

PARAM Shivak-Supercomputer Built under NSM to Strengthen the R&D Activities in the Country



Supercomputer 'PARAM Shivak' built under NSM by C-DAC

The first supercomputer was designed and built under the National Supercomputing Mission (NSM) by the Centre for Development of Advanced Computing (C-DAC) at Indian Institute of Technology, Varanasi. The C-DAC is a scientific society of the Ministry of Communication and Information Technology, Government of India. The facility was dedicated to the scientific community of the country to strengthen its R&D work. The supercomputer was named “PARAM Shivak”, and it uses more than one lakh twenty thousand compute cores (CPU+GPU cores) to offer a peak compute power of 833 TeraFlops.

The PARAM Shivak endeavors to provide computational resource based capacity building with help of advanced technologies to perform high-end computations for scientific, engineering and academic programs to address and catalyze the research using modeling, simulation, and data analysis.

The supercomputer developing program of India dates back to 1980's when import of Cray Supercomputers was not possible due to technology imposed embargo. It was a dual-use technology which WAS used for developing nuclear weapons. To meet high-speed computational needs, the C-DAC was setup with a mandate to develop an indigenous supercomputer in year 1988. In 1991, the C-DAC developed India's first indigenously built supercomputer, the PARAM 8000. The Indian Institute of Tropical Meteorology (IITM), Pune,

hold Pratyush, a Cray XC40 system, which is an array of computers aimed to deliver a peak power of 6.8 petaflops, and is the fastest supercomputer in India. It was launched in 2018, and it is the fourth fastest High Performance Computer (HPC) dedicated to climate modeling in the world. Some of the other top ranked computers include ‘*Mihir*’ at National Centre for Medium Range Weather Forecasting, Noida, ‘*InCI*’ at Software Company (M) India, ‘*SERC*’ at Indian Institute of Science, Bengaluru, and ‘*iDataPlex*’ IITM, Pune.

The PARAM Shavak will help India to build a high performance computing (HPC) skilled workers at grass root levels for promoting of research activities by integrating leading-edge emerging technologies. With emerging needs among academicians and students, scope and complexities of computational needs continue to increase at university and college levels.

The supercomputer provides affordable solution to academic institutions to competitive in current times, and to provide job opportunities youth of the country. Some of the major objectives of the initiative include: To make India world leader in Supercomputing and to enhance capability in solving grand challenges of national and international significance, to empower our scientists and researchers with state-of-the-art supercomputing facilities and enable them to carry out cutting-edge research in their respective areas, to develop HPC conscious skill manpower for meet the different challenges faced during development of such applications, and to reduce the redundancies and duplication of efforts, and optimize investments in supercomputing, and attain global competitiveness and ensure self-reliance in the strategic area of supercomputing technology

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