GOVERNMENT OF INDIA
MINISTRY OF ELECTRONICS AND INFORMATION TECHNOLOGY
**LOK SABHA**
**UNSTARRED QUESTION NO. 2084**
TO BE ANSWERED ON: 12.03.2025

## NATIONAL SUPERCOMPUTING MISSION

**†2084. SHRI CHANDAN CHAUHAN:**
**SHRI NALIN SOREN:**

Will the Minister of ELECTRONICS AND INFORMATION TECHNOLOGY be pleased to state:

(a) the details and the number of supercomputing units installed in various educational institutions under the National Supercomputing Mission along with the present status of their utilization; and
(b) the details of the overall impact of the said supercomputing units in research and development along with the areas related to the said units in which the Government proposes to make improvements?

**ANSWER**

MINISTER OF STATE FOR ELECTRONICS AND INFORMATION TECHNOLOGY
(SHRI JITIN PRASADA)

(a) to (b):The National Supercomputing Mission (NSM) was initiated in April 2015 by the Government of India with a budget outlay of Rs.4,500 crore for seven years. Its vision is to achieve self-reliance and global leadership in supercomputing by giving access of state-of-the-art supercomputing facilities to researchers, addressing grand challenges, optimizing investments, and enhancing global competitiveness in key areas of supercomputing technologies.

The NSM is being jointly implemented by the Ministry of Electronics and Information Technology (MeitY) and the Department of Science and Technology (DST). MeitY and DST are implementing this initiative through Centre for Development of Advanced Computing(C-DAC), Pune and Indian Institute of Science (IISc), Bengaluru. The mission is currently extended till December, 2025.

Under the National Supercomputing Mission (NSM), an ecosystem has been established with the focused goal of achieving self-reliance in supercomputing, encompassing the design, development, and manufacturing of supercomputers, as well as the creation of a complete system software stack and associated applications.

India has now the capability of designing, developing and manufacturing supercomputing technologies indigenously, which will reduce dependency on imports of supercomputing technologies from other countries. This approach is in line with the Hon’ble Prime Minister's vision of "India’s mantra is Atmanirbharta (self-reliance) through research, Science for Self-Reliance."

Hon’ble Prime Minister Shri Narendra Modi on 26$^{th}$ September, 2024 dedicated three PARAM Rudra supercomputers to the young researchers, scientists and engineers of nation facilitating advanced studies in physics, earth sciences, and cosmology. These supercomputers have been deployed in Pune, Delhi and Kolkata to facilitate pioneering scientific research. Giant Metre Radio Telescope (GMRT- 1Petaflop) in Pune will leverage the supercomputer to explore astronomical phenomena. Inter-University Accelerator Centre (IUAC- 3 Petaflops) in Delhi will enhance research in fields like material science and atomic physics. S.N. Bose Centre for Basic Sciences (S.N. Bose- 838 Teraflops) in Kolkata will drive advanced research in areas such as physics, cosmology, and earth sciences. It is worth

reiterating that all these systems have been designed, developed and manufactured entirely within the country.

PARAM Rudra supercomputers are built using indigenously designed and manufactured High-Performance Computing servers, known as "Rudra", along with an indigenously developed system software stack. "Rudra" Server is the first of its kind in India which is at par with globally available other HPC class Servers. These servers are being manufactured in India by local manufacturers boosting local electronics industries.

Under NSM, as of 05th March 2025, a total of 34 supercomputers **(Annexture – I)** with a combined compute capacity of 35 Petaflops, have been deployed across various academic institutions, research organizations, and R&D labs, including prominent institutions like IISc, IITs, C-DAC, and other institutions from Tier-II and Tier III cities of the country under NSM. The supercomputing systems commissioned under NSM have achieved an overall utilization rate of over 85%, with many systems exceeding 95%, demonstrating a high level of usage and efficiency in their computational capacity. The contribution of these supercomputing systems to the Research and Development (R&D) sector has been highly impactful, facilitating over 10,000 researchers, including more than 1,700 PhD scholars from over 200 academic institutions and R&D labs across the country. These supercomputing systems have supported research in critical domains such as Drug Discovery, Disaster Management, Energy Security, Climate Modeling, Astronomical Research, Computational Chemistry, Fluid Dynamics, and Material Research. NSM has created opportunities for researchers from Tier II and Tier III cities to conduct research by providing access to state-of-the-art supercomputing facilities. These researchers have completed over 1 crore compute jobs and published more than 1,500 papers in leading national and international journals. Additionally, more than 22,000 individuals have been trained in HPC and AI skills. Start-ups and MSMEs are leveraging these supercomputing resources to advance their HPC-driven projects.

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**Annexure-I**

**Details of Supercomputers installed under NSM with compute capacity**

| Sl. No. | State/UT | Name of the institution Installed at | Name of Supercomputer | Compute Capacity | Year of Commission |
|---|---|---|---|---|---|
| 1. | Maharashtra | C-DAC, Pune, National AI Facility | PARAM Siddhi | 6.5PF/210PF (AI) | 2020 |
| 2. | Karnataka | IISc, Bangalore | PARAM Pravega | 3.3PF | 2022 |
| 3. | Maharashtra | IIT Bombay | PARAM Rudra | 3 PF | 2025 |
| 4. | Delhi | Inter-University Accelerator Centre(IUAC), Delhi | PARAM Rudra | 3 PF | 2024 |
| 5. | Karnataka | Jawaharlal Nehru Centre for Advanced Scientific Research(JNCASR), Bangalore | PARAM Yukti | 1.8PF | 2020 |
| 6. | Maharashtra | IISER, Pune | PARAM Brahma | 1.7PF | 2020 |
| 7. | West Bengal | IIT, Kharagpur | PARAM Shakti | 1.66PF | 2020 |
| 8. | Uttar Pradesh | IIT, Kanpur | PARAM Sanganak | 1.66PF | 2020 |
| 9. | Uttarakhand | IIT, Roorkee | PARAM Ganga | 1.66PF | 2022 |
| 10. | Delhi | NIC, Delhi | PARAM System | (50 AI PF/ 1.3 PF) | 2024 |
| 11. | Maharashtra | Giant Metrewave Radio Telescope (GMRT) -National Centre for Radio Astrophysics, (NCRA), Pune | PARAM Rudra | 1.0 PF | 2024 |
| 12. | Uttar Pradesh | IIT(BHU), Varanasi | PARAM Shivay | 838TF | 2019 |
| 13. | Telangana | IIT, Hyderabad | PARAM Seva | 838TF | 2021 |
| 14. | Punjab | National Agri-Food Biotechnology Institute, Mohali(NABI), Mohali | PARAM Smriti | 838TF | 2021 |
| 15. | Karnataka | C-DAC, Bangalore, National MSME Facility | PARAM Utkarsh | 838TF | 2021 |
| 16. | Gujarat | IIT, Gandhinagar | PARAM Ananta | 838TF | 2022 |
| 17. | Tamil Nadu | NIT, Trichy | PARAM Porul | 838TF | 2022 |
| 18. | Assam | IIT, Guwahati | PARAM Kamrupa | 838TF | 2022 |
| 19. | Himachal Pradesh | IIT, Mandi | PARAM Himalaya | 838TF | 2022 |
| 20. | West Bengal | S. N. Bose National Centre for Basic Sciences, Kolkata | PARAM Rudra | 838 TF | 2024 |
| 21. | Maharashtra | C-DAC, Pune | Bioinformatics R&D Facility | 230 TF | 2021 |
| 22. | Delhi | C-DAC, Delhi | PARAM Rudra | 200 TF | 2024 |
| 23. | Maharashtra | C-DAC, Pune | SANGAM Testbed | 150 TF | 2017 |
| 24. | Maharashtra | C-DAC, Pune | PARAM Shrestha | 100 TF | 2018 |
| 25. | Maharashtra | C-DAC, Pune | PARAM Embrio | 100 TF | 2020 |
| 26. | Maharashtra | C-DAC, Pune | PARAM Neel | 100 TF | 2020 |

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| 27. | Tamil Nadu | Society for Electronic Transactions and Security, (SETS), Chennai | PARAM Spoorthi | 100 TF | 2020 |
| 28. | Karnataka | C-DAC, Bangalore | System Software lab | 82TF | 2020 |
| 29. | Maharashtra | C-DAC, Pune | PARAM Vidya | 52.3 TF | 2022 |
| 30. | West Bengal | IIT, Kharagpur | PARAM Vidya | 52.3 TF | 2022 |
| 31. | Kerala | IIT, Palakkad | PARAM Vidya | 52.3 TF | 2022 |
| 32. | Tamil Nadu | IIT, Chennai | PARAM Vidya | 52.3 TF | 2022 |
| 33. | Goa | IIT, Goa | PARAM Vidya | 52.3 TF | 2022 |
| 34. | Maharashtra | C-DAC, Pune | PARAM Sampooran | 27 TF | 2020 |
| | **Total** | | | **35 PF** | |

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