



Press release

Joliot-Curie: the most powerful supercomputer dedicated to research in France

Paris, June 29, 2020 – [Atos](#), a global leader in digital transformation, and [GENCI](#), the French national high-performance computing organization, and the [CEA](#), reveal that **Joliot-Curie supercomputer with its 22 petaflop/s peak computing power** is the most powerful supercomputer in France dedicated to academic and industrial open research, and the third most powerful research computer in Europe, [according to the TOP500 ranking published on 22 June 2020](#). This supercomputer is derived from the co-design work carried out by the CEA with Atos for more than 20 years¹, and which made it possible to define current power computing architectures. The Joliot-Curie supercomputer ranks in 34th position in the TOP500 and is powered by Atos' [BullSequana XH2000 platform](#) and the latest AMD Rome processors.

Nearly one year on from its [inauguration](#), Joliot-Curie is now operating at full speed for the last 6 months and has been extensively used in over a dozen academic and industrial fields such as climate, astrophysics, geophysics, high fidelity combustion, biology, molecular dynamics and material properties, genome and neuroscience fields.

Operated at the CEA's Very Large Computing Centre (TGCC), this extraordinary machine has proven its capabilities to provide [urgent computing access](#) to large scale HPC resources in the fight against COVID-19 less than 2 months after being released in production, thanks also to strong support provided by CEA experts who set up the necessary environment to operate and post-process efficiently COVID-19 simulations.

As part of the [PRACE \(Partnership for Advanced Computing in Europe\) COVID-19 Fast Track call](#) and the national urgent COVID-19 calls from GENCI, European scientists have been using French supercomputer resources to power 36 COVID-19 projects with 18 of these

running on Joliot-Curie, providing scientific results used to accelerate and support public decision-making for the fight against Covid-19 and speed up the development of a treatment based on an optimum knowledge of the virus.

Since January 2020, Joliot-Curie now boasts an extensive computing power with more than 440,000 high performance x86 cores in nearly 5000 of HPC nodes. It is the first [supercomputer installed worldwide](#) with AMD EPYC™ 7H12 series processors integrated in Atos' latest [BullSequana XH2000](#), which features DLC (Direct Liquid Cooling) for an optimized energy-efficient platform.

Stephane Requena, CTO of GENCI, said: *"With its modular and balanced architecture, Joliot-Curie is one of the most-used systems in the PRACE European HPC infrastructure; we are really proud to be able to offer such computing power to European researchers, in particular in the fight against COVID-19".*

Helene Bringer, Director Big Data & HPC at Atos in France, added: *"Each new Top500 ranking underlines the rapid pace of innovation in the field of High Performance Computing. With six supercomputers, including Joliot Curie, we are proud to be ranked among the top 50 leaders in the world thanks to our extremely high-performance BullSequana technology, and to contribute to industrial and scientific competitiveness in Europe."*

Christine Ménaché, Head of the CEA's Very Large Computing Center (TGCC) said: *"All the TGCC teams have been mobilized to support users in their use of this new AMD-Rome partition in Joliot-Curie, particularly those involved in projects against COVID-19. The CEA is proud to be able to support French and European research thanks to its expertise developed in the definition of computer center architectures, the implementation and use of supercomputers and their environment, notably through Joliot-Curie".*

The AMD partition of Joliot-Curie was funded under the European project PPI4HPC (H2020-754271), which aims to acquire innovative computing and storage solutions, through a joint procurement coordinated by GENCI, for leading HPC centers CEA/GENCI, CINECA (Italy), JUELICH (Germany) and BSC (Spain).

Additionally, GENCI, CEA and Atos are proud to announce the acquisition of a new state-of-the-art ARM A64FX Fujitsu partition under PPI4HPC to further increase the capabilities of the Joliot-Curie machine and support building the path to Exascaleⁱⁱ for European and French researchers.

About Atos

Atos is a global leader in digital transformation with 110,000 employees in 73 countries and annual revenue of € 12 billion. European number one in Cloud, Cybersecurity and High-Performance Computing, the Group provides end-to-end Orchestrated Hybrid Cloud, Big Data, Business Applications and Digital Workplace solutions. The Group is the Worldwide Information Technology Partner for the Olympic & Paralympic Games and operates under the brands Atos, Atos|Syntel, and Unify. Atos is a SE (Societas Europaea), listed on the CAC40 Paris stock index.

The purpose of Atos is to help design the future of the information space. Its expertise and services support the development of knowledge, education and research in a multicultural approach and contribute to the development of scientific and technological excellence. Across the world, the Group enables its customers and employees, and members of societies at large to live, work and develop sustainably, in a safe and secure information space.

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About GENCI

GENCI is a civil society under French law, 49% owned by the State represented by the Ministère de l'Enseignement Supérieur de la Recherche et de l'Innovation (MESRI), 20% by CEA, 20% by CNRS, 10% by the Universities represented by the Conférence des Présidents d'Universités and 1% by Inria. Created in 2007 by the French public authorities, GENCI is aimed at placing France among the leading countries within Europe and on the international stage in HPC and AI. In this context, GENCI has the missions to implement the French national strategy by equipping with HPC and massive data storage resources the three national computing centres in order to support scientific open research, to contribute building an European integrated HPC ecosystem and to promote AI, numerical simulation and HPC within the academic and industrial research communities.

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About CEA

The CEA is a French public research organisation serving industry, specialising in four main areas: energy transition and low-carbon energies, digital transformation, health and biotechnologies, defence and security. It carries out the missions entrusted to it by the French government. With its 20,000 employees and 9 research centres equipped with very large infrastructures, the CEA relies on fundamental research of excellence. It is involved in national, European and international projects with a wide range of academic and industrial partners. The CEA ranks as the leading research organisation filing patents in France and Europe according to the Clarivate ranking (2019).

For more information: <http://www.cea.fr/english>

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ⁱ CEA's initial contract started with Bull, which was acquired by Atos in 2014 and is now fully integrated into Atos

ⁱⁱ The exascale is the exaflop scale, knowing that one exaflop corresponds to one billion billion operations per second.