



PARAM PORUL Supercomputing Facility

Why in News?

PARAM PORUL, a state-of-the art **Supercomputer at NIT Tiruchirappalli** under [National Supercomputing Mission \(NSM\)](#) was inaugurated.

- PARAM PORUL supercomputing facility is established **under Phase 2 of the NSM**. Majority of the components have been manufactured and assembled within the country, along with an indigenous software stack developed by C-DAC, in line with the [Make in India initiative](#).

What are the Features of PARAM PORUL?

- PARAM PORUL system is equipped with a mix of CPU (Central Processing Unit) nodes, GPU (Graphics Processing Unit) nodes, High Memory nodes, High throughput storage and high-performance InfiniBand interconnect to cater the computing needs of various scientific and engineering applications.
- This system is based on **Direct Contact Liquid Cooling technology** to obtain a high-power usage effectiveness and thereby reducing the operational cost.
- Multiple applications from various scientific domains such as Weather and Climate, Bioinformatics, Computational Chemistry, Molecular Dynamics, Material Sciences, Computational Fluid Dynamics etc. have been installed on the system for the benefit of researchers.

What is the National Supercomputing Mission?

- **In 2015**, the National Supercomputing Mission was launched to enhance the research capacities and capabilities in the country by connecting them to form a Supercomputing grid, with National Knowledge Network (NKN) as the backbone.
 - The NKN project is aimed at establishing a strong and robust Indian network which will be capable of providing secure and reliable connectivity.
 - A supercomputer is a computer that performs at or near the currently highest operational rate for computers.
- The Mission **plans to build and deploy 24 facilities with cumulative compute power of more than 64 Petaflops**.
 - Generally, PETAFLOP is a measure of a Supercomputer's processing speed and can be expressed as a thousand trillion floating point operations per second.
- It **supports the government's vision of 'Digital India' and 'Make in India' initiatives**.
- The Mission is being **jointly steered by the Department of Science and Technology (DST) and the Ministry of Electronics and Information Technology (MeitY)**.
 - It is **implemented by the Centre for Development of Advanced Computing (C-DAC), Pune, and the IISc, Bengaluru**.
- The mission was planned in **three phases**:
 - Phase I looking at assembling supercomputers,
 - Phase II looking at manufacturing certain components within the country.
 - Phase III where a supercomputer is designed by India.
- **Recent developments under National Supercomputing Mission**:
 - Under Phase 1 & Phase 2, 15 systems with computer power of 22 Petaflops (PF) have been built at IIT's, C-DAC, NIT, JNCASR, and IISER.

- NSM deployed **“PARAM Ganga”** at IIT Roorkee in March 2022 with a supercomputing capacity of 1.66 Petaflops as a part of phase 2.
- **PARAM Siddhi-AI** is the fastest supercomputer in India built under NSM with a capacity of 5.26 PF.
 - Japan’s Fugaku is the world’s fastest supercomputer.

Source: PIB

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