BRUYERES-LE-CHATEL,
3 JUNE 2019

PRESS RELEASE

From 9.4 to 22 petaflops in 2020

Inauguration of Joliot-Curie, the French supercomputer dedicated to French and European research

At 9.4 petaflops, Joliot-Curie is France's third supercomputer and is set to become the most powerful French research supercomputer in 2020 when it reaches 22 petaflops. Designed by the European leader in supercomputing, Atos, for the French national high-performance computing organisation (GENCI), this new supercomputer located at the CEA's Very Large Computing Centre (TGCC) was inaugurated on 3 June 2019 by François Jacq, CEA Chairman, Thierry Breton, Atos CEO, and Philippe Lavocat, GENCI CEO.

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The Joliot-Curie supercomputer has been customised by street artist Christian Guémy, a.k.a. C215, by painting the faces of Irène and Frédéric Joliot-Curie. This artistic performance is a world first. @CEA

Joliot-Curie, GENCI's new and powerful supercomputer hosted by CEA

Designed by Atos for GENCI, the Joliot-Curie supercomputer is based on Atos' BullSequana architecture, delivering a peak power of 9.4 petaflops, representing a 4.5 increase in computing capacity compared to its predecessor, Curie, with almost half the power consumption. It will reach 22 petaflops of processing power by 2020.

Joliot-Curie is France's third supercomputer ranked in the Top 500 in terms of power, just behind Tera-1000-2 and Pangea[1]. Its computing power is equivalent to 75,000 desktop computers and will support researchers for projects requiring heavy computing and data processing. This supercomputer offers truly astounding RAM capacity with 400 terabytes. It also includes a 5-petabyte data storage capacity with a 300 GB/s bandwidth, remote data visualisation and virtualisation services. This makes Joliot-Curie an especially well-balanced machine that meets the needs both for large-scale computer simulations and for processing the large amounts of data generated.

Its computing power will be more than doubled in 2020 to reach 22 petaflops or 22 million billion operations per second. It will then become the third most powerful research supercomputer in Europe and no. 1 in France. The Joliot-Curie supercomputer will be increasing its power in order to keep up with the international race towards exascale, i.e. a computing power of one billion billion operations per second, which represents a strategic goal for the competitiveness of stakeholders in the digital economy.

Thanks to the investment made by GENCI, a non-commercial company whose shares are held by the French State via the Ministry of Higher Education, Research and Innovation, CEA, CNRS, various universities, and Inria, Joliot-Curie will also ensure that France meets its commitments in terms of computing power made available to European researchers in the context of the PRACE European computing infrastructure[2].

[1] Total Group supercomputer
[2] Partnership for Advanced Computing in Europe.

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A much-needed tool for scientific and industrial research

Supercomputers have greatly improved over time and are now used in various research fields since they allow for computer simulation[3] to be applied across all academic disciplines. Joliot-Curie has already been tested as part of the *Grands Challenges* (Great challenges), organised by GENCI at the TGCC, by running major simulations and other applications.

Computer simulation and high-performance computing have now become essential scientific tools to improve knowledge, design and decision-making processes in fundamental and applied research fields, and an increasing number of industrial sectors.

CEA's TGCC is a very large computing centre based in Bruyères-le-Châtel (Essonne *département*) and dedicated to very high-performance computing in scientific fields. Alongside Cobalt, a supercomputer targeting the industrial sector, TGCC now hosts the new Joliot-Curie supercomputer, which aims to meet research computing needs. Joliot-Curie is currently used in over a dozen fields such as climate, astrophysics and geophysics, biology, molecular dynamics and material properties, and will also be applied to the genome and neuroscience fields in the near future.

3 Calculations performed to represent a complex physical, biological, chemical phenomenon on a computer