



Credits CEA

<i>TERA 100, a bullx petascale cluster by Bull</i>	
<i>TGCC Très Grand Centre de Calcul du CEA</i>	
<i>TERATEC Campus</i>	<i>TGCC</i>

CEA's leadership position in the world of research is built on a cross-disciplinary culture of engineers and researchers, ideal for creating synergy between fundamental research and technology innovation. With its 15,600 researchers and collaborators, it has internationally recognized expertise in its areas of excellence and has developed many collaborations with national and international, academic and industrial partners.

In 2012, with 566 patents registered, CEA is ranked second patent filer in France and remains the top-ranked public research agency. To date, nearly 160 innovative companies have been created based on technologies or expertise developed by CEA.

CEA is also deeply involved in the development of key enabling technologies (KETs), such as micro- and nano-electronics which are a foundation of HPC.

HPC is a universal, pervasive and essential tool for all areas of scientific and technological research and innovation. CEA divisions make intensive usage of HPC in a wide diversity of areas, including:

- Fundamental research: astrophysics, plasma physics, materials sciences, nanotechnologies, particle physics
- Energy: solar cells, fuel cells, design and safety of nuclear power plants, fusion for energy
- Life sciences and health: medical imaging, neurosciences, genomics, protein engineering, bio-energies
- Global security: natural hazards assessment and prevention (earthquakes, tsunamis), non-proliferation



[www.cea.fr](http://www.cea.fr)

A founding member of ETP4HPC, the French Alternative Energies and Atomic Energy Commission (CEA) leads research, development and innovation in four main areas: low-carbon energy sources, global defense and security, information technologies and healthcare technologies.

#### **HPC at CEA** [www-hpc.cea.fr/index-en.htm](http://www-hpc.cea.fr/index-en.htm)

CEA supercomputing complex at Bruyères-le-Châtel near Paris operates world-class supercomputers and offers HPC services to research, industry and defence:

- TGCC (Très Grand Centre de Calcul du CEA) facility hosts GENCI's CURIE, a 2 Pflop/s bullx cluster used for national and European research (CURIE is a PRACE tier-0 system)
- CCRT (Centre de Calcul Recherche et Technologie) delivers 300 Tflop/s of highly secured HPC cycles and related services to more than 10 industrial partners
- Computing and storage services for FRANCE GENOMIQUE national consortium for genomics and bio-informatics are hosted at TGCC  
<https://www.france-genomique.org>
- TERA 100, a 1.25 Pflop/s bullx cluster, first petascale machine designed and built in Europe, is dedicated to defence and global security applications

CEA HPC division has active R&D in all HPC topics from hardware, middleware, file systems and storage, to numerical algorithms, meshing and visualization. CEA is also part of Exascale Computing Research Lab with Intel.

<http://www.exascale-computing.eu>

Next to TGCC at Bruyères-le-Châtel, TERATEC Campus offers 13,000 square meters of offices in the first European Technopole dedicated to Simulation and High Performance Computing.

<http://www.teratec.eu/gb/technopole/campus.html>