

INDIA SET TO TRIPLE SPEED OF ITS FASTEST SUPERCOMPUTERS

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May 24, 2023 09:05 pm | Updated 11:04 pm IST - NEW DELHI

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Pratyush, one of India's most powerful, civilian supercomputers, is housed at the Indian Institute of Tropical Meteorology, Pune. Photo: tropmet.res.in

India is set to dramatically scale up its super-computing prowess and install an 18-petaflop system over the course of this year, Ministry of Earth Sciences (MoES) Minister Kiren Rijiju said on May 24. Flops (floating point operations per second) are an indicator of computers processing speed and a petaflop refers to a 1,000 trillion flops. Processing power to such a degree greatly eases complex mathematical calculations required, for among other things, forecasting how the weather will be over the next few days all the way up to two-three months ahead.

Currently India's most powerful, civilian supercomputers — [Pratyush](#) and Mihir — with a combined capacity of 6.8 petaflops are housed at the Indian Institute of Tropical Meteorology (IITM), Pune, and the National Centre for Medium Range Weather Forecasting (NCMRWF), Noida, respectively. They were made operational in 2018 at an investment of 438 crore. Both these organisations are affiliated to the MoES.

The new supercomputers too will be housed at the IITM and NCMRWF, M. Ravichandran, Secretary, MoES, said at an event on May 24 where Mr. Rijiju visited the NCMRWF. This was his first official visit to an MoES institution since taking over charge as MoES Minister on May 18.

The new supercomputers, yet to be named, are imported from French corporation, ATOS — an information technology service and consulting company. The Modi Government signed a deal in December 2018 with France to procure high-performance computers worth 4,500 crore by 2025. The new earth-sciences Ministry computers are likely to cost 900 crore.

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“Every 4-5 years systems have to be upgraded. Our current hpc allows us to map weather and climate changes to a resolution of 12*12 km,” said Mr. Ravichandran, “With the new system we can improve resolution to 6*6 (km).” This means that, like cameras, four times as many pixels can be used to represent a given area providing greater clarity and more accurate local forecast.

“The goal is eventually to be able to represent an area by 1 km-square grids and that can be used to warn of cloudburst and such rapidly evolving weather systems,” he added.

The fastest high-performance computing system in the world is currently the Frontier-Cray system at Oakridge National Laboratory, United States. This has a peak speed of 1 exa-flop (or about 1,000 petaflops). The top 10 other systems, based on speed, range from about 400 petaflops to 60 petaflops.

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