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Press release

International research on controlled nuclear fusion (ITER project): Bull is selected to provide the supercomputer to be installed in Rokkasho (Japan)

- On behalf of F4E¹, the CEA is responsible, together with JAEA², for the construction and operation of the computing centre hosting the supercomputer on the site at Rokkasho.
- The "bullx" supercomputer will provide the modelling and simulation capacities planned as part of the Broader Approach Activities associated with ITER.
- The peak performance of the supercomputer of almost 1.3 petaflops³ places it among the most powerful systems in the world.
- It will be the third supercomputer developed by Bull exceeding the petaflops threshold.

Paris, 13 April 2011:

The CEA, appointed by F4E, has selected Bull to provide, maintain and operate the computer which is to be installed at Rokkasho (Japan), at the International Fusion Energy Research Center (IFERC). This computer is intended to allow the most advanced modelling and simulation in the field of plasmas and controlled fusion equipment. It will be available to European and Japanese researchers for a period of five years from January 2012.

The computer centre is one of the components⁴ of the Broader Approach agreement, a complement to the ITER project which began in October 2007 as part of a framework of cooperation between Japan and Europe. F4E should coordinate the European contribution to the Broader Approach Activities as JAEA should be the Japanese counterpart.

The supercomputer will exceed the petaflops performance and will be the third

¹F4E, Fusion For Energy, European "domestic" agency for the construction of ITER and the "Broader Approach".

²JAEA, Japan Atomic Energy Agency, Japanese "domestic" agency for the construction of ITER and the "Broader Approach".

³Petaflop: One million billion operations per second.

⁴The other components of this joint research and development program are mainly: the Tokamak JT60-SA installed in Japan and the IFMIF/EVEDA accelerator dedicated to research on the resistance of materials to neutrons.

machine designed and developed by Bull reaching this level of performance. Today, supercomputers are used by many research and production centres around the world, in fields such as energy, life and health sciences, climate research, automotive, aeronautics, finance and risk analysis.

Because of its expertise in the field of high performance computing, CEA has been entrusted by F4E to run the full operation for Europe. The operational control of the computer centre will be overseen on site by a CEA director assisted by a deputy from JAEA.

JAEA contribution to the project includes the delivering and managing part of the infrastructure required to host the supercomputer as well as local support for users and programmers.

High density computing power

The new supercomputer is designed to be operational 24 hours per day. Its peak performance of almost 1.3 petaflops places it among the most powerful systems in the world. The computing components combine, within a "cluster" architecture, 4410 blades bullx® series B including 8820 Intel® Xeon® processors of the "Sandy Bridge" type and 70,560 cores. The supercomputer is equipped with a memory exceeding 280 terabytes and a high bandwidth storage system of more than 5.7 petabytes, supplemented by a secondary storage system designed to support 50 petabytes. The connection network for the cluster is based on InfiniBand® technology.

To supplement the computing component, 36 bullx® series S systems and 38 bullx® series R systems will be used for the cluster's administration; for management of the Lustre® file systems and for user access.

Bull will also provide 32 bullx® series R systems including high-performance graphics cards for pre-and post processing and visualization.

The supercomputer will be equipped with the bullx® supercomputer suite advanced edition, the software suite developed and optimized by Bull for petaflop class systems based on the Linux® operating system and including many Open Source components.

Full range of services

Bull will be responsible for the design and realization of the electrical and liquid cooling infrastructures within the computer rooms. It will also be responsible for installation, maintenance and operation of the supercomputer and its peripheral equipment for five years.

For all these services, Bull will be assisted by its local partner SGI Japan Ltd. The installation of the supercomputer in Rokkasho will start in June this year.

More information about F4E: <http://fusionforenergy.europa.eu/>

Press contacts

Barbara Coumaros - +33 685 52 84 84 - barbara.coumaros@bull.net

Marie Vandermersch - +33 164 50 17 16 - marie.vandermersch@cea.fr