



Eni launches new supercomputer HPC6 that ranks No.5. in the TOP500 list

Eni's commitment to supercomputing is at the core of its decarbonisation strategy, supporting the creation and growth of new businesses related to the energy transition.

San Donato Milanese (Milan), 19 November 2024 - Eni announces the completion and launch of a new supercomputing system (High Performance Computing - HPC) HPC6. HPC6 provides a significant increase in computational power to a peak of 606 PFlop/s, or over 600 quadrillion mathematical operations per second. The system has achieved a debut ranking of No.5. in the new TOP500's list (released on November 18, 2024) of super computers. This is an excellent result that ranks HPC6 as first supercomputer in Europe, the world's first industrial-use supercomputer and the only non-US system among the top 5 in the world.

The launch of HPC6 marks a pivotal moment in Eni's decarbonisation strategy, where technology and innovation differentiate Eni's approach and deliver value creation through the development of new businesses related to the energy transition.

For years, Eni has been leveraging supercomputing to optimize industrial plant operations, enhance the accuracy of geological and fluid dynamics studies for CO₂ storage, develop more efficient batteries, optimize the biofuel supply chain, and develop innovative materials for applications in biochemistry. Eni has also used supercomputing to simulate plasma behavior in magnetic confinement fusion. HPC6's significant computing power will continue the acceleration of Eni's transformation process, enabling the identification of innovative, scalable, and economically sustainable solutions, and accelerating the development of new, high-potential businesses related to the energy transition.

The availability of a high computing power, such as HPC6, further strengthens the relationship between Eni and its Satellite companies and will play a key role in building new partnerships. Eni has always placed technology and innovation at the center of its strategy. It was one of the first companies in the world to invest in high-performance computing for industrial use. In recent years, the company has increasingly applied its research in computing across its work in the energy transition.

Eni's CEO stated, Claudio Descalzi: *"Innovation and the constant evolution of technologies are fundamental to maintaining and strengthening Eni's leadership in the energy transition. Technological advancements allow us to use energy more efficiently by reducing emissions and promoting the development of new energy solutions. We have integrated supercomputing throughout our entire business chain, transforming it into an indispensable lever for achieving Net Zero and creating value. Eni has developed a unique heritage of technological knowledge and programming that gives us a competitive advantage on the international stage and supports the speed of our transformation while simultaneously driving our growth."*

Specifically, Eni's new HPC system delivers a significant increase from the 70 PFlop/s of HPC4 and HPC5 to over 600 peak PFlop/s of HPC6, representing an increase in computing capacity of an order of magnitude. Based on cutting-edge architecture similar to the most powerful systems worldwide, HPC6 combines CPUs and GPUs in a hybrid configuration, with over 3400 compute nodes and nearly 14,000 GPUs, optimizing both computational performance and energy efficiency.

HPC6 is installed in a dedicated area within Eni's Green Data Center, one of the most energy-efficient data centers in Europe among the best for its low carbon footprint. From its start the primary

objectives have been operational efficiency and the minimization of environmental impact, placing sustainability at the core of its mission. This goal has been achieved through the implementation of a new liquid cooling system, which can improve energy efficiency by optimizing the absorption of heat generated by the new machine. Eni's Green Data Center enables the company to combine skills, technologies, and diverse business lines to support the energy transition, operating as a globally advanced energy center in Ferrera Erbognone, near Milan.

With HPC6, Eni strengthens its leadership in high-performance computing for industrial applications and reaffirms its position as a technology-driven company supporting the energy transition.

TECHNICAL NOTE TO EDITORS:

1. HPC6 employs HPE's Cray EX4000 and Cray ClusterStor E1000 systems.
2. Computing power: the system can reach an impressive peak computing power of over 606 PFlop/s (Rpeak) and 477 PFlops "sustained" (Rmax), making it one of the most advanced supercomputing infrastructures in the world.
3. Node Composition: each node consists of a 64-core AMD EPYC CPU [™] and four high-performance AMD Instinct[™] MI250X GPUs.
4. Size: the system includes 3472 computing nodes housing a total of 13,888 GPU.
5. High-performance networking: The HPE Slingshot network provides high-speed, low-latency interconnect between nodes, facilitating high speed rapid data transfer.
6. Cooling system: the system uses a direct liquid cooling technology that dissipates 96% of generated heat.
7. Power consumption: the system has a maximum power consumption of 10.17 MVA.

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