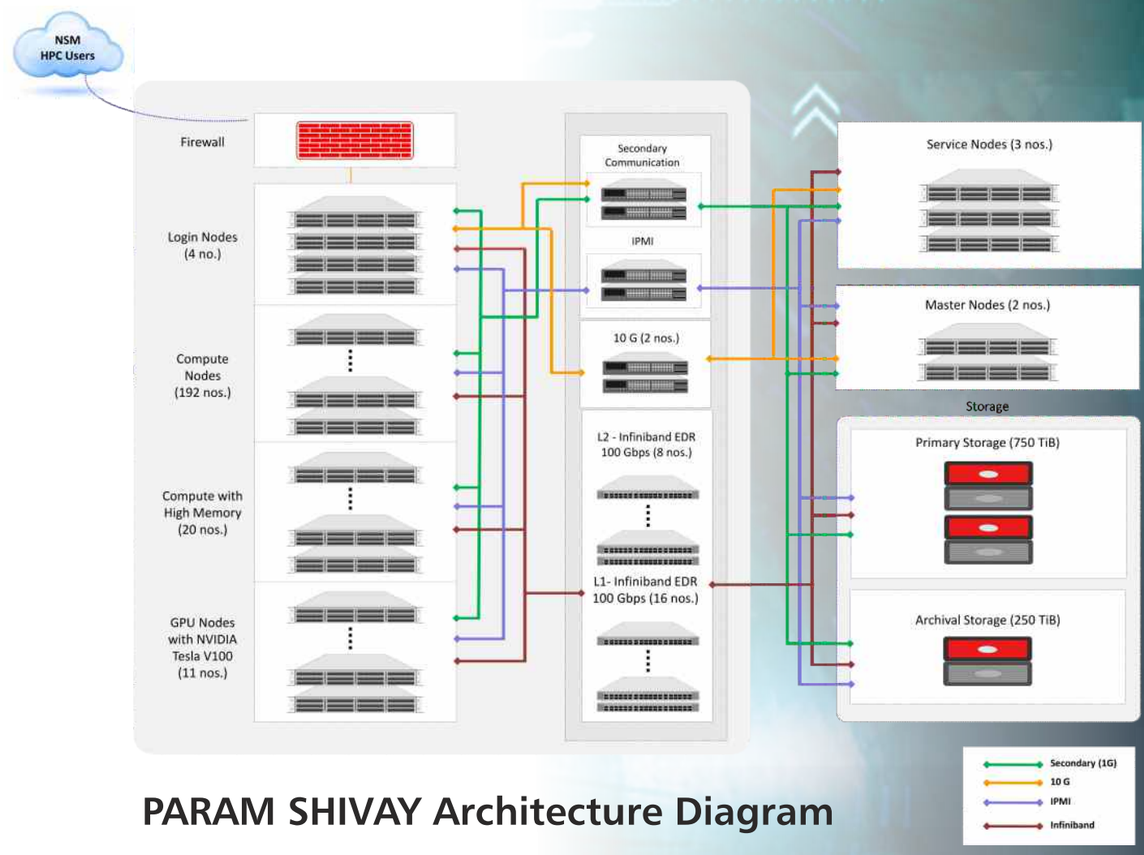
- 192 Nodes
- 7680 Cores
- Compute power of Rpeak 589 TFLOPS
- Each Node with
  - 2 X Intel Xeon Skylake 6148, 20 cores, 2.4 GHz, processors
  - 192 GB memory
  - 480 GB SSD

## High Memory Compute Nodes

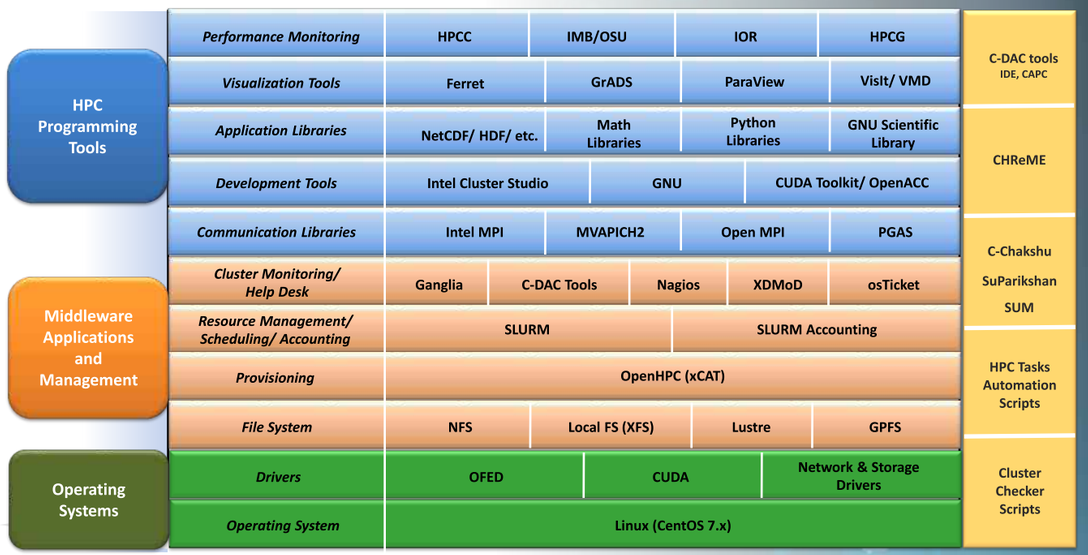
- 20 Nodes
- 800 Cores
- Compute power of Rpeak 61 TFLOPS
- Each Node with
  - 2 X Intel Xeon Skylake 6148, 20 Cores, 2.4 GHz,Processors
  - 768 GB Memory
  - 480 GB SSD

## GPU Compute Nodes

- 11 Nodes
- 440 CPU cores
- Compute power of Rpeak 187 TFLOPS
- Each Node with
  - 2 X Intel Xeon Skylake 6148, 20 Cores, 2.4 GHz, Processors
  - 192 GB Memory
  - 480 GB SSD
  - 2xNvidia V100 PCIe accelerator cards each with 5120 CUDA cores,16 GB HBM2




## PARAM SHIVAY Architecture Diagram




## C-DAC HPC System Software Stack