



C-DAC's MoUs on Supercomputing

 drishtias.com/printpdf/c-dac-s-mous-on-supercomputing

Why in News

Recently, the **Centre for Development of Advanced Computing (C-DAC)** under the **Ministry of Electronics and Information Technology (Meity)** has signed 13 MoUs with the **premier academic and research and development (R&D)** institutions of India.

Key Points

- **Aims behind the Move:**
 - To **establish supercomputing infrastructure** with assembly and manufacturing in India and **critical components** of the **National Supercomputing Mission**.
 - **Supercomputing** has **applications** in so many areas like computational biology and chemistry, molecular dynamics, national security, **big data** analytics, government information systems, and so on.
 - It becomes a powerful tool, paired with **artificial intelligence (AI) and machine learning (ML)**, enabling it to empower people and make India ready to tackle future challenges.
 - To develop **India's indigenous hardware** encompassing **exascale** chip design, design and manufacture of exascale server boards, exascale interconnects and storage including **silicon-photonics** at C-DAC to **achieve complete self-reliance** envisioned under the **Aatmanirbhar Bharat** Initiative.
 - **Exascale computing** refers to computing systems capable of calculating at least 10^{18} floating-point operations per second.
 - **Silicon photonics** is an evolving technology in which data is transferred among computer chips by optical rays. Optical rays can carry far more data in less time than electrical conductors.

- **National Supercomputing Mission:**

- It was **announced in 2015**, with an aim to connect national academic and R&D institutions with a grid of more than 70 high-performance computing facilities at an estimated cost of **Rs. 4,500 crores** over a **period of seven years**.
- It supports the government's vision of '**Digital India**' and '**Make in India**' initiatives.
- It is being implemented by the **Department of Science and Technology (DST)** and **Department of Electronics and Information Technology (DeitY)** through **C-DAC and Indian Institute of Science (IISc)**, Bangalore.
- **The Mission envisages:**
 - To improve the number of **supercomputers** owned by India.
 - To **build a strong base of 20,000 skilled persons** over a period of five years who will be equipped to handle the complexities of supercomputers.
 - To empower Indian national academic and R&D institutions to spread over the country by **installing a vast supercomputing grid** comprising more than 70 **high-performance computing (HPC)** facilities.

India's Top Five Supercomputers

Indian Institute of Tropical Meteorology India	Pratyush - Cray XC40, Xeon E5-2695v4 18C 2.1GHz, Aries interconnect Cray Inc.	4,006.2 TFlop/s
National Centre for Medium Range Weather Forecasting India	Mihir - Cray XC40, Xeon E5-2695v4 18C 2.1GHz, Aries interconnect Cray Inc.	2,808.7 TFlop/s
Software Company (M) India	InC1 - Lenovo C1040, Xeon E5-2673v4 20C 2.3GHz, 40G Ethernet Lenovo	1,413.1 TFlop/s
Supercomputer Education and Research Centre (SERC), Indian Institute of Science India	SERC - Cray XC40, Xeon E5-2680v3 12C 2.5GHz, Aries interconnect Cray Inc.	1,244.2 TFlop/s
Indian Institute of Tropical Meteorology India	iDataPlex DX360M4, Xeon E5-2670 8C 2.600GHz, Infiniband FDR IBM	790.7 TFlop/s

- **PARAM 8000**, considered to be **India's first supercomputer** was indigenously built in **1991** by C-DAC.
- **SUMMIT (USA)** is the **fastest supercomputer in the world** which can deliver upto 187,659.3 TFlop/s.

Source: PIB