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PARAM SUPERCOMPUTING SYSTEMS

For Enquiry : contact nsmsupport@cdac.in

प्रगत संगणन विकास केंद्र
CENTRE FOR DEVELOPMENT OF ADVANCED COMPUTING

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About C-DAC

(C-DAC) Centre for Development of Advanced Computing is an autonomous Scientific Society established in 1988 under the Ministry of Electronics & Information Technology, Government of India to carry out Research & Development in Information & Communication Technology, Electronics, and associated areas.

NSM - Phase I, II, and III

Phase I and Phase II

Sr. No.	Institute Name	HPC System Name	Computing Power
1	IIT(BHU), Varanasi	PARAM Shivay	838TF
2	IISER, Pune	PARAM Brahma	1.7PF
3	IIT, Kharagpur	PARAM Shakti	1.66PF
4	JNCASR, Bangalore	PARAM Yukti	1.8PF
5	IIT, Kanpur	PARAM Sanganak	1.66PF
6	C-DAC, Pune	PARAM Siddhi	5.2PF/210PF (AI)
7	IIT, Hyderabad	PARAM Seva	838TF
8	NABI, Mohali	PARAM Smriti	838TF
9	IISc, Bangalore	PARAM Pravega	3.3PF
10	C-DAC, Bangalore	PARAM Utkarsh	838TF
11	IIT, Roorkee	PARAM Ganga	1.66PF
12	IIT, Gandhinagar	PARAM Ananta	838TF
13	NIT, Trichy	PARAM Porul	838TF
14	IIT, Guwahati	PARAM Kamrupa	838TF
15	IIT, Mandi	PARAM Himalaya	838TF
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Phase I and Phase II - Total Compute Power			24PF

Phase III

Sr. No.	Proposed HPC System under Phase III	Computing Power
1	IIT Bombay	3.0PF
2	IUAC Delhi	3.0PF
3	IIT Madras	3.0PF
4	National HPC Facility at C-DAC, Pune	20.0PF
5	NCRA, Pune	1.0PF
6	IIT Patna	833TF
7	S. N. Bose Institute, Kolkata	1.0PF
8	IIT Delhi 250 AI PF	6.0PF
9	NIC Delhi 50 AI PF	1.3PF
Phase-3 Total compute Power		~ 40PF

**Phase I + Phase II + Phase III
Total: 64PF**

National Supercomputing Mission (NSM)

The National Supercomputing Mission (NSM) which is being steered jointly by the Ministry of Electronics & Information Technology (MeiTY) and the Department of Science and Technology (DST) and implemented by the Centre for Development of Advanced Computing (C-DAC) and Indian Institute of Science (IISc), Bangalore, has progressed significantly. The four major pillars of the NSM, namely, Infrastructure, Applications, R&D, HRD, have been functioning efficiently to realize the goal of developing the indigenous supercomputing eco-system of the nation.

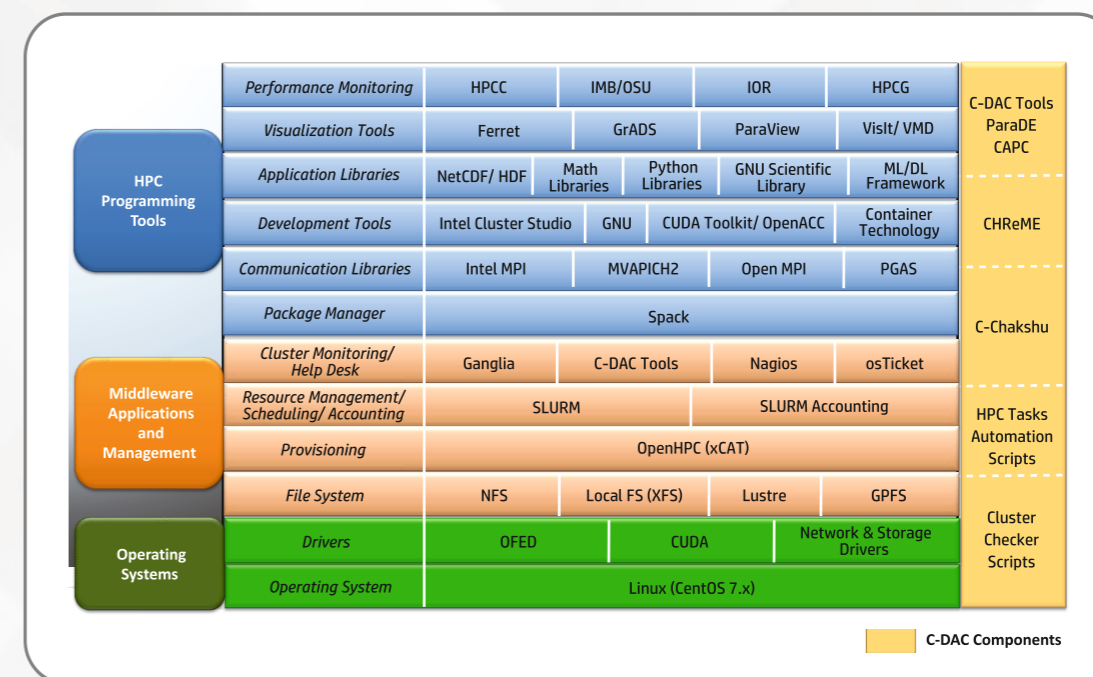
C-DAC has been entrusted the responsibility to design, development, deployment, and commission the supercomputing systems under the build approach of Mission. The build approach consists of three Phases and aims for complete self-reliance in the field of High-Performance computing. The Mission plans to build and deploy 24 facilities with cumulative compute power of more than 64 Petaflops. Till now C-DAC has deployed 15 systems at IISc, IITs, IISER Pune, JNCASR, NABI-Mohali, and C-DAC under NSM Phase-1 and Phase-2 with a cumulative compute power of more than 24 Petaflops. As of November 2022, nearly 5000 researchers across the nation had successfully run a total of 60,00,000 computational jobs on the NSM systems. The supercomputer infrastructure installed at various Institutes across the country has helped the R&D community to achieve major milestones, objectives, and products for scientific and societal applications.

Under the build approach, C-DAC is building an indigenous supercomputing ecosystem in a phased manner, which is leading to indigenously designed and manufactured supercomputers. It has designed and developed a compute server "Rudra" and high-speed interconnect "Trinetra" which are the major sub-assemblies required for supercomputers.

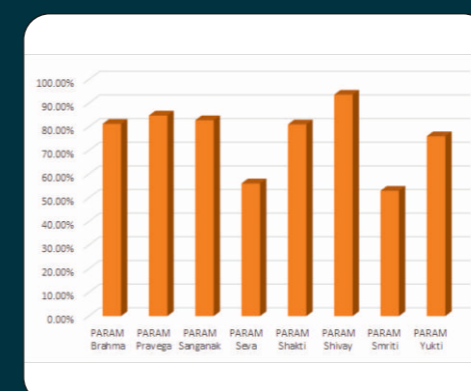
Some of the large-scale applications which are being developed under NSM include the following.

- NSM Platform for Genomics and Drug Discovery.
- Urban Modelling: Science-Based Decision Support Framework to Address Urban Environment Issues (Meteorology, Hydrology, Air Quality).
- Flood Early Warning and Prediction System for River Basins of India.
- HPC Software Suite for Seismic Imaging to aid Oil and Gas Exploration.
- MPPLAB: Telecom Network Optimization.

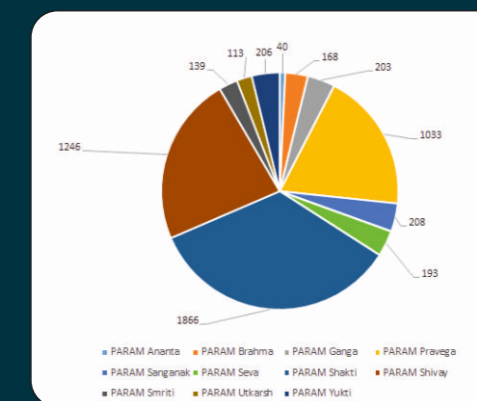
C-DAC HPC System Software Stack



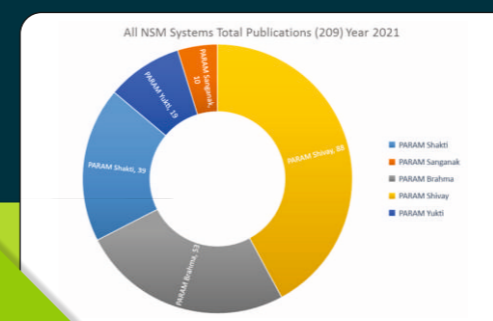
Usage Statistics



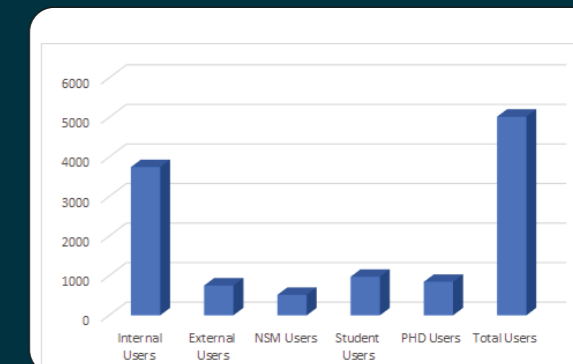
System Utilization of NSM Systems



Tickets Resolved all across NSM Sites



Publications



User Categories all across NSM Sites